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GLOBAL VALUE CHAINS AND LABOUR MARKET DYNAMICS IN SOUTH AFRICA



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ABBREVIATIONS

AATP	Accelerated Artisan Training Project
ABET	Adult Basic Education and Training
ACRA	Automotive Component Remanufacturer's Association
AfDB	African Development Bank
Afriwu	Agricultural, Food, Fishing and Retail Industry Workers' Union
AFSA	Aluminum Federation of South Africa
AgriSETA	Agricultural Sector Education Training Authority
AISI	Aerospace Industry Support Initiative
AMCU	Association of Mineworkers and Construction Union
AMD	South Africa Aerospace Maritime and Defence Industries Association
AMEO	Automobile Employer Organisation
AMSA	ArcelorMittal South Africa
APAP	Agricultural Policy Action Plan
ARA	Industry Association for Responsible Alcohol Use
ARC	Agricultural Research Council
ASEAN	Association of Southeast Asian Nations
ASTPM	Association for Tube and Pipe Manufacturers
ATC	Agreement on Textiles and Clothing
ATRP	Artisan Training Recognition Programme
AU	African Union
AWETUC	Agricultural Workers' Empowerment Trade Union Council
BAWUSA	BAWSI Agricultural Workers Union of South Africa
BCCEI	Bargaining Council for the Civil Engineering Industry
BCEA	Basic Conditions of Employment Act
BCNTMI	Bargaining Council for the New Tyre Manufacturing Industry
BCFRRCAT	Bargaining Council for the Food, Retail, Restaurant, Catering and Allied Trades
BCRCAT	Bargaining Council for the Restaurant, Catering and Allied Trades
BOB	Black Owned Brands
BPeSA	Business Process enabling South Africa
BPO	Business Process Outsourcing
BPS	Business Process Services
CAEO	Cape Agri Employers Organisation
CAIA	Chemical and Allied Industries' Association
CAPES	Confederation of Associations in the Private Employment Sector
CASP	Comprehensive Agricultural Support Programme
CATRA	The Restaurant and Food Services Association of South Africa
CCMA	Commission for Conciliation, Mediation and Arbitration
CEA	Constructional Engineering Association (South Africa)
CEFA	Cape Engineers and Founders Association
CEPPWAWU	Chemical Energy Paper Printing Wood and Allied Workers Union
CEOSA	Consolidated Employers Organisation of South Africa
CEU	The Catering Employees' Union
CHE	Council for Higher Education
CIETA	Chemical Industries' Education & Training Authority
CCRED	Centre for Competition, Regulation and Economic Development
COMRO	Chamber of Mines Research Organisation
COMESA	Common Market for Eastern and Southern Africa
CONMESA	Construction and Mining Equipment Suppliers' Association
COSM	Committee of Secondary Manufacturers
CRI	Citrus Research International
CSIR	Council for Scientific and Industrial Research
CUP	Contractors Upliftment Programme
DAFF	Department: Agriculture, Forestry and Fisheries
DCL&D	Denel Centre for Learning & Development
DICHAWU	The Distributive, Catering, Hotels and Allied Workers' Union
DHET	Department of Higher Education and Training

DST	Department of Science and Technology
DTI	Department of Trade and Industry
EAF	Electric Arc Furnace
ECC	Employment Conditions Commission
ECIC	Export Credit and Insurance Company
EDD	Economic Development Department
EPCM	Engineering, Procurement and Construction Management
ERA	Engine Remanufacturer's Association
ESTA	Extension of Security of Tenure Act, 1997
ETQA	Education Training Quality Assurers ETQA
FAWU	Food and Allied Workers Union
FCPI	Forestry Contractors Productivity Initiative
FDI	Foreign Direct Investment
FEDHASA	Federated Hospitality Association of Southern Africa
FEOSA	Federated Employers Organisation of South Africa
FET	Further Education and Training
FIVCRT	Fruit Industry Value Chain Round Table
FOSATU	Federation of South African Trade Unions
PFEF	Fresh Produce Exporters' Forum
FRA	Fuel Retailers' Association of South Africa
FSA	Forestry South Africa
FSA	Fruit South Africa
FSC	Forestry Stewardship Council
GATT	General Agreement on Trade and Tariffs
GDP	Gross Domestic Product
GE	General Electric Company
GVC	Global Value Chain
GESAT	General Electric South Africa Technologies
HAPEC	Hydraulic and Pneumatic Export Cluster
HDGASA	Hot Dip Galvanizers Association of Southern Africa
HEQC	Higher Education Quality Council
HSRC	Human Science Research Council
ICT	Information and Communication Technology
IDC	Industrial Development Corporation
IDZ	Industrial Development Zone
IFA	International Framework Agreement
ILO	International Labour Organisation
IMF	International Monetary Fund
IPAP	Industrial Policy Action Plan
IPF	Industry Policy Forum
IPR	Intellectual Property Rights
ISF	International Steel Fabricators
ISIC	International Standard Industrial Classification
IUF	International Union of Food and Allied Workers
KZNEIA	KwaZulu Natal Engineering Industries Association
KAW	Kaapse Agri Werkgewersorganisasie
LRA	Labour Relations Act
LRS	Labour Research Service South Africa
LWO	Landbou Werkgewers Organisasie
MDA	Motorcycle Dealers' Association
MERSETA	Manufacturing, Engineering and Related Services Education and Training Authority
MEWUSA	Metal and Electrical Workers Union of South Africa
MEIBC	Metal and Engineering Industry Bargaining Council
MFIBC	Motor Ferry Industry Bargaining Council
MIBCO	Motor Industry Bargaining Council
MISA	Motor Industry Staff Association
MITB	Motor Industry Training Board
MIWA	Motor Industry Workshop Association of South Africa
MNE	Multi National Enterprise
MPEA	Motor Parts & Equipment Association

MQASETA	Mining Qualifications Authority SETA
MTSF	Medium Term Strategic Framework
MVA	Manufacturing Value Add
NAACAM	National Association of Automotive Components and Allied Manufacturers
NAAMSA	National Association of Automobile Manufacturers of South Africa
NADA	National Automobile Dealers' Association
NAFU	National African Farmers Union of South Africa
NBCCI	National Bargaining Council for the Chemical Industry
NBCLI	National Bargaining Council for the Leather Industry
NBCRFLI	National Bargaining Council for the Road Freight and Logistics Industry
NBF	National Bargaining Forum
NBI	National Business Initiative
NCPC-SA	National Cleaner Production Centre of South Africa
NDP	National Development Plan
NEASA	National Employers Association of South Africa
NEDLAC	National Economic Development and Labour Council Act
NEHAWU	National Education, Health and Allied Workers Union
NFTN	National Foundry Technology Network
NICISEMI	National Industrial Council for the Iron, Steel, Engineering and Metal Industries
NICMI	National Industrial Council for the Motor Industry
NPO	Non-Profit Organisation
NPSWU	National Public Service Workers Union
NQF	National Qualifications Framework
NSDS	National Skills Development Strategy
NSS	National Statistical System
NT	National Treasury
NTI	National Tooling Initiative
NUFAWU	National Union of Furniture and Allied Workers of South Africa
NUM	National Union of Mineworkers
NUMSA	National Union of Metalworkers of South Africa
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturers
OFO	Organising Framework for Occupations
OHSA	Occupational Health and Safety Act
PCASA	Plastics Convertors Association of South Africa
PIAAC	Programme for the International Assessment of Adult Competencies
PLAAS	Institute for Poverty, Land and Agrarian Studies.
POLASA	Power Line Association of South Africa
PRASA	Passenger Rail Agency of South Africa
QAP	Quality Assurance Partners
QCTO	Quality Council for Trades and Occupations
QES	Quarterly Employment Survey
QLFS	Quarterly Labour Force Survey
R&D	Research and Development
RECSA	Rail Equipment Cluster of South Africa
RMI	Retail Motor Industry Organisation
RPL	recognition of prior learning
RRA	Rail Road Association
SAACSA	South African Automotive Component Suppliers Association
SAAM	South African Automotive Masterplan
SAAWU	South African Association of Water Utilities
SACCAWU	South African Commercial Catering and Allied Workers' Union
SACEEC	South African Capital Equipment Export Council
SADC	Southern African Development Community
SADFIA	South African Diesel Fuel Injection Association
SAEEC	South African Electrotechnical Export Council
SAEFA	South African Engineers and Founders Association
SAEWA	South African Equity Workers Association
SAFCEC	South African Federation of Civil Engineering Contractors
SAIF	Southern African Institute of Forestry

SAISC	Southern African Institute of Steel Construction
SAISI	South African Iron and Steel Institute
SALBA	South African Liquor Brand owners Association
SAMBRA	South African Motor Body Repair Association
SAMCA	Southern African Metal Cladding and Roofing Association
SAMWU	South African Municipal Workers' Union
SANDF	SA National Defence Force
SAMPEC	South African Mineral Processing Equipment Cluster
SAPMA	South African Paint Manufacturers Association
SAPRA	South African Petroleum Retailers Association
SAQA	South African Qualifications Authority
SAQF	South African Qualifications Framework
SASFA	Southern African Light Steel Frame Building Association
SASQAF	South African Statistical Quality Assessment Framework
SASSDA	South African Stainless Steel Development Association
SAVABA	South African Vehicle and Body Builders' Association
SAVAMA	SA Valve & Actuator Manufacturers Association
SAWA	South African Wire Association
SAWIS	South African Wine Information and Systems
SAWPA	South African Wood Preservers Association
SAWU	South African Workers Union
SCIEA	Surface Coatings Industry Employers' Association
SEAWU	Steel Engineering and Allied Workers Union
SEIFSA	Steel and Engineering Industries Federation of South Africa
SETA	Sector Education and Training Authority
SIC	Standard Industrial Classification
SIZA	Sustainability Initiative of South Africa
SMME	Small, Medium and Micro Enterprises
SOE	State Owned Enterprises
STEASA	Steel Tube Export Council
STEM	science, technology, engineering and mathematics
SWH-MANCOSA	Solar Water Heating Manufacturers Cluster of South Africa
TBC	Transnet Bargaining Council
TDAFA	Tyre Dealers' and Fitment Centre Association
TDM	Tool, Die and Mould-making
TES	Temporary Employment Services
TETA	Transport Education and Training Authority
TIPS	Trade & Industrial Policies Strategies
TLIU	Technology Localisation Implementation Unit
TLU SA	Transvaal Agricultural Union of South Africa
TVET	technical and vocational education and training
UASA –The Union	United Association of South Africa
UIF	Unemployment Insurance Fund
UN	United Nations
UNDP	United Nations Development Programme
UNIDO	United Nations Industry Development Organisation
UNSD	United Nations Statistics Division
VAMCOSA	Valve and Actuator Manufacturers Cluster of South Africa
VCRT(s)	Value Chain Round Table(s)
VETA	Vehicle Testing Association
WIETA	Wine Industry Ethical Trade Association
WISE	Wine Industry Strategic Exercise
WIVCRT	Wine Industry Value Chain Round Table
WOSA	Wine of South Africa
WSP	Work Place Skills Plans
WRI	Water Research Institute
WTO	World Trade Organization

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EXECUTIVE SUMMARY

This research study's terms of reference was to investigate how the activities of global value chains (GVCs) have impacted on employment as well as whether the current regulatory model that governs South Africa's labour markets is appropriate and whether it effectively embraces changing labour relations. Executing the research brief involved the selection of activities to types of GVCs that has impacted on employment trends and the functioning of South Africa's labour market institutions, including skills development issues. Producer-dominated value chains such as metal fabrication, capital, rail transport equipment, the automotive industry and buyer-dominated value chains such as the fruit and wine industry have had diverse impacts on employment and the determination of wages and conditions of employment, as reflected in this summary of the research findings and recommendations:

1. Global value chains and employment creation

It is evident that South African and foreign-owned multinational enterprises (MNEs) have historically played various significant roles in the development of global economic activities. Critical has been the support provided by government in the development of local capabilities in areas such as R&D, innovation, infrastructure, skills development and trade regulation. A number of MNEs were able to locate their activities in SA as part of unique global production networks. The localisation programmes of the DTI and support programmes of DAFF are critical to the positioning of local enterprises in the GVC and employment creation initiatives.

The alignment of labour market institutions remain an area of concern. Foremost is its ability to respond to the adoption of changing business models characterised by cost reduction strategies, especially involving the proliferation of outsourcing and the deployment of modern technologies such as ICTs in production and distribution processes. The review of standardised employment practices and the increased prevalence of categories of employment, namely temporary employment practices, including seasonal work and casualisation trends and the positions of SMMEs in the value chain are receiving unprecedented attention.

However, it is hard to statistically ascertain these changing employment trends in relation to GVCs' activities in South Africa using official statistics such as the QLFSs and/or administrative data. Official employment data is only available for the 21 sections of the Standard Industrial Classification (SIC), but is not disaggregated at the division, major group, group and subgroup levels to enable the analysis of trends. A significant amount of administrative data collected by business associations or other agencies are either not electronically stored or quality-assured with reference to SASQAF.

2. The legislative framework and architecture of labour market institutions and its outputs and outcomes

South Africa's labour market legislation has historically facilitated a self-regulatory labour relations environment. This has involved the establishment of collective bargaining forums where organised business and labour have organisational presence and sufficient representation to facilitate the development of industrywide methods of determining wages and conditions of employment in terms of the LRA. Labour market arrangements in the mining, manufacturing, financial services and transport sectors have largely been governed this way.

In an environment where this has not been possible, the regulatory framework required the Minister of Employment and Labour to establish sufficient structures and processes to determine minima in terms of the BCEA. Wages and conditions of employment in the agricultural and forestry sectors have largely been determined by the ECC established by the Minister. Only recently has a national minimum wage for all sectors been established. All the aforementioned sectors are also regulated by health, safety and unemployment insurance arrangements as determined by the Occupational Act and the UIF Act. NEDLAC, which involves government, organised business, labour and community stakeholders, seeks to govern social dialogue on social and economic issues.

2.1. The scopes of bargaining councils, sectoral determinations and demarcations

The scopes of bargaining councils governing labour market arrangements, within which the metal fabrication, capital, rail transport equipment and automotive value chains are located, was agreed to between organised labour and business have been certified by the Registrar of Labour in terms of Part C, sections 27-29 of the LRA. A process to the establishment of statutory bargaining councils also empowered NEDLAC to perform initial demarcations. However, most of the bargaining councils have been established historically and were subject to review by the 1996 Presidential Commission to Investigate the Development of a Comprehensive Labour Market Policy.

What has emerged as a critical consideration in the demarcation discussion has been value chains' importance. What is evident is that value chains have only recently become part of the national discourse about economic growth and development, including labour markets. Most of the deliberations to date have focussed on the classification of economic sectors that was later partly derived from definitions advocated by the UN ISIC through a system of classifying economic activities that was adopted globally in 1948. The 1956 Industrial Conciliation Act established an industrial tribunal charged with advising the Minister of Labour on the issuing of determinations demarcating economic sectors for the establishment of the scopes of industrial councils.

The organisation of the older business associations has also partly been informed by these classifications, as the cases of SEIFSA, NAACAM, the NAAMSA, Fruit SA and Vinpro reflect. More recent employer associations, while less focussed on specific sectors, also tended to be confined either to manufacturing, as in the cases of NEASA and CEOSA, or agriculture, as in the case of the LWO. Trade unions also have a history of organising on a sectoral basis. These forms of associational life have historically tended to collect administrative data about economic activities, including their members' labour market activities in the relevant sectors. However, this data have not been quality-assured.

While the LRA is consistent with the 1996 Presidential Commission in according NEDLAC the powers to make initial recommendations on demarcation issues based on a set of principles, bargaining council officials continued to investigate issues of scope with reference to the determinations issued before the adoption of a new Constitution and LRA after 1994. This is illustrated by the evidence cited in the Labour Court case in November 2018. There is also evidence that similar instances of the re-demarcation of companies have occurred in preceding years. The implications of demarcation for the requisite occupational and grading structures, skills determinations and wage determinations require elaboration.

However, the fruit and wine value chains are primarily informed by sectoral determinations and company-level bargaining. Sectoral determination has generally been issued for the retail and agricultural sectors, while company-level bargaining dominates the agro-processing sector. Social compacts detailing more elaborate considerations in relation to occupational and grading structures, skills determinations and wage determinations are currently being developed.

An examination and implementation of a process to collect data concerning value chains to complement the existing collection of data on economic activities – as suggested by the UNSD¹ – can provide a more evidence-based approach to scope and demarcation deliberations. Unfortunately, the existing limitations in the collection of data to measure economic activity by Stats SA and the NSS must be overcome so as to facilitate more informed deliberations. This situation has been brought to the attention of data producers and custodians, including Stats SA.

¹ United Nations Statistics Division (UNSD): Handbook on Accounting for Global Value Chains: GVC Satellite Accounts and Integrated Business Statistics, Draft version for Global Consultation, 4 February 2019.

2.2. Occupational and grading structures, skills determinations and wages determinations

Underpinning these collective bargaining structures is a process of developing occupational and grading structures, skills levels and the determination of wages and conditions of employment. In terms of the LRA, the Minister of Labour is empowered to decide whether to extend an agreement reached by organised business and labour in a given sector to non-parties if the parties involved in statutory bargaining councils are sufficiently representative of this sector. The situation in the case of the non-statutory form of centralised bargaining is different in that the employer organisations and unions tend to have a more significant threshold of representation, as in the case of the NBF.

A central consideration when addressing revisions in the future scope and demarcation of these centralised bargaining forums is the vertical and horizontal equity in compensation for the performance of similar work within and between enterprises for the relevant sector. This is central to facilitating amicable collective agreements between organised business and labour.

However, the sectoral determinations primarily tend to establish minima for a sector as a whole without having developed a comprehensive occupational and grading structure for the sector. Formal or informal arrangements have been developed at the company level. Exceptions prevail in the sectoral determination dealing with retail-level and company-level bargaining in the agro-processing sector.

2.3. Access to information and support by companies

Company access to information and support rely on employer associations and trade unions; the former in relation to management and the latter in relation to the various companies' employees. Although we have witnessed the establishment of multiple associations to provide advocacy for and support to its members in areas such as localisation and export assistance, fragmentation has been observed among employer associations registered with the Department of Employment and Labour.

While older employer associations such as SEIFSA have continued to function in terms of their original mandates, the emergence of employer associations such as NEASA and CEOSA, initially purporting to represent SMMEs, have argued for the adoption of a new collective bargaining model that involves a different dispensation for SMMEs. This, together with a breakaway association from SEIFSA, SAEFA, altered historical relations in existing bargaining councils, such as the MEIBC and MIBCO.

Traditional business associations such as Vinpro², SALBA and the FSA tasked NPOs to provide consultancy services in the area of labour relations in the fruit and wine industries. This led to the establishment of the LWO and the KAW. However, labour market strife in these industries led to the establishment of multistakeholder organisations: SIZA and WIETA, a unique institutional innovation amidst sectoral determinations and company-level bargaining.

However, trade unions continued with their modus operandi of representing the interests of employees in the evolving diverse environment of wage determination. While its presence or threshold of representation is more pervasive in companies in sectors where centralised and company-level bargaining prevail, the same cannot be said of the retail and agricultural sectors. It is estimated that memberships of trade unions by farmhands and labourers vary geographically from a high of 10.9% in Mpumalanga to 4.3% in Free State.³ A survey in the Western Cape of fruit farms and vineyards – including on farm packhouses and cellars – showed a union membership concentration of 10.2% spread across approximately 12 unions⁴, not all of which were registered with the Department of Employment and Labour.

² Vinpro according to an email communication from its communications manager Jana Loots is 'the representative organisation for close to 2 500 South African wine grape producers, cellars and wine-related businesses'. The word 'Vinpro' is not an acronym.

³ Visser, Margareet and Ferrer, Stuart: Farm Workers' Living and Working Conditions in South Africa: key trends, emergent issues, and underlying and structural problems, International Labour Organization (ILO), February 2015

⁴ KAW Blitsopname, Vakunie Lidmaatskap, Junie 2015

2.4. Relations between employer associations and trade unions

Relations between employment associations and trade unions vary within and across industries. The establishment of statutory centralised collective bargaining arrangements was based on sufficient representation of employers and trade unions in the metal and engineering and motor industrial sectors, as required by the provisions of the LRA. The process to determine representation on a statutory council was determined by the council's constitution, which informed its decision-making processes. Centralised non-statutory forums were established where employers and trade unions were deemed to be sufficiently representative, as the case of the automotive industry illustrates. Although both were governed by constitutional arrangements, the former's activities affected a wide array of enterprises that were not party to such arrangements when the Minister deemed it necessary to extend agreements to non-parties.

These bargaining councils/forums have nonetheless deliberated about aforementioned issues such as demarcation, occupational/grading structures, skills and the determination of wages. Value chain considerations are significantly informing deliberations about the scopes of the bargaining councils, as applications for re-demarcation have been made with increased intensity. Changes in the business models and technologies being used, particularly by MNEs, are not only raising issues about the omnipresence of standardised employment, but also the use of TESs and related changing grading and skills requirements. Thus, the existing bargaining mode/arrangements are increasingly the subject of review in the context of the current legislation, which emphasises processes to facilitate self-regulation among employers and trade unions and is not prescriptive.

However, the sustainability of the self-regulatory statutory councils and the MEIBC in particular have since June 2017 been affected by the lack of agreement on the details of the main agreement. Parties such as SEIFSA-affiliated employer associations and NUMSA, MEWUSA, SEAWU, Solidarity and UASA have entered into agreements about annual wages increases, while employer associations such as the PCASA, NEASA, CEOSA, CEFA, KZNEIA and the trade union Solidarity only committed to a wage agreement in the

Plastics Negotiating Forum. Apart from such arrangements impacting on horizontal and vertical equity in compensation for similar work performed within and between firms, they also affect the modernisation of the main agreement consistent with value chain dynamics and the pursuit of the decent work agenda. Although no agreement has been concluded in MIBCO since the expiry of the main collective agreement in August 2019, the schism does not appear to be of such magnitude. The OEMs and NUMSA in the NBF have concluded an agreement that includes a longstanding commitment to establish a new bargaining council for the automotive industry that involves the OEMs, component manufacturers, vehicle body building, bus builders and tyre manufacturers. While the latter are currently involved in the Bargaining Council for the New Tyre Manufacturing Industry, the remaining segments of the value chain are either located in the MEIBC or MIBCO. Skills development for all these bargaining councils and the NBF takes place under the auspices of merSETA.

The ECC's decisions in relation to the promulgation of the Sectoral Determinations No. 9, No. 13 and No. 14 were made after receiving extensive representations from affected and interested parties. The Department of Employment and Labour, together with the parties involved in WIETA and SIZA, sought to ensure compliance with its decisions consistent with the requirements of its codes of fair and ethical trade, as required by local and global buyers. Large packhouses, processing manufacturing establishments and cellars tended to be more intensely engaged in company-level bargaining. Deliberations among social partners involved in the value chains are considering the establishment of a more centralised bargaining arrangement for both the fruit and wine industry value chain, as reflected in the current Draft Social Compact for the Wine Industry Value Chain and that are envisaged by the processes of the FIVCRT. Skills development for the fruit and wine industry value chains reside under the auspices of AgriSETA.

Substantive issues such the proactive disputes by an effective and efficient dispute resolution mechanism and to facilitate the implementation of the ILO's programme for Decent Work are considered. The latter involves the pursuit of

a living wage that will make the wine industry a preferred employer, offering a remuneration package that meets basic needs and provides for discretionary income, establish an industry benchmark for the application of a fair piece-work rate and fair performance system, adequate social protection and social security for all workers in the wine industry, safe and appropriate farm worker transport to and from work, where inadequate or non-existent but required and the accreditation of temporary employment service providers (labour brokers) that contribute to the development of a safe, trained workforce and conform to industry-led decent work principles and programmes. Farm workers and their families should be able to live in safe and decent housing on and off farms that contribute to their human dignity. This means the increased involvement of municipalities in the provision of social housing and the requisite infrastructure.

3. Recommendations

It is imperative that the demarcation of the scopes of bargaining councils be revisited and that clearer criteria or principles be established to inform such activities. The use of value chain-related principles/criteria in addition to defining economic activities in relation to sectors could be of significance in enhancing labour market institutions.

3.1. Value chain-related data on economic activities, including the labour market

We currently rely on official statistics and administrative data in addition to an understanding of economic activities for this purpose. The official economic data released by Stats SA are limited in that the version currently in use only provides data for 21 sections of the SIC classification but not at the division, major group, group and subgroup levels. This makes it virtually impossible to grasp the nature of value chains in economic sectors and related employment trends. Ideally, Stats SA should collect data on economic activities using the more up-to-date version 4 of ISIC. It should also provide data at major group, group and subgroup levels to enable the development of insights into value chain activities, including global comparative analysis.

Reliance on administrative data acquired from the records of employer associations and to a lesser extent trade unions that have not been quality-assured using Stats SA's SASQAF is also problematic. However, it is acknowledged that, through the establishment of an NSS that involves these public and private sector data producers and custodians, some of these data challenges can be resolved and can improve our understanding of the labour market universe, particularly the demarcation process.

3.2. The metal fabrication value chain

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Thus the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for the envisaged Metal and Engineering Sector Masterplan.
- Develop a clear understanding about the nature of value chain activities in the metal and engineering sector owing to the existence of multiple value chains.
- Resolve the demarcation issues involving the MEIBC and other bargaining councils such as MIBCO.
- Facilitate a discussion between parties involved in the MEIBC to attain consensus on the MEIBC's scope and modus operandi.
- Establish a process to resolve the wage determination issues such as wages linked to occupational, grading and skills issues.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties.

3.3. The capital and rail transport equipment value chains

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Thus the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for the envisaged Metal and Engineering Sector Masterplan.
- Develop a clear understanding about the value chain activities within the metal and engineering sector owing to the existence of multiple value chains.
- Resolve the demarcation issues involving the MEIBC and other bargaining councils such as MIBCO.
- Facilitate a discussion between parties involved in the MEIBC to attain consensus on the MEIBC's scope and modus operandi.
- Establish a process to resolve the wage determination issues such as wages linked to occupational, grading and skills issues.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties.

3.4. The automotive value chain

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Thus the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for SAAM.
- Resolve the demarcation issues involving the MEIBC, MIBCO and the NBF.
- Facilitate a discussion between parties involved in MIBCO, the NBF and the new tyre bargaining councils to attain consensus on the establishment of a new bargaining forum and its needed scope.
- Establish a process to resolve the occupational, grading and skills issues in these forums.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties.

The MEIBC in its Main Agreement clearly specifies key elements that will inform the envisaged future collective bargaining model(s). It is crucial that it be informed by value chains, levels of bargaining, productivity and performance as well as exemption processes and procedures. The NBF has also adopted a

similar resolution that explicitly states the bargaining forum type it envisages for the components, new tyre manufacturers, bus builders and motor body builders. MIBCO has commissioned an ILO-sponsored study to inform deliberations about future collective bargaining models.

Central to any deliberations on determining the future collective bargaining model(s) will be the definition of the multiple value chains that exist in the aforementioned bargaining councils, the development of criteria to demarcate a potentially restructured bargaining council model to be agreed on, the development of agreed occupational and grading structures and skills development strategies to facilitate vertical and horizontal equity in compensation for work performed, including productivity-related and performance-related issues, bargaining levels, cycles and processes, and exemption processes and procedures.

It is therefore recommended that the Minister of Employment and Labour empowers an independently facilitated process to resolve the issues that have been identified. It is not envisaged that the existing labour market legislation should be changed. It is the existing bargaining model(s) that is/are facilitated by the legislation that need/s to be modernised so as to bring about alignment with current value chain-based economic development strategies of National Government. It is under these circumstances that the pursuit of decent work could be realised.

3.5. The fruit and wine industry value chains

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of SA's labour market legislation, it is imperative that the malaise within the value chains be resolved. Thus the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for the envisaged fruit and wine industry value chains' social compacts.

- Develop a clear implementation plan with timeframes of the consensus attained among the parties in relation to labour market issues contained in the social compacts and potential business or masterplans for these value chains.
- Develop an effective and efficient co-ordinating mechanism that will accommodate a range of current initiatives that have a bearing on business or masterplans for these value chains, including the modernisation of labour market institutions.
- Establish processes to resolve the wage determination issues such as wages linked to occupational, grading and skills issues. This should involve the demarcation of the scopes of certain activities that fall within agricultural production on vineyards and fruit farms, cellars, packhouses, agro-process manufacturing establishments, retailers, wholesalers and hospitality establishments as well as applicable wages, grading structure and training regime.

1. INTRODUCTION

“The purpose of the research is to investigate the changes that global value chain (GVC) brings to employment and whether the current regulatory model in South Africa embraces the new working relations brought by the GVC”.

The commissioning of the study is timely, given the current stresses and strains accompanying the implementation of various collective bargaining arrangements in South Africa. This study also has a bearing on the processes of sectoral determinations in industries exposed to the development of GVCs. Further, the study informs deliberations about the flexibility of the labour market system to respond to the globalisation and competitiveness of industries. This applies particularly in industries where SMMEs predominate.

The Terms of Reference of the Department of Labour correctly seeks to ascertain the implications for the existing labour market regime. The research brief is *“expected to cover the following areas:*

- *Investigating how GVC practices affect employment patterns, structuring of work and job and where these activities are carried out (workplaces).*
- *To investigate the impact of GVC on decent work, specifically on working conditions and respect for fundamental rights of workers.*
- *To investigate the relevance of RSA labour market policies and institutions on Global Value Chain (GVC)*
- *Make proposal on how [the] regulatory model can be made relevant to changes brought by the fragmentation and internationalisation of work processes.*
- *Provide trends and analysis on decent work deficits within the GVC”.*

The intention will be to select a number of industries where GVC activities occur, using the ISIC as a guide. Although it can be hard to ascertain matters such as labour and capital intensity owing to their being present to varying degrees in value chains, the tendency will be to rely on predominant trends. Further, the prevalence of different traditions of centralised collective bargaining, sectoral determinations or company-level bargaining are crucial if one is to ascertain the effects of GVCs. The distribution of the industries across the urban-rural hierarchy can certainly be factored into the selection process. All the aforementioned criteria have been considered in the design of the data collection processes and the selection of case studies that inform this

research project. The intention was to produce a research report that addresses all the key areas of investigation. The research questions that need to be considered to address this observation included two central themes that will frame our analysis of GVCs. These cover the economic dimensions and the regulatory framework.

The economic dimensions

Some of the economic and financial dimensions of the GVC systems involve among others the re-organisation of production and service processes of companies involved in GVCs. Essential to these processes are their governance arrangements. These encompass the inter-firm relationships and institutional mechanisms that facilitate non-market co-ordination of activities. This co-ordination is achieved through the setting and enforcement of product and process parameters to be met by actors in the value chain, which – in turn – has significant ramifications for the labour market. While buyers critically determine a product and/or service, government agencies and international organisations concerned with quality standards or labour and environmental standards also tend to have key roles. It is in this context that deliberations about what constitutes decent work are relevant.

The regulatory framework

The impacts of GVC operations in South Africa have strongly informed companies' approaches to conditions of employment and wage relations. Currently, the companies involved in the various value chains must contend with a multitude of institutional arrangements that inform conditions of employment. These range from sectoral determinations and company-level or enterprise-level agreements to statutory and non-statutory bargaining councils. The GVCs in the agriculture and agri-business industries are governed by sectoral determinations for farm workers, company-level agreements for cellars or warehouses, sectoral determinations and company-level agreements. Thus, these institutional arrangements become elevated for instance when dealing with the wholesale and retail industry.⁵ Similarly, statutory bargaining councils and non-statutory centralised bargaining councils become elevated when

⁵ Sayers, Adrian: Labour and the Development of a Social Compact for the Wine Industry in South Africa- Suggestions for the involvement of organized labour, A paper presented to the Wine Industry Strategic Exercise(WISE), August 2015.

dealing with the metal and engineering and motor industries and the automotive industries.

In this context, the GVC initiatives seek to strengthen companies' capabilities to increase their participation at a Southern Africa regional and global level. Potentially, this has significant implications for the current labour market regime. The research agenda into GVCs must probe these questions in the context of decent work and labour rights as integral to the human rights agenda, considering the economic and financial implications.

Numerous multilateral institutions have undertaken research into GVCs. The work of institutions such as the World Bank⁶, ILO⁷, IMF⁸, UNDP, AfDB⁹, OECD¹⁰ and the Commonwealth¹¹, together with that of globally renowned academics such as Guy Standing¹², John Humphrey and Hubert Schmitz¹³, and a team of researchers linked to Duke University led by Stephanie Barrientos and Gary Gereffi¹⁴, will be considered. This will assist with discerning comparable country assessments on continents such as Africa, Central and South America and Asia, as specified in the ToR.

⁶ The International Bank for Reconstruction and Development: *Factory Southern Africa? SACU in Global Value Chains-Summary Report*, Trade and Competitiveness Global Practice, The World Bank Group, 2016.

⁷ Salazar-Xirinachs, José M.; Nübler, Irmgard and Kozul-Wright, Richard (Eds): *Transforming Economies: Making industrial policy work for growth, jobs and development*, ILO, May 2014.

⁸ Allard, Céline; Canales Kriljenko, Jorge Iván; Chen, Wenjie; Gonzalez-Garcia, Jesus; Kitsios, Emmanouil and Treviño, Juan: *Trade Integration and Global Value Chains in Sub-Saharan Africa In Pursuit of the Missing Link*, African Department-IMF, 2016.

⁹ AfDB (et al.): *Global Value Chains and Africa's Industrialisation* African, *Economic Outlook*, 2014.

¹⁰ Shepherd, Ben: *Global Value Chains and Developing Country Employment- A Literature Review*, *OECD Trade Policy Papers No. 156*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5k46j0qw3z7k-en>.

¹¹ Keane, Jodie: *Regional Integration, Sustainable Development and Global Value Chains in Southern Africa*, Economic Advisor, Commonwealth Secretariat, undated

¹² Standing, Guy: *The Precariat: The New Dangerous Class*, London: Bloomsbury Academic, 2011; *Global Labour Flexibility: Seeking Distributive Justice*, Basingstoke: Macmillan, 1999; *Work after Globalization: Building Occupational Citizenship*, Cheltenham, UK: Edward Elgar, 2009 and *A Precariat Charter: From Denizens to Citizens*, London: Bloomsbury Academic, 2014.

¹³ Humphrey, John and Schmitz, Hubert: *Developing Country Firms in the World Economy: Governance and Upgrading in Global Value Chains*, *INEF Report, Heft 61*, 2002.

¹⁴ Goger, Annelies; Hull, Andy; Barrientos, Stephanie; Gereffi, Gary; Godfrey, Shane: *Capturing the Gains in Africa: Making the most of global value chain participation*, *Center on Globalization, Governance & Competitiveness*, Duke University, February 2014.

Previous work on South Africa's labour markets conducted by Tridevworx¹⁵ informs our research deliberations. We will review the work of academics such as Eddie Webster, Haroon Borhat, Carlene van der Westhuizen and Sumayya Goga¹⁶; Halton Cheadle¹⁷; Shane Godfrey, Johann Maree, Jan Theron¹⁸ and Margareet Visser on the relationships between collective bargaining and the wage and conditions of employment regime and micro, SMMEs and economic growth and development. Similarly, the work of the LRS's *Annual collective bargaining review* and all documentation submitted by the various parties engaged in litigation in the Labour and High Courts will be considered.

The structure of this report

The structure of this report covers eight chapters that are subdivided into two sections preceded by an introductory chapter and a chapter that contextualises the study. The **introductory chapter** deals with the study's terms of reference and an outline of its execution. **Chapter 2: The context** provides a statement of the research methodology and the conceptual apparatus deployed in the study. The conceptual apparatus we used was partly informed by a literature review and an impact assessment framework, as detailed in **Chapter 3: The research methodology**. This assisted with the selection of the sectors/value chains identified for examination. Foremost is the distinction between producer-dominated and buyer-dominated value chains that informs governance arrangements.

¹⁵ See previous work completed by the current directors of Tridevworx, including *Assessing the Effectiveness of Bargaining Council Exemptions in S.A.*, Department of Labour, July 2014.

¹⁶ Borhat, Haroon; van der Westhuizen, Carlene and Goga, Sumayya: *Analysing Wage Formation in the South African Labour Market: The Role of Bargaining Councils*, *Development Policy Research Unit Working Paper 09/135*, January 2009

¹⁷ Cheadle, Halton: *Regulated Flexibility and Small Business: Revisiting the LRA and the BCEA*; *DPRU Working Paper 06/109*; Development Policy Research Unit, June 2006.

¹⁸ Godfrey, Shane; Maree, Johann and Theron, Jan: *Conditions of Employment and Small Business: Coverage, Compliance and Exemptions*; *DPRU Working Paper 06/106*, Development Policy Research Unit, UCT, March 2006 and Godfrey, Shane; Theron, Jan and Visser, Margareet,: *The State of Collective Bargaining in South Africa An Empirical and Conceptual Study of Collective Bargaining*; *DPRU Working Paper 07/130*, Development Policy Research Unit, November 2007.

We then used the SIC to organise information of economic activities, including labour markets, to ascertain available information about existing value chains. Unfortunately, such information is not readily available. Nonetheless, we explore a framework to approach the provision of such information based on a correlation between SIC categories and functions with a value chain that makes possible future comparative analysis across national boundaries. The UNSD's activities in developing a Handbook in this regard are instructive.

It is also evident that the architecture of labour market institutional arrangements is significantly informed by these different value chains. Here, two distinctions can be made. While producer-dominated value chains are governed by centralised bargaining that involve both statutory and non-statutory bargaining arrangements, the buyer-dominated value chains primarily involve sectoral determinations and company-level bargaining arrangements. A central concern remains what effects participation in GVCs in the respective sectors will have on SA's labour market institutions.

Section A: Producer-dominated global value chains deals with the metal fabrication processes, capital and rail transport equipment, and the automotive industry value chains. These three chapters examine these GVCs and their implications for labour market institutions in South Africa. **Chapter 4: The metal fabrication value chain** assesses its various dimensions, with specific reference to primary and secondary steel production. **Chapter 5: The capital and rail transport equipment value chain** examines the production of capital equipment for the mining and construction industries and railways. **Chapter 6: The automotive value chain** deals with the automotive components and OEMs.

It is evident that these value chains are closely interrelated in that the metal fabrication processes constitute critical suppliers to both the capital and rail transport equipment and automotive value chains. It also involves a strong presence of SA-owned and foreign-owned MNEs that tend to shape possibilities about the extent to which upward movement in a value chain can be realised.

These traditional areas of economic activities are dominated by both statutory and non-statutory forms of centralised bargaining, as in the following instances. The

MEIBC, MIBCO and the NBF largely determine the labour market conditions in these value chains. The National Bargaining Council of the Leather Industry of South Africa, the Bargaining Council for the New Tyre Manufacturing Industry (National) and the National Bargaining Council for the Chemical Industry also have significant roles in informing the labour market conditions in key chemical, leather and tyre suppliers that participate in these value chains; similarly, the National Bargaining Council for the Road Freight and Logistics Industry, the Motor Ferry Industry Bargaining Council and the Transnet Bargaining Council in the area of logistics.

The fragmentation of bargaining processes along the value chain has prompted deliberations about the need for a new bargaining model to facilitate value chain stability and efficiencies.¹⁹ The restructuring of these bargaining forums, the establishment of new bargaining forums and the revision of the demarcation of such forums' scopes have become subject to deliberations and litigation involving affected companies and forums, a dynamic that has impacted on the activities of related sector training authorities such as merSETA. However, the MEIBC, MIBCO, NBF and merSETA form the focal point of the examination of producer-dominated value chains.

Section B: Buyer-dominated global value chains deals with the fruit and wine value chains, where locally owned and controlled MNEs tend to be active. Since the deregulation of the respective industries, new companies have emerged based on restructured relationships between primary producers, processing plants and marketing operations. **Chapter 7: The fruit value chain** investigates the processes required to produce and market fruit such as pome fruit, stone fruit, citrus and subtropical fruit. The latter primarily involve the production of mangos, avocados and litchies. **Chapter 8: The wine value chain** considers processes to produce and market wine and liquors such as brandy. Ownership patterns and attempts at transformation form an integral part of this study.

Labour strife has led to the establishment of unique institutional arrangements to deal with labour market issues in the value chain. Historically, the primary producers were

¹⁹ Godfrey, Shane: A review of MIBCO's collective bargaining model, Labour and Enterprise Policy Research Group, University of Cape Town, 12 June 2017.

governed by statutes such as the BCEA and related sectoral determinations for farm workers. Company-level bargaining prevailed as the central instrument for determining conditions of employment among the cellars and packing facilities and large retail and wholesale outlets. Further, issues such as housing became regulated by the Extension of Security of Tenure Act, 1997 (ESTA). Trade relations became significantly informed by questions of ethical trade as buyers asserted their dominance of value chain activities. This led to the establishment of ethical trade organisations such as WIETA and SIZA – the former to audit and accredit companies in the wine industry and the latter to undertake the same function in the fruit industry. Round tables have also been established involving all the relevant stakeholders and must be considered, among others, for a more comprehensive understanding of labour market dynamics. The establishment of value chain centralised bargaining has become a critical agenda issue in these deliberations.

In a general sense, it is evident that the central institutional arrangements for determining labour market issues in the value chains being examined are diverse, depending on the nature of the value chain and the involvement of companies therein. It is in this sense that value chains must be understood in different ways. First, there is each company's value chain. Some companies have developed this based on a governance arrangement; there are companies controlled by affiliation (ownership and association within a corporate structure) and non-affiliated companies that are contracted to supply certain inputs/supplies. The establishment of certain standards or specifications by core producers or buyers to inform these relationships are critical.

Companies also require certain conditions essential for the development of their value chains. These issues involve an agreed or an acceptable legislative and business environment. The establishment of support mechanisms that makes doing business in a country attractive has been pursued by Government when it adopted policy instruments such as APAP and IPAP. Critical is the capacity of the identified industries to move up the value chain to create more employment opportunities that conform to the ILO's decent work standards while contributing to economic growth.

While it is evident that the Presidential Commission on Labour Market Policy has provided the foundation for a review of labour market legislation, this review has not

been comprehensively followed through, particularly in respect of the re-organisation of bargaining councils to meet the current challenges faced in the statutory bargaining councils' operations. While the current arrangements pertaining to the ECC's responsibilities are quite clear, in terms of the establishment of centralised bargaining arrangements as contained in the LRA, a closer examination is required in relation to the existing bargaining councils' operations.

The development of a new bargaining model should be informed by SIC definitions, which incidentally also inform the collection of GDP and labour market data and the classifications relevant to determining occupational categories and the data collection. The SIC provides for the gathering of statistics that will deepen our understanding of economic activities and future areas of intervention. Here, we seek to differentiate between the provision of official statistics that has been quality-assured by Stats SA and the administrative statistics collected by various agencies such as employer associations and bargaining councils but that have not yet been quality-assured. The ability to make use of this latter source of economic and social data will present deeper insights into GVC activities in South Africa.

2

THE CONTEXT

2.1. Understanding global value chains

It is evident that a large body of literature dealing with globalisation, and GVCs have been produced in the past 20 years by numerous institutions and individuals. There has been an emphasis on understanding globalising value chains to which MNEs' operations are crucial. Typologies have been developed to understand various value chains and their dimensions. The changing trade relations, production networks and clustering – which have implications for the extraction, manufacturing and services sectors – have led to deliberations about the emergence of a *knowledge-based economy*. What it means for the economic development trajectory of both developing and developed countries has been well documented. More so has been its social and economic implications in terms of its effects on issues such as employment levels, innovation, the use of technology, skills development, social protection and prevailing policy regimes, particularly in low income and developing countries. The provision of regional, country and subnational studies (clustering and agglomeration of enterprises) are insightful. It is in this context that the literature dealing with Africa, Southern Africa, South Africa and its subnational regions prove useful, albeit rather sparse at this point. An examination of existing documentary evidence and the implementation of the remainder of the research project will provide additional insights to these phenomena.

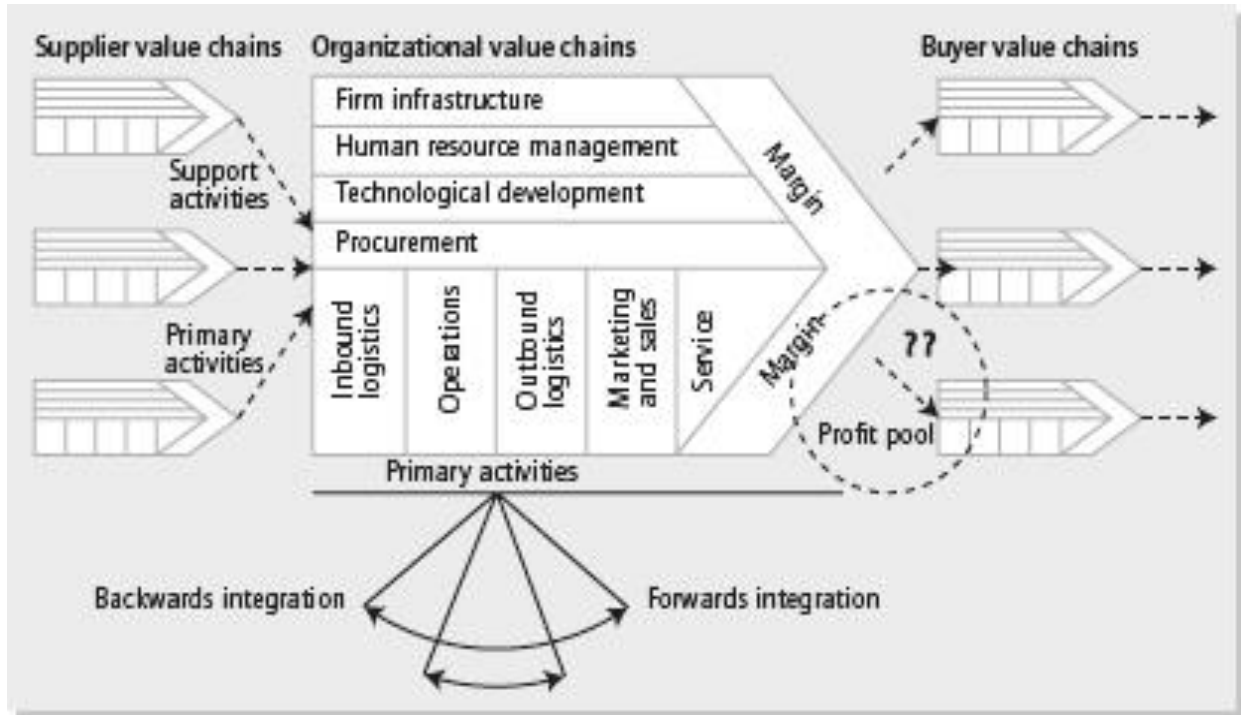
2.1.1. The value chain concept

The concept *value chain* was first advanced and defined by Michael E. Porter²⁰, who viewed it as an interdependent system or network of firm activities, connected by linkages to create buyer value and thus competitive advantage. Linkages occur in the way one activity is performed, which affects the cost or effectiveness of other activities. This requires activities to be co-ordinated. Value chains for firms and industries have been defined pending the circumstances. In the case of MNEs, the firm is the centre stage of its value chain with its internal business units and independent firms playing

²⁰ Porter, M. E.: *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, 1980; *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, 1985; *Competition in Global Industries*, 1986 and *The Competitive Advantage of Nations*, The Macmillan Press Pty Ltd, 1990.

a critical role. This is distinct from the organisation of what Porter calls a **value system** across an industry that involves a number of independent firms.

Figure 1: The value chain



(source: Adapted with the permission of The Free Press, a Division of Simon & Schuster, Inc. from Porter, M. E., *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, 1985.

The value chain can consist of various linked activities that can be categorised as inbound logistics, operations (manufacturing), outbound logistics, marketing and sales and after-sale service. This is supported by the firm's infrastructure (finance and planning), human resource management, technology development and procurements. The support activities are critical source of competitive advantage such as strategic management to facilitate the effective co-ordination of linked activities to attain gains such as just on time delivery to reduce the need for costly inventory. The value chain considers everything a company does, i.e. the whole organisation, while the value system locates the company in a bigger scheme of things such as an industry. This basic approach enabled Porter to assess the competitiveness of a business as well as that of a nation and by implication its industries. An approach that led to a great deal of research, conferences and literature in the area of GVCs.

2.1.2. Why global value chains?

*“The globalisation of value chains is motivated by a number of factors. One is the desire to increase efficiency, as growing competition in domestic and international markets forces firms to become more efficient and lower costs. One way of achieving that goal is to source inputs from more efficient producers, either domestically or internationally, and either within or outside the boundaries of the firm. Other important motivations are entry into new emerging markets and access to strategic assets that can help tap into foreign knowledge. Notwithstanding these anticipated benefits, engaging in global value chains also involves costs and risks for firms”.*²¹

While globalisation is not a new phenomenon, the form and intensity of activities, from conception to end use, undertaken to produce and market a product or service and the spatial distribution of such activities across international borders as enabled by MNEs characterises GVCs. “They have a global reach that allows them to co-ordinate production and distribution across many countries and shift their activities depending on changing demand and cost conditions”.²²

2.1.3. Dimensions of global value chains

*“Moving up the value chain implies a continuous process of change, innovation and productivity growth. Industrialised economies can only grow by inventing new technology, by innovations in products and processes, and by designing new management methods. To foster and support the innovation process, a strategy for innovation has to be developed in which several policy areas may be considered”.*²³

What can be ascertained from the analysis conducted in the review of literature is that the positioning of sectors in countries requires an understanding of various dimensions of a value chain. These dimensions include: the sourcing of inputs and supplies, production capacity and technology, end-markets and trade, governance of value chains, sustainable production and energy use, value chain finance and business environment and socio-political context.²⁴ The dynamics in each sector informs how each dimension is dealt with. It is also imperative that these dimensions be understood

²¹ OECD: Moving Up the Value Chain-Staying Competitive in the Global Economy, MAIN FINDINGS, 2007,p5.

²² Ibid, p 10.

²³ Ibid, p24.

²⁴ UNIDOs 7 dimensions are considered together with an eight dimension introduced by the authors.

in relation to the dynamics within various sectors. Here a typology of value chains²⁵ using these dimensions as a guide can be useful (see *Table 1: A comparison of producer-driven and buyer-driven value chains*).

The sourcing of inputs and supplies

The sourcing of inputs and supplies is a critical consideration when considering the location and expansion of firms. The production of inputs such as raw materials and primary products that firms in the value chain use is largely dependent on the characteristics of the product, the primary producers and input providers, the contractual arrangements and logistics such as transport and communication to facilitate timeous and efficient delivery.

Sustainable production and energy use

It is imperative that the production processes of commodities and the provision of related services are uninterrupted and sustainable. Here the provision of affordable energy supplies is critical. Thus, the effects of the value chain and its gradual expansion and development have a discernible effect on the sustainable use of natural and other resources. Specific examples of these include sources of energy usage, the use of materials and waste, effects on biodiversity, emissions and contamination and environmental standards. All these examples constitute the core of inclusive and sustainable industrial developmental concerns.

Production capacity, technology and innovation

Understanding the capabilities of firms, industries or the country to do processing, reassembling and manufacturing of primary products, including the production of the means of production (machinery), human capital and the knowledge use and technologies used in production, costs and margins is critical to the development of production capacity, technology and innovation. Innovation increases the level of knowledge and technology embodied in production and exports. Policies aimed at strengthening creativity in business or on developing intangible assets as sources of

²⁵ Source: Gereffi, G.: "A commodity chains framework for analysing global industries", in Institute of Development Studies, 1999, "Background Notes for Workshop on Spreading the Gains from Globalisation, www.ids.ac.uk/ids/global/conf/wkscf.html1999b

value creation might also aim at creating new areas of economic activity, by stimulating new firm creation and entrepreneurship or by stimulating innovation and technology in new areas. Striking an appropriate balance between diffusion of technology and providing incentives for innovation remains an important consideration in intellectual property rights (IPR) related policies.

Skills development

International and local firms may be attracted to specific activities and skills which exist only in certain regions or locations. A more innovative and productive economy may require more highly skilled workers or a different mix of skills. Addressing this through occupational, education and training policies requires a growing focus on lifelong learning. Policies aimed at the development of clusters and poles of excellence as well as regional policies may help capitalise on countries' strengths.

Value chain finance

While MNEs are considered central to the operations of certain value chains, SMMEs' roles should not be discounted. Hence how the various actors in the value chain finance their operations, the appropriateness and sufficiency of available financing products and how to increase the effectiveness and timeliness of access to such financial products are critical to the efficacy of value chain operations.

End-markets and trade

Market demand depends on the type of end product, consumer preferences with regard to quality, image and other product characteristics, as well as consumer purchasing power. This involves understanding end-product characteristics and standards, consumer demand and marketing capacities. Here different types of value chains require different approaches pending the dominant/lead firm in the value chain.

The governance of value chains

The application of a set of rules and influence to facilitate co-ordination among actors within a value chain through vertical integration or voluntarily by firms to reduce costs and risks in production, transport and storage, typically come about in response to

buyer and consumer demands. These cumulatively inform governance. The focus is on identifying lead firms in the selected value chain that exercise a specific type of market power over other value chain actors. The type of governance informs patterns of industrial organisation through clustering, collaboration and partnerships, which – in turn – affects transaction costs and the distribution of value added. Firms located and clustered in a denominated geographic location often house an extensive exchange of information and technology and profits from a common pool of resources, skilled workers and support services.

Table 1: A comparison of producer-driven and buyer-driven value chains

	Producer-driven commodity chains	Buyer-driven commodity chains
Drivers of global commodity chains	Industrial capital	Commercial capital
Core competencies	R&D; production	Design; marketing
Economic sectors	Consumer durables; intermediate goods; capital goods	Consumer non-durables
Barriers to entry	Economies of scale	Economies of scope
Typical industries	Automobiles; computers; aircraft	Apparel; footwear; toys
Ownership of manufacturing firms	MNEs	Local firms, predominantly in developing countries
Main network links	Investment-based	Trade-based
Predominant network structure	Vertical	Horizontal

(source: Gereffi, G.: *A commodity chains framework for analysing global industries*, in Institute of Development Studies, 1999, "Background notes for workshop on spreading the gains from globalisation, www.ids.ac.uk/ids/global/conf/wksch.html1999b)

Business environment and socio-political context

Understanding what determines national attractiveness, building on national strengths and addressing weaknesses to the greatest extent possible can help extract greater benefits from the globalisation process. The factors that affect businesses in the value chain include conditions of public policy, norms and customs, laws, regulations and administrative procedures, market institutions, trade regulations, infrastructure and

public services. The availability and quality of services in construction, transportation, road, rail and port infrastructure, electricity and water, business consulting and accounting services, market information services, grading and standard regulating bodies, research and laboratory services, education and training and knowledge providers and the existence of specialised research centres and universities that support R&D in the value chain may require particular forms of policy interventions depending on the GVC type.

2.1.4. The selection of industries and global value chains for analysis

It is imperative, for the purpose of this study to select specific industries/value chains for closer scrutiny. The selection of the relevant industry/value chain should be based on criteria informed by the GVC type, the development of an enterprise and industry's competitive advantage and growth potential possibilities by moving up the value chain and the prevailing policy environment that facilitates such a development. The latter includes support for innovation, productivity growth, trade, infrastructure and the labour market environment and employment growth. While the state endeavoured to provide industrywide support, it was deemed that specific enterprise related value chains that included MNEs, albeit foreign or locally head-quartered, and local SMMEs are necessary to provide the catalyst for national competitive advantage and growth. Transversal support for specific sectors/value chains is reflected in the adoption of a range of policies dealing with issues such as infrastructure development, innovation, logistics, education and training.

Further, an examination of the alignment of labour market institutions to producer-dominated and buyer-dominated value chain types²⁶ provides the opportunity to ascertain whether distinct labour market trends prevailed in relation to employment trends, existing regulatory measures and their limitations, and the remedial measures to ensure responsiveness to new economic dynamics.

²⁶ The importance of re-alignment between master plans and labour market institutions were emphasized in an interview held with Lionel October, Director General (DG) for the Department of Trade and Industry on 12 November 2019.

2.2. The contributions of economic sectors to GDP, employment and value chains

South Africa's economy can be described in various ways with reference to the classification of economic activities in accordance with the SIC, as prescribed by the UN, national accounts that compute growth quarterly using GDP and quarterly employment trends using QLFS and QES as a measure. The QES is used to estimate key economic statistics on employment and gross earnings that are used as input to the GDP and to estimate key economic statistics on average monthly earnings that are mainly used for monitoring economic indicators of the South African economy. Information is obtained on variables such as the number of persons employed in the business, gross earnings paid, bonuses paid and severance, termination and redundancy payments paid to employees for each month of the reference quarter.

2.2.1. Growth and employment trends

Following the trend in macro data since 2015, it can, nevertheless, be stated that the manufacturing sector is the fourth largest contributor to GDP after finance, real estate and business services (1), general government services(2) and trade, catering and accommodation(3) (see Figure 2: GDP by sector: South Africa). Similarly, for the same period, the manufacturing sector is also the fourth largest employer of labour after community and social services (1) and trade (2) and finance (3) (see *Figure 3: Employment by sector: South Africa (QLFS)*). Information of the labour market activities of individuals aged 15 years and older based on the type of data collected by QLFS is characterised by employment, unemployment and inactivity. Key labour market indicators also provide insight into individuals who are the not economically active, social demographic characteristics as well as involvement in non-market activities and labour market status by province. This involves individual attributes such as industry and sex, industry and province, sector and industry, province and sector, sex and occupation, sex and status in employment, sex and normal hours of work and time related underemployment. Whereas the QES covers employment statistics in the mining and quarrying industry; manufacturing industry; electricity, gas and water supply industry; construction industry; wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, hotels and restaurants

industry; financial intermediation, insurance, real estate and business services industry and community, social and personal services industry. QES generally mirrors the structure of the current SIC (7th edition, October 2012).

Quarterly aggregate and sectoral employment shifts between 2014 and 2018

Figure 3 presents an aggregate economic sector profile of employment levels in the South Africa's economy 2014 to 2018 which is broken down further on a quarterly basis. This data is drawn from the QLFSs for the respective periods. The first quarter data for 2015 was not available and this implies that the more definitive trend in the data can only be presented for 2014 as well as the three-year period from 2016 to 2018. The aggregate data which combines all ten sectors suggests that the highest quarterly employment levels for South Africa's economy typically occurs in the fourth quarter as was the case for 2014, 2016 and 2018. In 2017, the highest quarterly aggregated employment numbers was recorded for the first quarter.

At a quarterly level, what the data conclusively indicates is that each of the five years was characterised by at least two quarters of relatively higher employment numbers across all sectors of the economy. While the variation between higher and lower employment numbers is quite marginal, the data alludes quite clearly to a pattern of some seasonal employment variation across all sectors of the economy over the entire five year period for which data is available.

But these seasonally higher employment numbers are not consistently applicable across all sectors. If we merely try and elevate the specific quarters in which each of the 10 economic sectors in a given year exhibited highest employment numbers, the following pattern is discernible.

In 2014: first quarter (3 sectors recorded highest quarterly employment numbers for the year), second quarter (2 sectors), third quarter (1 sector) and fourth quarter (4 sectors). Taking into account the sectors which are most closely represented in the selected case studies of the present report, agriculture, construction and transport experienced highest quarterly employment numbers in the fourth quarter but for manufacturing this occurred in the first quarter.

In 2016: first quarter (2 sectors recorded highest quarterly employment number for the year), second quarter (none), third quarter (2 sectors) and fourth quarter (6 sectors). Agriculture, manufacturing and transport experienced highest quarterly employment numbers in the fourth quarter but for construction, this occurred in the third quarter.

In 2017: first quarter (4 sectors recorded highest quarterly employment numbers for the year), second quarter (1 sector), third quarter (3 sectors) and fourth quarter (2 sectors). Agriculture and construction recorded highest quarterly employment numbers in the first quarter, while for manufacturing this occurred in the second quarter and for transport, the fourth quarter.

In 2018: first quarter (highest quarterly employment numbers for the year was recorded in 2 sectors), second quarter (3 sectors), third quarter (1 sector) and fourth quarter (4 sectors). Agriculture recorded the highest quarter employment number in the fourth quarter of 2018. For manufacturing, this was recorded in the first quarter, for construction, the third quarter and for transport the second quarter. Highest quarterly sectoral employment numbers with strong variation in incidence was therefore quite pronounced in 2018.

Figure 2: GDP by Sector - South Africa

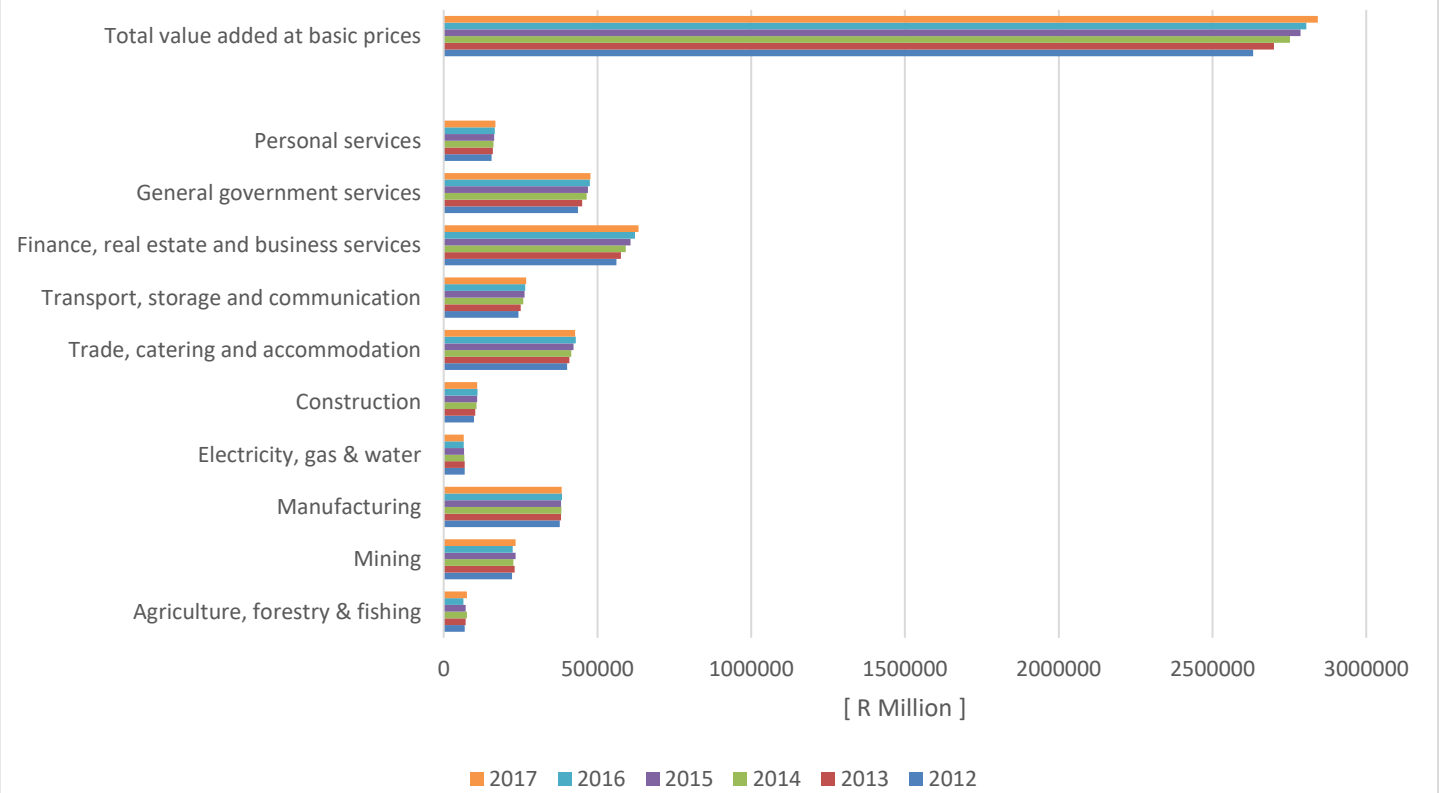
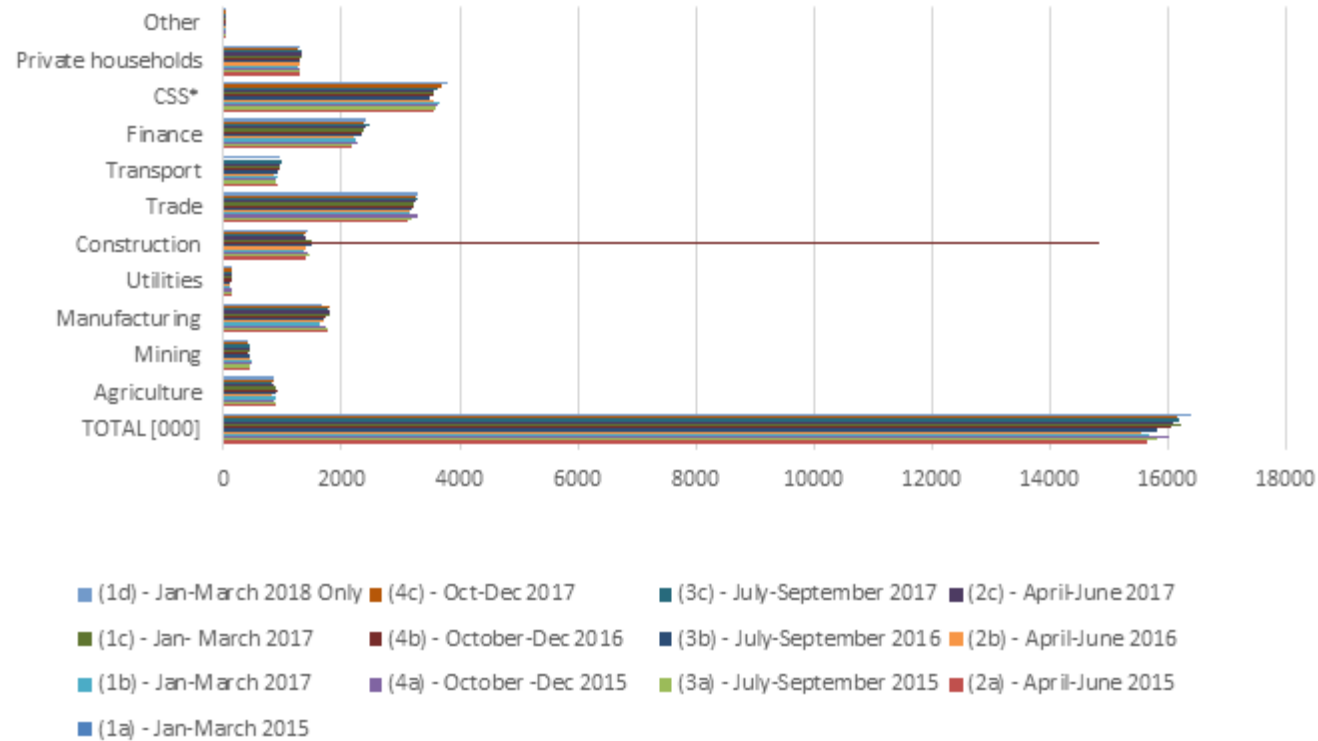


Figure 3: Employed by Sector - South Africa [QLFS]



Data on economic activities in identified sectors has been provided at SIC level at national and provincial level after the discontinuance of the manufacturing census. Since its release in October 2012²⁷, South Africa is using the 7th edition of the SIC. Data is currently available only for the 21 sections of the SIC classification but not at division, major group, group and subgroup levels (see GDP and employment data by sector as illustrated in Figures 2 & 3).²⁸

Although useful in developing a basic understanding of the economic structure and performance, it does not, however, provide data to analyse and measure the extent to which local economic activities have been integrated into regional and global value chains. Nor does it, provide data to develop an understanding of the role of GVCs in facilitating growth and employment and global integration. Hence the data used to compute economic activities at division, major group, group and subgroup levels are largely reliant on modelling. Further, although it is recognised that the activities of enterprises involved in GVCs make significant contributions to growth and employment, it is even more difficult to compute.

The UN has recently released a draft Handbook to facilitate the integration of ISIC at division, major group, group and subgroup levels of classification, which incorporates the range of economic activities of GVCs.²⁹ The envisaged relation between data required as per SIC sectors, division, major group, group and subgroup levels and GVCs being examined in this report is nonetheless reflected on in *Table 2: The relationships between SIC categories and core value chain activities* and *Table 3: The relationships between SIC categories and auxiliary value chain activities applicable to all GVCs* for illustrative purposes, albeit not exhaustively.

²⁷ Statistics South Africa: Standard Industrial Classification of all Economic Activities-Seventh Edition, Report No. 09-90-02, October 2012.

²⁸ Interviews held with Stats SAs Risenga Maluleke (Statistician-General); J De Beer (DDG Economic Statistics) and N. Makhatha (Methodology & Standards) on 25 July and 6 September 2019.

²⁹ Ibid and United Nations Statistics Division(UNSD): Handbook on Accounting for Global Value Chains: GVC Satellite Accounts and Integrated Business Statistics, Draft version for Global Consultation, 4 February 2019.

Table 2: The relationships between SIC categories and core value chain activities

GVC	Value chain dimension	SIC division	Description	SIC group	Description
Metal fabrication	Supplier	24	Manufacture of basic metals	241	Manufacture of basic iron and steel
				242	Manufacture of basic precious and other non-ferrous metals
				243	Casting of metals
	Production capacity	25	Manufacture of fabricated metal products, except machinery and equipment	251	Manufacture of structural metal products, tanks, reservoirs and steam generators
				252	Manufacture of weapons and ammunition
				253	Manufacture of other fabricated metal products; metalworking service activities
	End-markets	27, 28, 29, 30, 33, 41, 42, 43, 45		271	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus
				272	Manufacture of batteries and accumulators
				273	Manufacture of wiring and wiring devices
				274	Manufacture of electric lighting equipment
				275	Manufacture of domestic appliances

		Mining and quarrying; manufacture of electrical equipment; machinery and equipment; motor vehicles, trailers and semi-trailers; other transport equipment; repair and installation of machinery and equipment; construction of buildings; civil engineering; specialised construction activities; wholesale and retail trade and repair of motor vehicles and motorcycles	279	Manufacture of other electrical equipment
			281	Manufacture of general-purpose machinery
			282	Manufacture of special-purpose machinery
			291	Manufacture of motor vehicles
			292	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
			293	Manufacture of parts and accessories for motor vehicles
			301	Building of ships and boats
			302	Manufacture of railway locomotives and rolling stock
			303	Manufacture of air and spacecraft and related machinery
			304	Manufacture of military fighting vehicles
			309	Manufacture of other transport equipment n.e.c
			331	Repair of fabricated metal products, machinery and equipment
			332	Installation of industrial machinery and equipment
			410	Construction of buildings
			421	Construction of roads and railways
			422	Construction of utility projects
			429	Construction of other civil engineering projects
			431	Demolition and site preparation
			432	Electrical, plumbing and other construction installation activities

				433	Building completion and finishing
				439	Other specialised construction activities
				452	Maintenance and repair of motor vehicles
				454	Sale, maintenance and repair of motorcycles and related parts and accessories
Capital and rail transport equipment					
Capital and rail transport equipment	Supplier	24, 25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	241	Manufacture of basic iron and steel
				242	Manufacture of basic precious and other non-ferrous metals
				243	Casting of metals
				251	Manufacture of structural metal products, tanks, reservoirs and steam generators
				252	Manufacture of weapons and ammunition
				253	Manufacture of other fabricated metal products; metalworking service activities
	Production capacity	28, 30	Manufacture of machinery and equipment n.e.c, manufacture of other transport equipment	281	Manufacture of general-purpose machinery
				282	Manufacture of special-purpose machinery
				302	Manufacture of railway locomotives and rolling stock
	End-markets	05, 06, 07, 08, 41, 42,	Mining of coal and lignite, extraction of crude petroleum and natural gas, mining of metal ores, other mining and quarrying, construction of buildings, civil engineering, specialised construction activities, land transport and transport via pipelines	051	Mining of hard coal
				052	Mining of lignite
				061	Extraction of crude petroleum
				062	Extraction of natural gas

		43, 49		071	Mining of iron ores
				072	Mining of non-ferrous metal ores
				081	Quarrying of stone, sand and clay
				082	Mining and quarrying n.e.c
				420	Construction of buildings
				421	Construction of roads and railways
				422	Construction of utility projects
				423	Construction of other civil engineering projects
				431	Demolition and site preparation
				491	Transport via railways
				492	Other land transport
Automotive	Supplier	24, 25, 27 28, 29	Manufacture of basic metals, fabricated metal products, except machinery and equipment, manufacture of electrical equipment, manufacture of machinery and equipment n.e.c,	241	Manufacture of basic iron and steel
				242	Manufacture of basic precious and other non-ferrous metals
				243	Casting of metals
				251	Manufacture of structural metal products, tanks, reservoirs and steam generators
				252	Manufacture of weapons and ammunition
				253	Manufacture of other fabricated metal products; metalworking service activities

				271	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus
				272	Manufacture of batteries and accumulators
				273	Manufacture of wiring and wiring devices
				274	Manufacture of electric lighting equipment
				281	Manufacture of general-purpose machinery
				292	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
				293	Manufacture of parts and accessories for motor vehicles
	Production capacity	29	Manufacture of motor vehicles, trailers and semi-trailers	291	Manufacture of motor vehicles
	End-markets	45, 49	Wholesale and retail trade and repair of motor vehicles and motorcycles. Land transport and transport via pipelines	451	Sale of motor vehicles
452				Maintenance and repair of motor vehicles	
453				Sale of motor vehicle parts and accessories	
454				Sale, maintenance and repair of motorcycles and related parts and accessories	
455				Retail of automotive fuel in specialised stores	
492				Other land transport	
				012	Growing of perennial crops (growing of grapes, tropical and subtropical fruits, citrus fruits, pome fruits and stone fruits and other tree and bush fruits and nuts)
			Crop and animal production, hunting and related service activities, manufacturing of		

Fruit	Supplier	01, 17, 20, 28, 36	paper and paper products, chemicals and chemical products, machinery and equipment n.e.c, water collection, treatment and supply	016	Support activities to agriculture and post-harvest crop activities	
				170	Manufacture of paper and paper products	
				201	Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms	
				282	Manufacture of special-purpose machinery (for food, beverage and tobacco processing)	
				360	Water collection, treatment and supply	
	Production capacity	10, 11	Manufacturing of food products and beverages	103	Processing and preserving of fruit and vegetables	
				110	Manufacturing of beverages	
	End-markets	47, 56	Retail trade, except of motor vehicles and motorcycles; food and beverage service activities	472	Retail sale of food, beverages and tobacco in specialised stores	
				561	Restaurants and mobile food service activities	
				562	Event catering and other food service activities	
				563	Beverage serving activities	
		01, 17, 20, 28, 36	Crop and animal production, hunting and related service activities, manufacturing of paper and paper products, chemicals and chemical products, machinery and equipment n.e.c, water collection, treatment and supply	012	Growing of perennial crops (Growing of grapes, tropical and subtropical fruits, citrus fruits, pome fruits and stone fruits and other tree and bush fruits and nuts)	
016	Support activities to agriculture and post-harvest crop activities					
170	Manufacture of paper and paper products					

Wine	Supplier			201	Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms
				282	Manufacture of special-purpose machinery (for food, beverage and tobacco processing)
				360	Water collection, treatment and supply
	Production capacity	10, 11	Manufacturing of food products and beverages	103	Processing and preserving of fruit and vegetables
				110	Manufacturing of beverages
	End-markets	47, 56	Retail trade, except of motor vehicles and motorcycles; food and beverage service activities	472	Retail sale of food, beverages and tobacco in specialised stores
				561	Restaurants and mobile food service activities
				562	Event catering and other food service activities
				563	Beverage serving activities

Table 3: The relationships between SIC categories and auxiliary value chain activities applicable to all GVCs

Value chain dimension	SIC division	Description	SIC group	Description
Sustainable production and energy use	35	Electricity, gas, steam and air conditioning supply	351	Electric power generation, transmission and distribution
			352	Manufacture of gas; distribution of gaseous fuels through mains
			353	Steam and air conditioning supply
	36	Water collection, treatment and supply	360	Water collection, treatment and supply
	37	Sewerage	370	Sewerage
	38	Waste collection, treatment and disposal activities; materials recovery	381	Waste collection
382			Waste treatment and disposal	
Transportation	49, 50, 51, 52	Land transport and transport via pipelines, Water transport, air transport, warehousing and support activities for transportation	491	Transport via railways
			492	Other land transport
			501	Sea and coastal water transport
			511	Freight air transport
			521	Warehousing and storage
			522	Support activities for transportation
Education	85	Education	852	Secondary education
			853	Higher education
			642	Activities of holding companies

Value chain finance	64, 66	Financial service activities, except insurance and pension funding; activities auxiliary to financial service and insurance activities	649	Other financial service activities, except insurance and pension funding activities
			661	Activities auxiliary to financial service activities, except insurance and pension funding
			663	Fund management activities
Support services	69, 70, 73	Legal and accounting activities; activities of head offices; management consultancy activities; advertising and market research	691	Legal activities
			692	Accounting, bookkeeping and auditing activities, tax consultancy
			701	Activities of head offices
			702	Management consultancy activities
			731	Advertising
			732	Market research and public opinion polling
R&D	72	Scientific R&D	721	Research and experimental development on natural sciences and engineering
			722	Research and experimental development on social sciences and humanities
Governance of value chains	94	Activities of membership organisations	931	Activities of business, employers and professional membership organisations
			942	Activities of trade unions
			949	Activities of other membership organisations

2.2.2. Competitive advantages and growth potential

While the aforementioned data provides insights into broad economic trends, it is imperative that we understand the relationship between **industries** and **GVCs**. While the former provides broad insights into economic activities within specified sectors, the latter provides insights about the management of extraction, production and marketing processes of commodities that can be classified as capital goods, intermediate goods and durable and non-durable goods – at times across industrial sectors. What is critical are the relationships between enterprises involved in the process of producing and marketing such goods that traverse an identified industry and involve cross country border operations. It is in this context that GVCs contribute to the competitive advantages and growth potential of countries.

The South African government has identified priority economic sectors and value chains to support a particular path to facilitate growth and create decent employment. These aspirations and intentions are encapsulated in policy documents such as the NDP and the Medium-Term Strategic Framework (MTSF). Further, the prioritised sectors/value chains are detailed in the APAP and the IPAP. The value chains traverses primary, secondary and tertiary sectors and its subsectors as classified in accordance with the SIC. However, the extent to which disaggregated data for both GDP and labour market activities in subsectors and value chains such as those identified in the IPAP and APAP can be provided by Stats SA is a concern.

Nonetheless, manufacturing's role has been identified as a central consideration in the selection of the aforementioned industries in terms of the provision of support by IPAP and APAP programmes. It "has high economic multipliers because of its value addition, linkages to the upstream production sectors of the economy (mining and agriculture) and the downstream sectors, including services; and because of its all-round contribution to strengthening integrated value chains... Certain manufacturing sectors have high employment multipliers across the value chains. Manufacturing drives technology and innovation through technology absorption and diffusion and

R&D. Manufacturing supports and enables the growth of national skills capacity and capabilities and the movement towards a knowledge economy.”³⁰

Manufacturing, however, increasingly involves service-related activities in both upstream and downstream in the value chain. Firms increasingly use logistics, communication services, business services, design, warranties, marketing and after sales care to improve efficiencies, customise and upgrade products in the value chain. Between 1995 and 2009³¹, 30% of the value of South African manufacturing exports involved service-related activities especially distribution, business services and to a lesser extent transport logistics, telecommunications and financial services:

“Trade data seem to show the increasing importance of GVCs only in an indirect way but the existing trade data are not detailed enough and are not collected on the right level of analysis to analyse the international fragmentation and GVCs.”³²

Sector policy initiatives

There are a number of public policies that impacted on the environment within which GVCs operated. Foremost were the IPAP and the APAP. The core objectives of IPAP involve among other:

- *“Diversifying the economy and providing strong support for value-added manufacturing*
- *Building regional investment, trade and industrial development integration*
- *Emphasis on R&D and movement towards a knowledge economy*
- *Working with the private sector to prepare for and adapt to the challenges in digitised production and logistics associated with the “4th Industrial Revolution.”³³*

Through APAP key sectors with growth potential has been identified. This involved the red meat integrated value chain, poultry integrated value chain, fruit and vegetables, wine, wheat and forestry Category B&C refurbishment and forest protection strategy,

³⁰ Department of Trade and Industry (DTI): Industrial Policy Action Plan (IPAP), 2017/18-2019/20, Pretoria, 2017.

³¹ OECD: Global Value Chains (GVCs)- South Africa

³² De Backer, Koen and Yamano, Norihiko: International Comparative Evidence on Global Value Chains; OECD Science, Technology and Industry Working Paper 2012/3.

³³ Department of Trade and Industry (DTI): Industrial Policy Action Plan (IPAP), 2017/18-2019/20, Pretoria, 2017.

fisheries: aquaculture and small-scale fisheries schemes and biofuels. This selection is based on their capacity and potential to create jobs, contribute to food security, growth potential and potential contribution to the trade balance. The development of these sectors will be supported by transversal programmes to assist smallholder producers with technical, infrastructure and financial support through CASP, Ilima/Letsema and LandCare.

Although both policies were informed by overarching policy frameworks such as the NDP and the MTSF there was an emphasis on regional integration involving developing competitive advantages in Africa, Southern Africa and among the regions within South Africa. The latter involved facilitating the development of clusters, albeit in the form of industrial development zones (IDZs), while the former involved trade agreements using SADC and the AU policies as support instruments. The purpose was to develop value chains based on innovation and management where the 'servification' will play a prominent role.

Reference to the knowledge economy involved the use of ICT-based technologies to promote efficiencies in the procurement, logistical, production and marketing processes. How does this relate to the envisaged *fourth industrial revolution*. While the *third industrial revolution* used electronics and information technology to automate production, the fourth industrial revolution, while building on the third, is characterised by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres by combining computational design, additive manufacturing, materials engineering, and synthetic biology with gains in efficiency and productivity.³⁴

“Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth... At the same time, as the economists Erik Brynjolfsson and Andrew McAfee have pointed out, the revolution could yield greater inequality, particularly in its potential to disrupt labor markets. As automation substitutes for labor across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labor. On the other hand,

³⁴ Schwab, Klaus: The Fourth Industrial Revolution-What It Means and How to Respond, Foreign Affairs, December 12, 2015. <https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution>.

*it is also possible that the displacement of workers by technology will, in aggregate, result in a net increase in safe and rewarding jobs”.*³⁵

2.3. Labour market trends

*“The main problem with the theory of marginal productivity is quite simply it fails to explain the diversity of wage distributions we observe in different countries at different times. In order to understand the dynamics of wage inequality, we must introduce other factors, such as the institutions and the rules that govern the operation of the labour market in each society. To an even greater extent than other markets, the labour market is not a mathematical abstraction whose workings are entirely determined by natural and immutable mechanisms and implacable technological forces: it is a social construct based on specific rules and compromises”.*³⁶

Significant shifts have been observed in the labour market with the advent of GVC led globalisation. The World Commission on the Social Dimension of Globalization noted that, in the absence of balanced multilateral rules to govern the key element of FDI, there is growing concern that incentive competition between developing countries is inducing these countries to go too far in lowering regulations, taxes, environmental protection and labour standards³⁷. Parallel to this trend, globalisation has generated a mismatch between the scopes in the activities of global actors (such as MNEs), which are increasingly transnational, and the scopes to action of social actors (such as trade unions, social movements, non-governmental organisations and consumer organisations), which remain largely embedded at national level. This mismatch reflects a wider systemic disequilibrium in terms of available tools of action and power between for-profit global actors such as MNEs and not-for-profit actors in the social field, who work toward a more equitable distribution of the benefits of globalisation. While the traditional employment trends have persisted, increased casualisation has resulted in new challenges to the efficacy of labour market institutions nationally and internationally.

³⁵ Ibid.

³⁶ Pikety, T: Capital in the Twenty-First Century, The Belknap Press of Harvard University Press, Cambridge and London, 2017, p387

³⁷ World Commission on the Social Dimension of Globalization(WCSDG), 2004, p. 34, para. 162 and p. 86, para. 389.

2.3.1. International Labour Organisation conventions

ILO conventions emphasising decent work remain the centre piece of the ILO's human rights agenda. This covers four main areas in the world of work, namely freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation. It involves core labour standards as reflected in its constitution, namely:

- *Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)*
- *Right to Organise and Collective Bargaining Convention, 1949 (No. 98)*
- *Forced Labour Convention, 1930 (No. 29)*
- *Abolition of Forced Labour Convention, 1957 (No. 105)*
- *Minimum Age Convention, 1973 (No. 138)*
- *Worst Forms of Child Labour Convention, 1999 (No. 182)*
- *Equal Remuneration Convention, 1951 (No. 100)*
- *Discrimination (Employment and Occupation) Convention, 1958 (No. 111)*".³⁸

2.3.2. Cross-country collective bargaining trends

A small number of cross-border labour market instruments, referred to as "international framework agreements" (IFAs) or "global framework agreements", have emerged since the late 1980s. They are negotiated agreements between MNEs and international federations of national unions in response to the challenges of globalisation dominated by GVCs.

"The situation of the labour movement is that it is confronted not only with the hostility of anti-union corporations and conservative governments here and there, but also with a worldwide political and social project, driven by transnational capital, which is fundamentally antidemocratic. It is about power in society... This system of power is codified and given enforcement authority by the World Trade Organization and is reinforced through the international financial institutions, which are also instruments of corporate policy. It is about a new hierarchy of rights in which corporate rights outweigh all others at the level of enforcement, in a world where other international institutions, such as the ILO, or conventions on human rights, have little or no enforcement capacity".³⁹

³⁸ ILO: The International Labour Organization's Fundamental Conventions, InFocus Programme on Promoting the Declaration International Labour Office, Geneva, 2003. p8.

³⁹Gallin, Dan: International Framework Agreements: A Reassessment in Cross-Border Social Dialogue and Agreements: An emerging global industrial relations framework?, International Institute for Labour Studies, ILO, Geneva, 2008, p39.

Hence IFAs are used by unions as global organising tools to affirm and exercise rights such as freedom of association and collective bargaining when addressing issues such as individual plant closures, outsourcing and casualisation particularly in the manufacturing and services industries. The International Union of Food and Allied Workers (IUF) communications director articulated its response to these issues as follows:

“We need to develop a political response to the corporate program, and we need to link this program to our members’ day-to-day struggles in ways which can effectively challenge the enormous shift in the balance of power which is what globalization is fundamentally about. While the challenge is enormous, we must never forget that the historic gains of the labour movement – gains which profoundly transformed the world we live in – seemed scarcely realizable when we first began to fight for them. We fought and we won. There was nothing inevitable about the corporate advances of the last two decades. We were simply out-organized at all levels, or, failed to organize because we didn’t appreciate the significance of what was taking place (Rossman, 2005).”⁴⁰

2.3.3. National processes for the determination of minimum conditions of employment and wages

A typology of labour market processes to determine conditions of employment and wages can be discerned in SA. The LRA provides the legislative framework governing collective bargaining in South Africa’s labour market. It accommodates the use of various forms of social dialogue to enable dispute resolution and the determination of employment conditions. The BCEA, using instruments such as the ECC has facilitated the development of Sectoral Determinations that contain minimum conditions of employment and wages for identified sectors.

- **Company-level bargaining**

The prevalence of company-level bargaining has historically provided the foundation for collective bargaining processes. Company-level bargaining has been consolidated in some large enterprises in sectors not traditionally governed by bargaining councils as specified in the LRA. Here, collective bargaining practices in companies in the retail, food processing and financial services sectors are good examples.

⁴⁰ Ibid, p39-40.

- **Statutory centralised bargaining**

Centralised collective bargaining arrangements remains pivotal to the establishment of uniform employment conditions and wages at sector level. The MEIBC and MIBCO remains some the most poignant bargaining councils in the metal fabrication, motor and automotive value chains.

- **Non-statutory centralised bargaining**

While bargaining councils remain the dominant form of centralised bargaining, non-statutory forms prevail in the automotive and mining industries.

- **Sectoral determinations**

The BCEA provides the framework for the determination of minimum conditions of employment and wage regulation by sectoral determinations for identified sectors requiring regulation. Where union and employer representation has not reached sufficient levels to aid the establishment of industrywide bargaining councils, albeit in a specific geographical area, the ECC is tasked to consult with affected parties and to advise the Minister on the content of such sectoral determinations. An arrangement that intends to protect 'vulnerable sectors' without curtailing the opportunity for private sector stakeholders to regulate sector-specific employment conditions and wages in sectors where they are better organised.

- Sectoral Determination No. 10: informs basic conditions of employment applicable only to children in the performance of advertising, artistic and cultural activities.
- Sectoral Determination No. 2: Civil engineering sector details special conditions of employment applicable only to employers and workers in the civil engineering sector.
- Sectoral Determination No. 1: Contract cleaning sector regulates wages, working hours and other basic conditions of employment for contract cleaning workers.
- Sectoral Determination No. 7: Domestic workers specifies special rules governing the employment of domestic workers.
- Sectoral Determination No. 13: Farm worker sector regulates wages, working hours and other basic conditions of employment for farm workers employed in the primary and secondary production components of fruit and wine value chains.

- Sectoral Determination No. 12: Forestry sector regulates wages, working hours and other basic conditions of employment for forestry workers.
- Sectoral Determination No.14: The hospitality sector regulates wages, working hours and other basic conditions of employment for workers in the hospitality sector that constitutes an end-market of the fruit and wine value chains.
- Sectoral Determination No. 5: A sectoral determination establishing conditions of employment and rates of allowances for learners in South Africa.
- Sectoral Determination No. 6: Private security sector.
- Sectoral Determination No. 11: Taxi sector regulates wages, working hours and other basic conditions of employment for taxi workers.
- Sectoral Determination No. 9: Wholesale and retail sector regulates the basic conditions of employment of workers in this end-market of the fruit and wine value chains.
- Sectoral Determination No. 1: Sectoral determination – Ministerial determination for the small business sector.

2.3.4. Industrial sectors, value chains and the demarcation of labour market institutions

The critical questions are whether these labour market processes should be reconsidered based on the impacts of GVCs in SA.

*“The purpose of the research is to investigate the changes that global value chain (GVC) brings to employment and whether the current regulatory model in South Africa embraces the new working relations brought by the GVC”.*⁴¹

The Presidential Commission to Investigate Labour Market Policy, in its 1996 report *Restructuring the South African labour market*⁴², provided some basis for approaching the revision of relevant labour market institutions. In paragraph 170, it states among others that:

“The Commission believes a number of principles should inform a rational approach to demarcation. First, the aim should be to bring together in one bargaining forum broadly similar producers or service providers. The product market must be assessed to ensure that the

⁴¹ See DoLs ToR for this project.

⁴² The Presidential Commission Presidential Commission to Investigate Labour Market Policy, *Restructuring the South African Labour Market*, June 1996, Pretoria.

industry scope is neither too broad nor too narrow. Second, it is particularly important to take into account the labour-intensity of the component parts of the industry to ensure that the same minimum conditions do not automatically apply vastly different situations, possibly acting to discourage job creation. Third, account should be taken of the actual or planned structure of training arrangements in the industry concerned. Fourth, the number of employees covered should be sufficiently large to allow economies of scale in relation to, for example, benefit funds, while not being too large such that sub-sectors with little in common are bunched together.”⁴³

It was recommended that NEDLAC and its social partners be empowered to make initial decisions concerning the demarcation of bargaining councils. Further, in terms of Section 62 (9) of the LRA, NEDLAC’s input into disputes concerning the demarcation of bargaining forums had to be considered before the designated CCMA commissioner makes an award.

The issue of demarcation became more critical as some GVCs sought the establishment of new bargaining models consistent with its value chain activities. Foremost is the agreement reached within the NBF for the automotive industry that would have implications for both MIBCO and MEIBC. The importance of the issue is augmented by evidence of disputes involving these bargaining councils recently.⁴⁴ The nature of such disputes could be wide-ranging as reflected in Section 62(1):

“Any registered trade union, employer, employee, registered employers’ organisation or council that has a direct or indirect interest in the application contemplated in this section may apply to the Commission in the prescribed form and manner for a determination as to-

- (a) *whether any employee, employer, class of employees or class of employers, is or was employed or engaged in a sector or area;*
- (b) *whether any provision in any arbitration award, collective agreement or wage determination made in terms of the Wage Act is or was binding on any employee, employer, class of employees or class of employers.”⁴⁵*

The International Standard Industrial Classification Revised version 4 (ISIC 4) classified entities according to the activity which they execute, their character, technology, organisation and functioning of production, whereas the International Standard Classification for Occupations (ISCO 8) provides descriptions for all the

⁴³ Ibid.

⁴⁴ Republic of South Africa, Labour Relations Act, No. 66 of 1995, Pretoria.

⁴⁵ Ibid.

occupational categories. The demarcation of bargaining councils, sectoral determinations as well as its internal occupational structure has largely been informed by these internationally accepted practices of classification of economic activities. The question is whether labour market institutions have kept abreast consonant with the evolution of modern technology and production processes. There are also attempts to infuse the demarcation deliberations with considerations of value chains as a form of organising economic activity due to the existence of companies that provide products and services that straddle various demarcated industrial sectors. Some of them have developed their own value chain while other have supported more than one value chain. This has led to deliberations about whether these companies form part of a particular bargaining arrangement.

Further, bargaining councils, forms of non-statutory centralised bargaining, company level bargaining and sectoral determinations were underpinned by specific occupations, skills levels, job evaluation informed grading structure and remuneration specific agreements. Whereas occupation refers to regular work, tasks or means of getting a living, skills level is defined as a function of the range and complexity of the set of tasks performed in a particular occupation. Through job evaluation or grading systems, these occupations or jobs are measured according to their content to establish its comparative worth and related remuneration.

The MEIBC had a 13-grade job structure with a stated intention of moving towards a more flexible five-grade job structure with definitions of skills (see *Table 7: A summary of industry divisions/schedules and applicable rates*) that was applicable to core metal fabrication and capital and rail transport equipment value chain employment activities. Whereas MIBCO had an eight-grade job structure, which was distinct from the seven-grade job structure adopted by the NBF for the automotive sector. All these structures excluded the non-managerial office-based workers that were considered to belong to a different bargaining unit. MIBCO's division D detailed the nature of this grading structure. The NBF, although referencing the grading structure of the seven OEMs, provided general guidelines for it to be considered as a bargaining unit in the NBF.

The Sectoral Determinations 13 and 14 informed the minimum wage payable to a farm worker and a hospitality worker respectively. Differential rates in the hospitality sector

are paid based on the number of workers employed by an enterprise. Remuneration differentials based on occupation related grade and skills levels are left to respective enterprises to determine. Sectoral Determination 9 for basic conditions of employment in the wholesale and retail sector, end-markets of the fruit and wine value chains reflects occupation and geographical related remuneration differentials. Detailed tasks are specified for occupations and related remuneration ranging from a general assistant to a manager while geographical related differentials is based on detailing various types of municipalities designated as area A or B where it would be applicable.

Institutions responsible for funding and the provision of training such as merSETA and AgriSETA have developed an approach towards occupational classification in response to the DHET Guidelines to an Organising Framework for Occupations (OFO) issued in 2013. These Guidelines were meant to assist alignment between ISCO-08 as well provide general guidance on the application of an OFO to users in South Africa, particularly SETAs, employers and skills development facilitators. The ISCO-08 is designed for international comparison of occupational statistics and is also meant to assist countries with revisions to their specific national occupational classifications.

The implications of the demarcation issues for the crafting of value chain bargaining agreements based on identified occupational, skills, job evaluation informed grading structure and remuneration can provide significant insights into the issues and challenges particularly for newly envisaged bargaining structures. It is nonetheless imperative for some level of demarcation-based and internal organisation based on clear and credible criteria.

2.3.5. Employment security and labour market flexibility

Recent studies have demonstrated that employment security is being affected with the increased labour-substituting effects of technological advances while new jobs will be created to complement the demand for workers with specific skills.

“... digital capital-intensive technologies are substituting for humans in the routine labor-intensive part of manufacturing supply chains, where large numbers of people are employed around the world. As this happens and digital technologies make manufacturing mobile with little or no cost penalty, physical manufacturing activity will move toward market demand rather than toward labour, because there are efficiencies to be gained

*from proximity to the market... developing countries have a much higher share of jobs at risk from automation than developed countries, as technological breakthroughs erode the traditional labor-cost advantages of developing countries in tradable sectors and encourage the reshoring of tradable activities to the developed countries. The policy challenge now is how to adapt to new labor-saving and skills biased technologies that can substitute for both routine and non-routine labor in both developing and advanced countries alike.*⁴⁶

Further, the status of an employee in relation to being permanently or temporarily employed, and the associated conditions of employment that involve issues such as protective clothing are also contentious issues. Temporary employment services (TESs), short-term contracts and labour brokers have recently become a central feature of collective bargaining and determination. It reflects a change from previous conditions of employment that provided some level of permanency by introducing flexibility consonant with global trends. Most, if not all, bargaining council agreements and sectoral determinations have introduced clauses governing these newfound arrangements. Some agreements, such as the NBF provisions, have pledged to discontinue these arrangements, while others have specified detailed provisions in addition to the Ministerial Proclamation of regulations that govern these practices. These practices not only affected occupational categories traditionally considered blue-collar workers, but also professionals who provide specialised services. Corresponding groups that are now represented by both unions and staffing organisations such as the Confederation of Associations in the Private Employment Sector (CAPES).

The consideration of flexibility to labour market arrangements as suggested in the 2018 *Global competitiveness report*⁴⁷ ranked South Africa in the hiring and firing of workers, cooperation in employee and employer relations, and flexibility of wage determination 111th, 136th and 133rd respectively out of 140 countries. While South Africa is ranked 20th and 25th in labour mobility and worker rights. For pay and productivity, it is ranked 91st. Overall, South Africa attained a ranking of 55th for the labour market pillar, which measures “ ‘flexibility’, namely, the extent to which human

⁴⁶ Tyson, Laura and Spence, Michael: Exploring the Effects of Technology on Income and Wealth Inequality, in *After Piketty-The Agenda for Economics and Inequality*, edited by Boushey, H; Bradford De Long, J and Steinbaum, M; Harvard University Press, 2017, 170-208pp, p202-3.

⁴⁷ Schwab, Klaus (ed): *The Global Competitiveness Report: 2018*, World Economic Forum, Geneva, 2018

resources can be reorganized and ‘talent management’, namely, the extent to which human resources are leveraged”.⁴⁸ Importantly, the report, which is partly informed by the WEF’s *Executive opinion survey*, emphasised that there should be no trade-off between labour market flexibility and worker rights. How then does one seek to understand the disparities in its findings?

The answer perhaps partly resides not in South Africa’s policy frameworks, which provide for diverse forms of regulation, but in their implementation and the compliance thereto. The policy frameworks emphasise the importance and level of self-regulation of labour markets, involving employers and trade unions in a legislative environment that provides frameworks conditions as prescribed by the BCEA, LRA and associated legislation.

Whereas statutory and non-statutory bargaining councils/forums administered by representatives of organised business and labour have historically determined conditions of employment and remuneration for a sector, the pursuit of value chain bargaining has raised new challenges in a globally competitive environment. It would be instructive to examine dynamics that are evolving in some of the oldest collective bargaining arrangements, as epitomised by the MEIBC and MIBCO as well as the non-statutory NBF, where value chain bargaining has informed labour relations discourse in various ways. The dominant position of foreign-owned and locally-owned producer MNEs in shaping value chains provides particular insights into the nature of required labour market institutional arrangements.

The evolution of the enforcement of sectoral determination in an externally regulated environment where ethical trade has informed local labour market dynamics has raised questions as to which path should be followed by critical export-orientated buyer-dominated value chains. Company-level bargaining, which was prevalent in the fruit and wine agro-processing, wholesale and retail segments of these value chains, signalled a preparedness by organised business and labour to regulate conditions of employment and remuneration.

⁴⁸ Ibid, p41 and p525.

Various forms of dispute resolution were prescribed by the LRA and BCEA that accorded significant responsibilities to organised business and labour at the enterprise level. The establishment of Workplace Forums in enterprises employing 100 or more employees, with clearly defined constitutions in terms of Chapter V of the LRA, sought to enable more effective labour-employer relations. Committees that are required to deliberate about the need to apply for exemptions from certain aspects of agreements in both bargaining councils and sectoral determinations. Ditto for the Skills Development Committee entrusted to draft an enterprise-based Workplace Skills Plan for an enterprise employing 50 or more employees in terms of the National Skills Development Strategy.

Questions were raised as to the capacity of these committees involving both employers as well as worker representatives to function optimally to achieve their objectives. An examination of the referral of issues are not always resolved at the enterprise level to collective bargaining structures, and perhaps further lessons can be gleaned about structures associated with the implementation of sectoral determinations for the identified value chains could be instructive. Issues that are frequently referred to the dispute resolution mechanisms available at bargaining councils or that are facilitated by the CCMA and/or eventually the Labour Court, merit attention. If the issues are not dealt with at enterprise level, this leads to the limited capacity of independent institutions such as the CCMA and Labour Courts being subjected to extraordinary and unacceptable pressures. The outcome from these developments impacts on how the ease of hiring and firing and employer-labour relations are managed and measured without infringing on worker rights. These are enforced by compliance arrangements of bargaining councils and the Department of Labour. Thus, questions arise about the measures that are being developed to deal with these obstacles to improve labour market efficiency and thus flexibility.

It is in this context that GVCs' impacts on labour markets, particularly the relation between lead companies that control the value chain and their suppliers, albeit a subsidiary or not controlled by the lead company is a critical consideration. The lead enterprise tends to set the conditions under which an input may be supplied, including whether the sourcing is within a country's borders or offshore. This can be impacted on by a country's localisation of supply chains. Various input costs such as electricity,

transport and labour of the suppliers can affect the comparative pricing and quality of supplies. It is often argued that South Africa has higher labour costs than its competitors and a limited supply of skilled labour required for the production of the requisite supplies. This places local suppliers in a difficult position, because it is perceived that it cannot compete with the labour cost of its competitors based on the overall pricing and quality requirements of the lead companies. This situation can be better considered when examining various GVC types based on their governance arrangements. A broad classification of producer-dominated and buyer-dominated lead companies have been considered for examination in this study.

These challenges may be compounded by the increased automation of the world of work. Analysts considered occupations where the bulk of tasks are “more routine and follow explicit, codifiable procedures tend to be more adaptable to automation” whereas “jobs resistant to computerisation involve extensive non-routine, abstract tasks that require judgment, problem-solving, intuition, persuasion and creativity. Jobs that also resist automation are those with non-routine, manual tasks that demand a high degree of situational flexibility and human interaction”.⁴⁹ This could imply significant restructuring of production processes in workplaces based on the pursuit of retrenchments, re-skilling and changing recruitment practices. GVC operations tend to promote such changes. Deliberations of South Africa’s labour market’s response to the challenges of the fourth industrial revolution should nonetheless consider the following observations.

*“South Africa’s innovation capability is relatively advanced (44.3, 46th), although limited by insufficient research and development (37.5)... Low ICT adoption (46.1, 85th) is another important restraint on South Africa’s competitiveness. Only 54% of the adult population has access to the internet, and only 70 out of 100 people have subscribed to mobile-broadband services (66th). Similarly, the digital skills (116th) and critical thinking skills (78th) of the current workforce are inadequate for the progress of a successful economy in the Fourth Industrial Revolution”.*⁵⁰

⁴⁹ Chang Jae-Hee, Huynh Phu: *Asean in Transformation. The future of jobs at risk of automation*. Bureau for Employers’ Activities, Working Paper No 9, ILO, July 2016, p6; D. Autor, F. Levy and R. Murnane: “The skill content of recent technological change: An empirical investigation”, in *Quarterly Journal of Economics*, 118, November 2003, pp. 1279–1333 and D. Acemoglu and D. Autor: “Skills, tasks and technologies: Implications for employment and earnings”, in *Handbook of Labor Economics*, vol. 4, pp. 1043–1171.

⁵⁰ Schwab, Klaus (ed): *The Global Competitiveness Report: 2018*, World Economic Forum, Geneva, 2018, p36.

2.3.6. Skills development

A number of factors, including investment in infrastructure, basic R&D and HR development, have been identified as critical to successfully respond to de-industrialisation, and enable countries to move up the GVCs.⁵¹ Education and skills formation shape the capacity to competitively produce goods and services and positively impact on economic growth. Further, Robert Topel⁵² argues that a one-year increase in the average years of schooling of the labour force raises output per worker 5% to 15%. In addition to labour productivity increases, Andrea Bassanini and Stefano Scarpetta in 2001⁵³ and Barbara Sianesi and John van Reenen in 2003⁵⁴ provided evidence that a one-year increase in average education raises per capita income 3% to 6%. Skills development not only affect individuals' employability, but according to Vincent Vandenberghe and Olivier Debande, it also allows them to increase wages and helps ensure better job quality and labour conditions.⁵⁵ Increased skills are also related to higher rates of labour force participation, especially among women.

Because there is such a visible and direct relationship between job grades and wages and compensation, there is less room for error in determining skills levels in the workplace. In fact, job grades are a better recognition of employees' skills, which serve a useful productive purpose in an enterprise, and are costed and compensated as such. It is a much better approximation of skills than for instance employees' qualifications. However, this does not imply that formal qualifications are less important. Qualifications are crucial, but their relationships to cognitive knowledge or task-related performance are not effectively articulated in the international and the South African literature. Perhaps, partially for its unfulfilled promise of guaranteeing access to higher forms of knowledge in the population at large, which can alleviate the

⁵¹ See Stiglitz, J.E: *People, Power and Profits-Progressive Capitalism for an Age of Discontent*, Penguin Random House, UK, 2019.

⁵² Topel, Robert H: Labor markets and economic growth, in: O. Ashenfelter & D. Card (ed.), *Handbook of Labor Economics*, edition 1, volume 3, chapter 44, pages 2943-2984, Elsevier.

⁵³ Bassanini, Andrea and Scarpetta, Stefano: Does Human Capital Matter for Growth in OECD Countries? Evidence from Pooled Mean-Group Estimates, *OECD Economics Working Paper No. 282*, OECD, April 2001.

⁵⁴ Sianesi, Barbara and Van Reenen, John: The returns to education: Macroeconomics, *Journal of economic surveys*, Volume 17, No. 2, Blackwell Publishing, 2003.

⁵⁵ Vandenberghe, Vincent and Debande, Olivier. Financing Higher Education with Students Loans – on the crucial role of income-contingency and risk pooling, *IRES Discussion Papers, ECON, UCL, Louvain-la-Neuve*, 2004-36, 2004.

overall challenge of occupational upliftment and the eradication of unemployment, the SAQF has generated criticism for this limitation from both international and SA academics. But the prescriptive measures that the debate has engendered are merely for the scrapping of national qualifications frameworks. In the absence of rigorous evidence, such prescriptions can lead to the adoption of policies that are detrimental to an educational or skills development system, mainly because this calls for a drastic shift in policy direction and usually requires a longer time to properly evaluate whether the policy turn was the correct one.⁵⁶

A significant amount of research has been conducted by the OECD to gain a better understanding of the correct prescriptions for skills development policy, especially in the context of emergent patterns and shifts in GVCs. This research by the OECD⁵⁷ set out to map the cognitive skills that play a major role across any industry, and also shows the correlations between task-based skills, performance and participation in GVCs and industry-specific requirements. The data to elaborate the analysis were drawn from a multicountry survey conducted by the OECD Programme for the International Assessment of Adult Competencies (PIAAC) in 2011 to 2012 (for 23 countries) and supplemented further in 2014 to 2015 (for an additional 8 countries). The survey and subsequent analysis by the OECD generally ascribed cognitive skills as consisting mainly of literacy, numeracy and problem-solving abilities and skills. Six indicators were used to identify task-based skills, performance and participation that were crucial for participation in in GVCs. Broadly, these consisted of ICT skills; readiness to learn and creative problem-solving; managing and communication; self-organisation; marketing and accounting; and science, technology, engineering and mathematics (STEM), which can be referred to as quantitative skills.

Thus, cognitive skills are crucial and contribute to competence. But there is also a wider dimension of non-cognitive skills that come into play, especially in the ways these enhance task-based performance and participation. This is noticeable

⁵⁶A more immediate example of education/skills policy failure is highlighted in the case of progressed learners who were given the chance to complete a matric over two years. Prega Govender, 'Two-year' matric grand plan flots, Sunday Times, 25 August 2019. This point is discussed in more detail below.

⁵⁷ Robert Grundke, Stephanie Jamet, Margarita Kalamova, Francois Keslair & Mariagrazia Squicciarini (2017) Skills and global value chains: A characterisation, OECD Science, Technology and Industry Working Papers 2017/05.

particularly in respect to managerial and organisational competencies, creative problem-solving and learning ability, self-organisational ability and flexibility on the job. According to Grundke⁵⁸, cognitive skills “involve conscious intellectual efforts and including long- and short-term memory, auditory processing, visual processing, processing speed, and logic and reasoning”. Non-cognitive skills can be referred to as soft skills, personality traits or character qualities; they imply a more indirect application of intellect and relate to an individual’s personality, temperament, attitudes, integrity and personal interaction.

In sum, the cognitive skills that the OECD survey sought to measure consist of reading, writing and numerical skills. This framework of cognitive skills includes ICT skills. Similarly, skills that combine aspects of cognitive abilities and personality traits that are measured in the PIAAC survey and that are directly correlated to enriching skills in the context of GVCs include: managerial and organisational competences; creative problem-solving and learning ability; and self-organisational ability and flexibility on the job. Using this framework, the OECD researchers formulated a normative typology of performance-relevant skills identified in PIAAC, as represented in Table 4.

⁵⁸ Grundke, et.al. 2017: p9.

Table 4: A normative typology of performance-relevant skills identified in the PIAAC

Cognitive skills		Literacy
		Numeracy
		Problem-solving in technology-rich environment
Cognitive skills (using information on tasks performed)	Complex	Reading and writing
		Numerical skills
		ICT skills
	Less complex	Reading and writing
		Numerical skills
		ICT skills
Skills combining cognitive skills and personality traits (using information on tasks performed)		Problem-solving
		Self-organisational skills
		Interacting and communicating
		Managing
Personality traits		Conscientiousness and job management
		Readiness to learn and creative thinking
		Trust in persons
Physical skills (using information on tasks performed)		Physical skills

(source: Robert Grundke, Stephanie Jamet, Margarita Kalamova, Francois Keslair and Mariagrazia Squicciarini (2017) *Skills and global value chains: A characterisation*, OECD science, technology and industry working papers 2017/05, Table 1, p. 13)

The existence or pool of cognitive skills in the workforce is an absolutely essential precondition to undertake the task-related activities in firms and GVCs. A basic repertoire of cognitive skills in the labour force is essential if one is to engage in performance tasks in the workplace. These in themselves have a higher cognitive component. This higher cognitive component requires us to use both complex and less complex tasks that use information through reading and writing, numerical skills and ICT skills that are built on foundation blocks of cognitive skills that have already

been acquired through pre-employment formal education and acquired through family and personal values. In this pre-employment domain, which consists of formal education, supportive families and other positive culturally learned behaviours, there is an emphasis on conscientiousness, trust, readiness to learn and creative thinking. These ingredients cannot be systematically developed over a short period through workplace training. Much of the substance of such deeply ingrained cognitive skills is typically acquired in the first 16 to 21 years of an individual's skills development lifecycle, in which formal education is critical and has a key role in the accumulation of cognitive skills an individual possesses at the time they enter the formal labour force, either as unskilled employees, employees on learnerships and apprenticeship programmes, and other training programmes, including employees undergoing workplace integrated learning. The cohort of employees that potentially are the recipients of workplace integrated learning would have entered technical and vocational education and training and higher education after completing formal school education (i.e. Grade 12).

An example we will discuss highlights the deficiencies in cognitive skills development that may be more extensive in the formal school education system, particularly the public system, which has significant ramifications for its alignment to an extensive interaction with GVC opportunities for young employees at the start of a formal employment lifecycle. This example entails the plan to support matriculants in South Africa who failed their Grade 11 examinations, with an opportunity to complete their matriculation programme over two years. It was a plan to avoid students leaving high school with only a Grade 10 certificate and thus avoid the stigma of being classified as failures or school drop-outs. The programme involved 78 363 pupils, who were referred to as "progressed learners". The programme was designed for pupils to write three Grade 12 examination subjects in the November of the following year after progressing from Grade 11. Essentially, progressed learners write these three examination subjects at the same time as their peers who passed Grade 11 but who take the full cohort of subjects required to obtain the matriculation certificate. This means that the progressed learners theoretically only lag six months behind their peers who write the full matriculation examinations. The remainder of the subjects required by the progressed learners are written in June the following year through a

system known as *multiple examination opportunity*.⁵⁹ Unfortunately, only 6 320 out of the 78 363 progressed learners successfully passed, a pass rate of only 8.1%. Of the initial 88 828 candidates who wrote three subjects in November 2018, a further 10 465 failed to write the remaining subjects in June 2019, which means that 78 363 candidates (88.2%) wrote the required subjects in November 2018 and June 2019. Of the 6 320 candidates who passed, only 260 obtained admission to Bachelor studies. Only 353 passed with mathematics. Thus, of those who passed but did not obtain admission to Bachelor studies, the option also existed for them to proceed to a TVET institution. Overall, only six progressed candidates obtained their matriculation certificate with distinction. Because of the poor result of the “two-year” matric for progressed learners, Angie Motshekga, the Minister of Basic Education, decided to scrap the programme from 2020.

Education experts identified a number of challenges that inhibited the policy of progressing learners, as described above. Prof. Labby Ramrathan of the School of Education at the University of KwaZulu-Natal indicated that the policy did not address the underlying problem: “Lowering the workload for writing a full set of exam papers by progressed learners is an incorrect assumption. They have conceptual difficulties in knowing and understanding the subject content and therefore even writing one paper at a time will not make any material difference to the pass rate”.⁶⁰ Ramrathan argued that pupils should be provided with curriculum support, learning opportunities, coaching and counselling. Ramrathan’s colleague, Prof. Wayne Hugo, said the curriculum was designed in such a way that teachers have little time to explain and assist learners who struggle in the classroom: “If you can’t cope, then you fall behind, get progressed, fail a little and then get progressed again, until we get to the final exit point where all the inefficiencies of the system come home to roost”.⁶¹ The points made by Ramrathan and Hugo were further substantiated by Prof. Felix Maringe, head of Wits University’s School of Education. He said that content coverage appeared to be the main aim of teaching in schools, while understanding and critical analysis were not prioritised. He said there was a too strong focus on short-term measures, which ultimately led to “deceiving society by parading high pass rates. It’s the ultimate

⁵⁹ Govender, Prega: Two year matric grand plan flops, Sunday Times, 25 August, 2019.

⁶⁰ Ibid.

⁶¹ Ibid

window-dressing act that conceals deep-seated and unresolved problems of ineffective teaching and learning”.⁶²

The evidence gathered from South African educationalists, coupled with the prescient framework that places cognitive skills at the heart of a workforce that is better placed to become productively engaged in GVCs, is an important signpost into the challenges faced by policy-makers, who are tasked to create an enabling environment that facilitates a smoother and more rapid transition of the labour force into higher value added productive activities. Ultimately, this can be swiftly advanced through more South African firms engaging with GVCs.

The demand for and supply of skills and training

The SETAs function predominantly as sectoral co-ordinating bodies that provide an institutional structure to the skills development system in South Africa. This is done through sectoral planning of the national skills strategy in the country as well as ensuring that the sectoral plan for skills development is implemented. An important feature of the planning which SETAs are involved with concerns the establishment of learning programmes and to a significant extent, learning programmes can alter the shape of a learning curriculum within a skills development milieu. Thus, concerning its promotion of learning programmes, a SETA is mandated to carry out the following functions:

- “(i) identify workplaces for practical work experience;
- (ii) support the development of learning materials;
- (iii) improve the facilitation of learning; and
- (iv) assist in the conclusion of agreements for learning programmes, to the extent that it is required”.⁶³

Thus, typically, SETAs do not train learners. This implementation activity is usually undertaken by training providers that are accredited by the respective SETA. Nonetheless, where this training was supported by the SETA and financed by funds derived from the skills levy administered by the SETA, data of this process and activity is captured in the SETA implementation reports for specific training years.

⁶² *ibid*

⁶³ Republic of South Africa: Skills Development Act, No. 97 of 1998, section 10.1(c)

Two SETAs are significant in the provision of training to the value chains we examine here: AgriSETA and merSETA. The former for the fruit and wine value chains and the latter for the metal fabrication, capital and rail transport equipment and automotive value chains.

Further, it is important to also distinguish between general overarching challenges that plague the skills development system as a whole and sectoral and subsectoral issues that are unique to the sector, subsector or the specific SETA or SETAs associated with them. We deal with the unique sectoral, subsectoral and specific issues relating to either AgriSETA or merSETA in section A and B in relation to producer-dominated and buyer-dominated GVCs and the industries subsumed under each. In this section, we will discuss the general overarching or systemic challenges that are infused in South Africa's skills development system.

In South Africa's policy context, the suggestion of new institutions designed to improve the delivery of the education and training system has usually been grounded in a thorough process of research and consultation. This occurred in relation to the NQF and in relation to SAQA, which was mandated to implement the new qualifications framework. Because these new institutions often resulted in far-reaching changes to the roles and structure of institutions, which was a complicated process, the ways in which these new institutions functioned in the changed context was often challenging and unpredictable, and the results from the implementation process had usually not been anticipated. It was typically anticipated that the new institutions would resolve historical problems and herald largely positive outcomes. The absence of a quality council for the trades and occupations that were distinct from the quality council for general and further education (i.e. Umalusi) and the quality council for higher education (principally universities and universities of technology) (i.e. the CHE) particularly the HEQC, which is subsumed under the CHE), implied that qualifications designed for the intermediate levels of the occupation structure, comprising mainly workplace training provision, did not fall under the remit of either.

To mitigate this problem, SAQA empowered all the SETAs to function as sectorally based Education Training Quality Assurers (ETQA). This meant that SETAs across the spectrum (initially, 25 SETAs) were empowered to issue certificates and

qualifications that were registered through SAQA. This resulted in a massive flow of new qualifications becoming registered through SAQA from a large number of SETAs that were not tied into established relationships with professional bodies. Thus, a large volume of qualifications were issued to learners who successfully completed SETA-accredited courses and qualifications; however, these qualifications and learning programmes were not easily recognised and accredited by existing institutions that fell under the auspices of either the HEQC or Umalusi. So, instead of resolving the challenge of learning pathways and qualifications progression, the new dispensation impeded it, because the problems of qualifications accreditation and articulation remained unresolved. This scenario played itself out from 2000, when SETAs actively started to operate, to roughly 2008, when new legislation established a third educational quality council, the Quality Council for Trades and Occupations (QCTO), with the amendment of the Skills Development Act. Under the new revisions to the law, the QCTO's mandate is to ensure the quality assurance of occupational qualifications and the management of occupational standards and qualifications.

However, the complicated nature of the problem and its resolution spanned a period of almost nine years. The QCTO is meant to absorb and displace the specific ETQA role of individual SETAs. However, this has not taken place unambiguously. In fact, because the QCTO has had limited staff and funding capacities, this process has been prolonged, with SETA ETQAs being rebranded and re-delegated as Quality Assurance Partners (QAPs). Funding regulations that allocated monies to the QCTO only became operational in the 2013 financial year, with a 0.5% deduction being imposed on the levy funds of all SETAs. This was extremely slow. A more creative engagement with the skills development levy would have resolved this problem almost immediately. Prior to this, the QCTO had only limited resources to draw on, which meant that the status quo in implementation and delivery changed only modestly. Thus, improvements in policy formulation in the skills development arena typically appears to have had only incremental results at the beginning, and it is usually only after a number of years when a changed policy environment's impact was noticeable. For those outside the system, resolving these systemic and institutional challenges appeared to be tardy. For stakeholders who depend on a swift resolution to the problem, the slow pace of the resolution of these systemic and institutional challenges caused massive frustration.

2.3.7. Decent work

*“Decent work... involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men”.*⁶⁴

The pursuit of a decent work agenda has become more complicated with the construction of business models that increasingly rely on deviating from standard employment practices. David Weil comments on this changing trend that has led to a “fissured workplace”:

*“In the post-World War II era, lead businesses exercising some level of market power but facing the need to accommodate fairness perceptions among their workforce were led to select policies that resulted in wage premiums for a cross section of workers in larger firms. Over the last few decades, however, firms have become less constrained by those fairness perceptions in wage determination by changing the boundaries of employment through shedding activities to other business entities”.*⁶⁵

Guy Standing has described what he calls the rise of *the precariat* through a process of “precariatization – habituation to expecting a life of unstable labour and unstable living”.⁶⁶

The implementation of the ILO’s Decent Work Agenda in South Africa has been significantly affected by the activities within prevailing GVC types and their alignment with labour market institutions. It is evident that different labour market dynamics have prevailed in relation to producer-dominated and buyer-dominated GVCs. Employment security was affected by the adoption of different business models across the various GVC types. Responses to this varied, pending the prevailing regulatory environment. Labour markets in producer-dominated value chains have largely been governed by self-regulatory forms of non-statutory and statutory centralised collective bargaining, while buyer-dominated value chains have primarily been governed by sectoral determinations despite the prevalence of instances of company-level bargaining. It

⁶⁴ International Labour Organisation (ILO): Decent Work, <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>, 17 September 2019.

⁶⁵ Weil, David: Income Equality, Wage Determination, and the Fissured Workplace, in *After Piketty-The Agenda for Economics and Inequality*, edited by Boushey, H; Bradford De Long, J and Steinbaum, M; Harvard University Press, 2017, 209-231pp.

⁶⁶ Standing, Guy: Why the precariat is not a “bogus concept”, *openDemocracy*, 4 March 2014.

impacted on the occupational structures, grading and skills development arrangements that informed various dimensions of decent work, such as employment and social security, personal development and social integration. Each of the GVCs being examined reveal particular relationships to prevailing labour market institutions at regulatory, governance and operational levels; these require detailed scrutiny.

3

RESEARCH METHODOLOGY

The research methodology that informs this report is multidimensional. We reviewed the available global and local literature and documentation as well as research into GVCs by multilateral institutions such as the OECD, ILO, IMF, WTO, UNCTAD, UNIDO, World Bank, SADC, Southern Africa Customs Union and the African Development Bank.

Similarly, research in academic institutions and related networks, such as the Global Value Chains Center (previously known as the Duke University Center on Globalization, Governance & Competitiveness), the Institute of Development Studies, Sussex University, and the Industrial Performance Center, Massachusetts Institute of Technology (MIT) provided valuable insights into GVCs. Our emphasis was on the relationships between GVCs and labour markets, with particular reference to employment and wage determination trends, including collective bargaining, social protection and skills development measures.

We developed an impact assessment framework based on the aforementioned literature and documentary overview, including that of the involvement of South Africa-based enterprises in GVCs and the labour market implications of this. We examined the interface between existing labour market policies and practices and producer-dominated value chains, specifically companies involved in metal fabrication, capital and rail transport equipment and automotive value chains and buyer-dominated value chains, with companies involved in the fruit and wine industries value chains.

3.1. Literature review

A large body of literature dealing with globalisation, and GVCs in particular, has been produced in the past 20 years by numerous institutions and individuals. There has been an emphasis on the understanding of globalising value chains to which MNEs are crucial. Typologies have been developed to understand various value chains and their dimensions. The changing trade relations, production networks and clustering, which have implications for the extraction, manufacturing and services sectors has led to deliberations about the emergence of a knowledge-based economy. What this meant for the economic development trajectories of both developing and developed countries is well documented, as well as its social and economic implications of its effects on issues such as employment levels, innovation, the use of technologies, skills development, social protection and prevailing policy regimes, particularly in low-income and developing countries. The provision of regional, country and subnational studies (clustering and agglomeration of enterprises) are insightful. It is in this context that the literature dealing with Africa, Southern Africa, South Africa and its subnational regions prove useful, although there are still very few studies. An examination of existing documentary evidence and the implementation of the remainder of the research project will provide additional insights to these phenomena.

3.1.1. Multilateral institutions and research into GVCs

A number of countries have assigned the impacts of new forms of globalisation and GVCs onto their development agendas. A broad literature created by multilateral and bilateral public institutions and academia has explored this form of globalisation and its implications since the 1990s. The former involved institutions such as the African Development Bank, Commonwealth, OECD, ILO, IMF, UNDP, UNCTAD, World Bank through its commissioned research, internally produced research, or a collaboration of both modes, has produced a treasure trove of insights. Some country-specific institutions (e.g. some in Canada) have also produced various research papers to inform their policies.

(a) The Organisation for Economic Co-operation and Development

Published in May 2007, *Moving up the value chain: Staying competitive in the global economy*⁶⁷ was an attempt by the OECD to provide “evidence on the globalisation of value chains and identifies the most relevant policy issues in order to address concerns related to globalisation”⁶⁸ after a directive from an OECD Ministerial Council Meeting in 2004. It was informed by *Staying competitive in the global economy: Compendium of studies on global value chains*⁶⁹, which was made available in June 2008.

While emphasising that globalisation is not new, distinctive new features were analysed. The outsourcing and offshoring of certain functions of firms, facilitated by restructuring of firms, meant fragmentation of the various components of their value chains across the globe. MNEs played a key role owing to their flexibility, with implications for SMMEs and employment in the value chain. Not all sectors of manufacturing were similarly affected, while at the same time, the service sector became increasingly important. Thus, it contributed to the discussion of the emergence of a knowledge economy. New centers of growth in China and other areas of South East Asia subsequently emerged.

This body of knowledge was supplemented by later work such as De Backer, K. and N. Yamano (2012), “International comparative evidence on global value chains”, *OECD Science, Technology and Industry Working Papers*, 2012/03, OECD Publishing, Paris; Beltramello, A., K. De Backer and L. Moussiégt (2012), “The export performance of countries within global value chains (GVCs)”, *OECD Science, Technology and Industry Working Papers*, 2012/02, OECD Publishing, Paris, and Shepherd, B. (2013), “Global value chains and developing country employment: A literature review”, *OECD Trade Policy Papers*, No. 156, OECD Publishing, Paris. These policy and working papers formed part of a larger OECD project that culminated in the submission of the volume and synthesis report *Interconnected economies: Benefiting from global value chains*⁷⁰, which was submitted to the inter-ministerial

⁶⁷ OECD: *Moving Up the Value Chain: Staying Competitive in the Global Economy*, May 2007, 130pp.

⁶⁸ *Ibid*, p3.

⁶⁹ OECD: *Staying Competitive in the Global Economy: Compendium of Studies on Global Value Chains*, June 2008, 252pp.

⁷⁰ OECD: *Interconnected Economies: Benefiting From Global Value Chains*, May 2013, 274pp.

committee in May 2013. Significant inputs were attained from the OECD-WTO collaborative Trade in Value Added Initiative (TiVA) as well as from researchers linked to institutions such as the United States International Trade Commission (USITC) and the Institute of Developing Economies – Japan External Trade Organisation (IDE-JETRO).

(b) The International Labour Organisation

In February 2002, the ILO established an independent World Commission on the Social Dimension of Globalization. Subsequently, on 23 September 2003, the UN Secretary General, Kofi Anan, warned about the need for countries and multilateral institutions to address the globalisation, in an address to the UN General Assembly. In February 2004, the UN released the *report A fair globalization: Creating opportunities for all*.⁷¹ It dealt with issues such as the key characteristics of globalisation, with particular reference to trade, FDI, financial flows, technology, interrelationships and the policy environment. Also considered were the institutional context, namely the multilateral trading system, global production systems, the global financial system and globalisation's impacts. It addressed key concerns about globalisation's impacts on economic growth, its uneven impacts across countries and regions as well as the impacts of changing trade, investment and financial liberalisation, globalisation's impacts on employment, inequality and poverty and people's wellbeing.

The ILO and WTO also tasked prominent academics to examine the employment effects of GVCs at a conference in Geneva in July to August 2009. This led to the identification and publication in 2011 of the latest research being on global trade and employment, as reflected in the collection of papers *Making globalization socially sustainable*⁷² (edited by Marc Bacchetta and Marion Jansen). It also follows the previous collaborative work *Trade and employment challenges for policy research*⁷³ (prepared by Marion Jansen and Eddy Lee) in 2007 and *Globalization and informal*

⁷¹ World Commission on the Social Dimension of Globalization: A Fair Globalization: Creating Opportunities For All, ILO, February 2004.

⁷² Bacchetta, Marc and Jansen, Marion (eds): Making Globalization Socially Sustainable, International Labour Organization and World Trade Organization, 2011, 337pp.

⁷³ Jansen, Marion and Lee, (Prepared by): Trade and Employment Challenges for Policy Research, A Joint Study of The International Labour Office and the Secretariat of the World Trade Organization, 2007.

*jobs in developing countries*⁷⁴ (prepared by Marc Bacchetta, Ekkehard Ernst and Juana P. Bustamante) in 2009.

The 2007 publication *Trade and employment challenges for policy research* dealt with the theory and evidence of trade and employment, with particular reference to trade and income levels, the destruction of jobs, job creation, unemployment, wage and income inequality, the relative demand for different labour types, FDI and the possibility to substitute domestic workers by foreign workers, how globalisation affect labour demand elasticities, insecurity, workers' bargaining power, the roles of policy-makers and labour market institutions to insuring workers against adverse events through social protection, and the potential roles of the international community and active labour market policies facilitated by freedom of association and collective bargaining.

The second publication, *Globalization and informal jobs in developing countries*, dealt with varieties of informality and globalisation in times of crisis by examining a country's openness to trade and informality, informality's impacts on trade and growth, economic resilience to the dynamics of informality in an environment of globalisation and informal employment, and requisite robust policies.

Both publications inform *Making globalization socially sustainable*, which deals with globalisation, offshoring and jobs, structural change and productivity growth, the de facto and perceived effects of offshoring on economic insecurity and its relationships to labour market regimes, social protection of those involved in labour markets exposed to external shocks, within-country income inequality and redistribution and education policies to make globalisation more inclusive.

All the aforementioned reports complimented regular ILO publications such as the *Global wage reports* and *World social protection* reports and help one to understand the review of organised labour's responses to globalisation, which are captured in a number of publications, such as Verena Schmidt's *Trade union responses to*

⁷⁴ Bacchetta, Marc; Ernst, Ekkehard and Bustamante, Juana P. (Prepared by): *Globalization and Informal Jobs in Developing Countries*, A Joint Study Of the International Labour Office and the Secretariat of the World Trade Organization, 2009.

*globalization. A review by the Global Union Research Network*⁷⁵, the collection of papers edited by Konstantinos Papadakis, *Cross-border social dialogue and agreements: An emerging global industrial relations framework?*⁷⁶, and the collection of papers edited by Susan Hayter, *The role of collective bargaining in the global economy: Negotiating for social justice*⁷⁷, all of which were published in short succession between 2007 and 2011.

Occupational structures and skills formation

In 2008, a resolution of a tripartite Meeting of Experts on Labour Statistics was adopted to update the International Standard Industrial Classification of Occupations, which was the standard classification of occupations in the 20 years after its adoption in 1988. The updated classification was referred to as the International Standard Classification of Occupations 2008 and abbreviated as ISCO-08. Like its predecessor, ISCO-08 is designed for international comparison of occupational statistics and is also meant to assist countries with revisions to their specific national occupational classifications.

According to the ILO, ISOC-08 provides a system for classifying and aggregating occupational information obtained through statistical censuses and surveys as well as administrative records. ISOC-8 is a revision of ISOC-88, which came into operation 20 years earlier.

ISOC-08 is a four-level hierarchically structured classification which classifies all jobs into 436 unit groups. These groups are aggregated into 130 minor groups, 43 submajor groups and 10 major groups. These provide the most detailed levels and classification structure to jobs and occupations. The classifying structure emphasises the importance of skills levels and skills specialisations that are required for all jobs. The system allows for the production of fairly detailed internationally comparable data

⁷⁵ Schmidt, Verena: Trade union responses to globalization. A review by the Global Union Research Network, November 2007, 195pp

⁷⁶ Papadakis, Konstantinos (Eds): Cross-Border Social Dialogue and Agreements: An emerging global industrial relations framework?, ILO, 2008, 291pp.

⁷⁷ Hayter, Susan (Ed.): The Role of Collective Bargaining in the Global Economy: Negotiating for Social Justice, Edward Elger-ILO, May 2011, 316pp.

and provides summary information for only 10 groups at the highest aggregation level.⁷⁸

To account for shifts that have taken place through the globalisation of the labour market and the need for internationally comparable occupational data for both statistical and administrative purposes, ISCO-08 seeks to address this need by providing:

- *“a contemporary and relevant basis for international reporting, comparison and exchange of statistical and administrative information about occupations;*
- *a useful model for the development of national and regional classifications of occupations; and*
- *a system that can be used directly in countries that have not developed their own national classifications”.*⁷⁹

While it is not obligatory, there is an advantage for countries whose occupational classifications are aligned to ISCO-08 both conceptually and structurally. This is because countries who do so will find it easier to develop the procedures to ensure that their occupational statistics are internationally comparable.

ISIC 4 and ISCO 8

The International Standard Industrial Classification Revised version 4 (ISIC 4) and ISCO 8 derive from the same family, the UN essentially, although different variables are used in each tool, which could be applied in complementary ways.

ISIC 4, a standard UNSD classification of economic activities that is arranged so that entities can be classified according to the activity they execute. The statistics units are combined according to their character, technology, organisation and functioning of production in terms of the ISIC 4 classification. Its use is quite wide, ranging from national to international in terms of classifying economic activity data in the fields of population, production, employment, GDP and other economic activities. It is also

⁷⁸ See ILO, ISCO-08, 2012, p3.

⁷⁹ Ibid, p 4.

used as a basic tool for studying economic phenomena, promoting international comparability of data and fostering the development of sound statistical systems.

In ISCO 8, the major groups in this tool did not change in concept, but were refined in greater detail at its disaggregated levels. Like its predecessor, ISCO 8 provides descriptions for all the categories identified at each of the four levels of its structure. This can be extended by defining detailed occupations if and when required for specific national or regional purposes. More recent research by the ILO illustrates how ISIC 4 and ISCO 8 are applied in a complementary way.⁸⁰

(c) The International Monetary Fund

The IMF is strongly interested in analysing GVCs, as illustrated by the production of working papers on issues such as trade interconnectedness, integration and local sourcing in developing countries, which GVCs facilitate. The papers by Vito Amendolagine, Andrea F. Presbitero, Roberta Rabellotti, Marco Sanfilippo and Adnan Seric: *FDI, global value chains, and local sourcing in developing countries*⁸¹; Mika Saito, Michele Ruta, and Jarkko Turunen: *Trade interconnectedness: The world with global value chains*⁸²; Swarnali Ahmed, Maximiliano Appendino and Michele Ruta: *Global value chains and the exchange rate elasticity of exports*⁸³ and Allard, Céline; Canales Kriljenko, Jorge Iván; Chen, Wenjie; Gonzalez-Garcia, Jesus; Kitsios, Emmanouil and Treviño, Juan: *Trade integration and global value chains in Sub-Saharan Africa in pursuit of the missing link*⁸⁴ provide interesting examples of such endeavours. These are augmented by insights about the roles of newly industrialised countries and the benefits they can reap from GVCs, as indicated by Kevin Cheng, Sidra Rehman, Dulani Seneviratne and Shiny Zhang: *Reaping the benefits from global*

⁸⁰ Chang Jae-Hee, Huynh Phu: *Asean in Transformation. The future of jobs at risk of automation*. Bureau for Employers' Activities, Working Paper No 9, ILO, July 2016.

⁸¹ Vito Amendolagine, Andrea F. Presbitero, Roberta Rabellotti, Marco Sanfilippo, and Adnan Seric: *FDI, Global Value Chains, and Local Sourcing in Developing Countries*, IMF Working Paper WP/17/284, Strategy, Policy, and Review Department, IMF, 2017.

⁸² Mika Saito (lead), Michele Ruta, and Jarkko Turunen: *Trade Interconnectedness: The World with Global Value Chains*, IMF, August 26, 2013.

⁸³ Swarnali Ahmed, Maximiliano Appendino and Michele Ruta: *Global Value Chains and the Exchange Rate Elasticity of Exports*, IMF Working Paper WP/15/252, Strategy, Policy and Review Department, IMF, November 2015.

⁸⁴ Allard, Céline; Canales Kriljenko, Jorge Iván; Chen, Wenjie; Gonzalez-Garcia, Jesus; Kitsios, Emmanouil and Treviño, Juan: *Trade Integration and Global Value Chains in Sub-Saharan Africa In Pursuit of the Missing Link*, African Department-IMF, 2016.

*value chains*⁸⁵ and Dominik Boddin: *The role of newly industrialized economies in global value chains*.⁸⁶

(d) The World Trade Organisation

The WTO – together with partners such as the World Bank, OECD and the Chinese based Research Center of Global Value Chains (RCGVC-UIBE) – produced a seminal work on globalisation that dealt with issues such as global trade trends, accumulated trade costs and preferential trade agreements, services trade and upgrading GVCs and its national and regional implications, with particular reference to the participation of Africa and Latin America. *Measuring and analyzing the impact of GVCs on economic development: Global value chain development report 2017*⁸⁷ is envisaged to be regularised, analogous to the World Bank’s *World development report* yet concentrating on GVCs. The report was informed by research papers delivered by various authors in Beijing in March and in Washington in November 2016.

Previously, in 2013, the WTO partnered with the Hong Kong-based thinktank the Fung Institute and the Singapore-based Nanyang Technological University (NTU) to produce the publication *Global value chains in a changing world*⁸⁸ (edited by Deborah K. Elms and Patrick Low). It dealt with similar issues as the preceding report, yet involves globally renowned speakers and authors and trade officials from ASEAN countries with the support of Singapore’s Temasek Foundation Centre for Trade & Negotiations (TFCTN).

These reflections on the implications of GVCs on developing countries were augmented by preceding work of the WTO and ILO on trade, competitiveness, “servicification” of manufacturing, services networks and employment. The work of Marc Bacchetta, Ekkehard Ernst and Juana P. Bustamante: *Globalization and informal*

⁸⁵ Kevin Cheng, Sidra Rehman, Dulani Seneviratne, and Shiny Zhang: Reaping the Benefits from Global Value Chains, IMF Working Paper WP/15/204, Asia and Pacific Department, IMF, September 2015.

⁸⁶ Dominik Boddin: The Role of Newly Industrialized Economies in Global Value Chains, IMF Working Paper WP/16/207, Statistics Department, IMF, October 2016.

⁸⁷ World Bank Group, Institute of Developing Economies (IDE–JETRO), Organisation for Economic Co-operation and Development (OECD), Research Center of Global Value Chains (RCGVC-UIBE) and World Trade Organization (WTO): *Measuring and Analyzing the impact of GVCs on Economic Development: Global Value Chain Development Report 2017*.

⁸⁸ Elms, D.K. and Low, P. (eds): *Global value chains in a changing world*, Fung Global Institute (FGI), Nanyang Technological University (NTU), and World Trade Organization (WTO), 2013, 436pp.

*jobs in developing countries*⁸⁹; Trudi Hartzenberg: *World Trade Organization regional integration in Africa*⁹⁰; Rainer Lanz and Andreas Maurer: *Services and global value chains – some evidence on servicification of manufacturing and services networks*⁹¹ and Antonia Diakantoni, Hubert Escaith, Michael Roberts, Thomas Verbeet: *Accumulating trade costs and competitiveness in global value chains*⁹² provided earlier insights into various dimensions of GVCs.

(e) The United Nations Conference on Trade and Development

UNCTAD, in its 2013 publication *Global value chains and development – Investment and value added trade in the global economy*,⁹³ observed that global investment and trade are inextricably intertwined through the international production and service networks of firms investing in productive assets worldwide and outputs in cross-border value chains of various degrees of complexity. The economic growth of most developing countries is increasingly influenced by GVCs relating to particular development paths such as “engaging” in GVCs, “upgrading” along GVCs, “leapfrogging” and “competing” via GVCs.

A number of UNCTAD Discussion/Research Papers explored various dimensions of the value chain ranging from trade agreements and trade liberalisation, export expansion, technological transfer and skills accumulation. Some earlier reflections are provided by Paul Bairoch and Richard Kozul-Wright: *Globalization myths: Some historical reflections on integration, industrialization and growth in the world economy*⁹⁴; Robert Rowthorn and Richard Kozul-Wright: *Globalization and economic*

⁸⁹ Bacchetta, Marc; Ernst, Ekkehard and Bustamante, Juana P. (Prepared by): *Globalization and Informal Jobs in Developing Countries, A Joint Study Of the International Labour Office and the Secretariat of the World Trade Organization*, 2009.

⁹⁰ Hartzenberg, T.: *World Trade Organization Regional Integration in Africa*, Staff Working Paper ERSD-2011-14, Economic Research and Statistics Division, WTO, October 2011.

⁹¹ Lanz, R. and Maurer, A.: *Services and Global Value Chains – Some Evidence on Servicification of Manufacturing and Services Networks*, WTO Working Paper ERSD-2015-03, Economic Research and Statistics Division, WTO, 02 March 2015.

⁹² Diakantoni, A; Escaith, H; Roberts, M and Verbeet, T.: *Accumulating Trade Costs and Competitiveness in Global Value Chains*, WTO Working Paper ERSD-2017-02, Economic Research and Statistics Division, WTO, 23 January 2017.

⁹³ United Nations Conference on Trade and Development (UNCTAD): *Global Value Chains and Development-Investment and Value Added Trade in the Global Economy*, 2013, 40pp.

⁹⁴ Bairoch, P and Kozul-Wright, R: *Globalization Myths: Some Historical Reflections on Integration, Industrialization and Growth in the World Economy*, Discussion Paper No. 113, UNCTAD, March 1996

*convergence: An assessment*⁹⁵; Rubens Lopes Braga: *Expanding developing countries' exports in a global economy – the need to emulate the strategies used by transnational corporations for international business development*⁹⁶; Martin Khor: *Globalization and the south: Some critical issues*⁹⁷ and Jörg Mayer: *Globalization, technology transfer and skill accumulation in low-income countries*⁹⁸ (Discussion Paper No. 150, UNCTAD, August 2000).

Similarly, structural changes, deindustrialisation, the labour and its spatial dimensions of the value chains were considered. The papers by Richard Kozul-Wright and Paul Rayment: *Globalization reloaded: An UNCTAD perspective*⁹⁹; Irfan ul Haque: *Globalization, neoliberalism and labour*¹⁰⁰; Jörg Mayer: *Industrialization in developing countries: Some evidence from a new economic geography perspective*¹⁰¹; S. M. Shafaeddin: *Trade liberalization and economic reform in developing countries: Structural change or de-industrialization?*¹⁰²; Martina Metzger: *Regional cooperation and integration in Sub-Saharan Africa*¹⁰³; Anja Slany: *The role of trade policies in building regional value chains – some preliminary evidence from Africa*¹⁰⁴ and Alisa DiCaprio, Amelia U. Santos-Paulino and Maria V. Sokolova: *Regional trade agreements, integration and development*¹⁰⁵ provide insights from an UNCTAD perspective.

⁹⁵ Rowthorn, R & Kozul-Wright, R: *Globalization and Economic Convergence: An Assessment*, Discussion Paper No. 131, UNCTAD, March 1998.

⁹⁶ Braga, R.L.: *Expanding Developing Countries' Exports in a Global Economy- The Need to Emulate the Strategies used by Transnational Corporations for International Business Development*, Discussion Paper No. 133, UNCTAD, March 1998.

⁹⁷ Khor, M: *Globalization and the South: Some Critical Issues*, Discussion Paper No. 147, UNCTAD, April 2000.

⁹⁸ Mayer, J: *Globalization, Technology Transfer and Skill Accumulation in Low-Income Countries*, Discussion Paper No. 150, UNCTAD, August 2000.

⁹⁹ Kozul-Wright, R and Rayment, P: *Globalization Reloaded: An Unctad Perspective*, Discussion Paper No. 167, UNCTAD, January 2004.

¹⁰⁰ ul Haque, I: *Globalization, Neoliberalism and Labour*, Discussion Paper No. 173, UNCTAD, July 2004.

¹⁰¹ Mayer, J: *Industrialization in Developing Countries: Some Evidence from a new Economic Geography Perspective*, Discussion Paper No. 174, UNCTAD, August 2004.

¹⁰² Shafaeddin, S.M.: *Trade Liberalization and Economic Reform in Developing Countries: Structural Change or De-Industrialization?* Discussion Paper No. 179, UNCTAD, April 2005

¹⁰³ Metzger, M: *Regional Cooperation and Integration in Sub-Saharan Africa*, Discussion Paper No. 189, UNCTAD, September 2008.

¹⁰⁴ Slany, A: *The role of trade policies in building regional value chains - some preliminary evidence from Africa*, Division for Africa, Least Developed Countries and Special Programmes, Research Paper No. 11, UNCTAD, December 2017.

¹⁰⁵ DiCaprio, A Santos-Paulino, A.U. and Sokolova, M.V.: *Regional trade agreements, integration and development*, Research Paper No. 1, UNCTAD, July 2017.

(f) The United Nations Industrial Development Organization

Since 2002, UNIDO, a specialist UN agency, has produced a series of reports on industrial development globally. The reports examine various dimensions of global industrialisation, as reflected by their titles: *Competing through innovation and learning, Industrialization* (2002-3), *Environment and the Millennium Development Goals in Sub-Saharan Africa* (2004), *Capacity building for catching-up: Historical, empirical and policy dimensions* (2005), *Breaking in and moving up: New industrial challenges for the bottom billion and the middle-income countries* (2009), *Industrial energy efficiency for sustainable wealth creation: Capturing environmental, economic and social dividends* (2011), *The role of manufacturing and structural change* (2013), *The role of technology and innovation in inclusive and sustainable industrial development* (2016), and *Demand for manufacturing: Driving inclusive and sustainable industrial development* (2018). However, the UNIDO publication *Global value chains and development – UNIDO’s support towards inclusive and sustainable industrial development*¹⁰⁶ provided an overview of available empirical evidence and dynamics of GVCs in specific sectors, such as textile and apparel, machinery and electrical equipment, transport equipment and furniture industries. These dynamics were analysed and mapped across seven dimensions of a value chain, namely the sourcing of inputs and supplies, production capacity and technology, end-markets and trade, governance of value chains, sustainable production and energy use, value chain finance and business environment and socio-political context.

A collection of working papers has informed and/or complimented these works since 2001. Insights into the operation of GVCs in sectors were dealt with in papers by John Humphrey and Olga Memedovic: *Global value chains in the agrifood sector*¹⁰⁷; Olga Memedovic and Andrew Shepherd: *Agri-food value chains and poverty reduction: Overview of main issues, trends and experience*¹⁰⁸; and Mike Morris and Justin

¹⁰⁶ United Nations Industrial Development Organization (UNIDO): *Global Value Chains and Development- UNIDO’s Support towards Inclusive and Sustainable Industrial Development*, December 2015, 117pp.

¹⁰⁷ Humphrey, J and Memedovic, O: *Global Value Chains in the Agrifood Sector*, Research and Statistics Branch, United Nations Industrial Development Organization(UNIDO), Vienna, 2006

¹⁰⁸ Memedovic, O and Shepherd, A: *Agri-food value chains and poverty reduction: overview of main issues, trends and experience*, Working Paper 12/2008, Research and Statistics Branch, United Nations Industrial Development Organization(UNIDO), Vienna, 2009.

Barnes: *Globalization, the changed global dynamics of the clothing and textile value chains and the impact on Sub-Saharan Africa*.¹⁰⁹

Various dimensions of the value chain were considered in papers by Raphael Kaplinsky and Jeff Readman: *Integrating SMEs in global value chains – towards partnership for development*¹¹⁰; Olga Memedovic, Lauri Ojala, Jean-Paul Rodrigue and Tapio Naula: *The global value chains: What role for logistics capabilities?*¹¹¹; Timothy J. Sturgeon and Olga Memedovic: *Mapping global value chains: Intermediate goods trade and structural change in the world economy*¹¹²; Neil Foster-McGregor, Florian Kaulich and Robert Stehrer: *Global value chains in Africa*¹¹³; Gary Gereffi: *Global value chains, development and emerging economies*¹¹⁴; Valentina de Marchi, Elisa Giuliani and Roberta Rabellotti: *Local innovation and global value chains in developing countries*¹¹⁵; and Raphael Kaplinsky: *Technological upgrading in global value chains and clusters and their contribution to sustaining economic growth in low and middle income economies*.¹¹⁶

¹⁰⁹ Morris, M and Barnes, J: *Globalization, the Changed Global Dynamics of the Clothing and Textile Value Chains and the Impact on Sub-Saharan Africa*, Working Paper 10/2008, Research and Statistics Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2009, 57pp.

¹¹⁰ Kaplinsky, R and Readman, J: *Integrating SMEs in Global Value Chains-Towards Partnership for Development*, United Nations Industrial Development Organization (UNIDO), Vienna, 2001, 86pp.

¹¹¹ Memedovic, O; Ojala, L; Rodrigue, JP and Naula, T: *the global value chains: what role for logistics capabilities?*, International Journal Technological Learning, Innovation and Development, Vol. 1, No. 3, 2008, 353-374p.

¹¹² Sturgeon, Timothy J. and Memedovic, O: *Mapping Global Value Chains: Intermediate Goods Trade and Structural Change in the World Economy*, Working Paper 05/2010, Development Policy and Strategic Research Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2011, 59pp.

¹¹³ Foster-McGregor, N; Kaulich, F and Stehrer, R: *Global value chains in Africa*, Working Paper 4/2015, Research, Statistics and Industrial Policy Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2015, 97pp.

¹¹⁴ Gereffi, G: *Global value chains, development and emerging economies*, Working Paper 18/2015, Research, Statistics and Industrial Policy Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2015, 39pp.

¹¹⁵ De Marchi, V; Giuliani, E and Rabellotti, R: *Local innovation and global value chains in developing countries*, Working Paper 5/2015, Research, Statistics and Industrial Policy Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2015, 56pp.

¹¹⁶ Kaplinsky, R: *Technological upgrading in global value chains and clusters and their contribution to sustaining economic growth in low and middle income economies*, Working Paper 3/2015, Research, Statistics and Industrial Policy Branch, United Nations Industrial Development Organization (UNIDO), Vienna, 2015, 50pp.

(g) The World Bank

The World Bank, like multilateral organisations such as the OECD and the ILO, has increasingly devoted resources to analyse globalisation and GVCs. The implications of globalisation on poverty and inequality and the position of workers were explored by working papers such as Martin Rama's *Globalization and workers in developing countries*¹¹⁷ (published in January 2003) and David Dollar's *Globalization, poverty, and inequality since 1980*¹¹⁸ (published in June 2004). These were augmented by a comprehensive study edited by Raymond Robertson, Drusilla Brown, Gaëlle Pierre and María Laura Sanchez-Puerta: *Globalization, wages, and the quality of jobs – five country studies*¹¹⁹ (covering Cambodia, El Salvador, Honduras, Indonesia and Madagascar). All five countries have experienced liberalisation and globalisation since the 1990s, despite significant variances in population, economic circumstances, regions, history and institutions.

Working papers produced by staffers such as Shahid Yusuf's *Globalization and the challenge for developing countries*¹²⁰, edited versions of *Facets of globalization international and local dimensions of development*¹²¹ by Shahid Yusuf, Simon Evenett and Weiping Wu; *Globalization and innovation in emerging markets*¹²² by Yuriy Gorodnichenko, Jan Svejnar and Katherine Terrell, and *The global apparel value chain, trade and the crisis challenges and opportunities for developing countries*¹²³ provided the broader context for these studies.

¹¹⁷ Rama, Martin: *Globalization and Workers in Developing Countries*, Policy Research Working Paper 2958, The World Bank Development Research Group Public Services, January 2003.

¹¹⁸ Dollar, David: *Globalization, Poverty, and Inequality since 1980*, World Bank Policy Research Working Paper 3333, World Bank, June 2004.

¹¹⁹ Robertson, Raymond; Brown, Drusilla; Pierre, Gaëlle and Sanchez-Puerta, María Laura (Eds): *Globalization, Wages, and the Quality of Jobs- Five Country Studies*, The World Bank, 2009, 304pp.

¹²⁰ Yusuf, Shahid: *Globalization and the Challenge for Developing Countries*, Policy Research Working Paper 2618, The World Bank Development Research Group, June 2001.

¹²¹ Yusuf, Shahid, Evenett, Simon and Wu, Weiping (eds): *Facets of Globalization International and Local Dimensions of Development*, World Bank Discussion Paper No. 415, October 2001

¹²² Gorodnichenko, Yuriy; Svejnar, Jan and Terrell, Katherine: *Globalization and Innovation in Emerging Markets*, Policy Research Working Paper 4808, The World Bank Development Economics Department Research Support Unit, January 2009.

¹²³ Gereffi, Gary and Frederick, Stacey: *The Global Apparel Value Chain, Trade and the Crisis Challenges and Opportunities for Developing Countries*, Policy Research Working Paper 5281, The World Bank Development Research Group Trade and Integration Team, April 2010.

The onset of the global economic crisis in 2008 provided a changed environment to assess the significance and sustainability of GVCs and globalisation with renewed vigour. Olivier Cattaneo, Gary Gereffi and Cornelia Staritz edited a voluminous collection of research papers from a wide spectrum of academics: *Global value chains in a post-crisis world – a development perspective*.¹²⁴ It provides a general perspectives of the consequences the 2008 crises, which stems from globalisation's effects on trade and markets. In this context, these texts also examined specific sectors such as apparel, automotive, cassava, electronics, services and timber industries in developing countries. The “consolidation of GVCs and a shift in demand from the traditional high-income markets in the North to the rising economic powers in the South”¹²⁵ have created a series of challenges, including obstacles for low-income countries to move up the value chain.

These challenges have been closely examined in a later volume dealing with the plight of SME in low-income countries. The OECD-World Bank Group report submitted to the G20 Trade Ministers Meeting in October 2015, *Inclusive global value chains – policy options in trade and complementary areas for GVC integration by small and medium enterprises and low-income developing countries*¹²⁶, explored various policy options. Research considerations that inform this report were later released in 2016 in the volume prepared by Ana Paula Cusolito, Raed Safadi and Daria Taglioni: *Inclusive global value chains policy options for small and medium enterprises and low-income countries*.¹²⁷

Work on globalisation and GVCs nonetheless proceeded apace as the production of volumes dealing with its impacts on development generally and manufacturing-led development in particular. Mary Hallward-Driemeier and Gaurav Nayyar's *Trouble in*

¹²⁴ Cattaneo, Olivier; Gereffi, Gary and Staritz, Cornelia (Eds): *Global Value Chains in a Postcrisis World-A Development Perspective*, The World Bank, 2010, 420pp.

¹²⁵ *Ibid*, xv.

¹²⁶ OECD and World Bank Group: *Inclusive Global Value Chains-Policy options in trade and complementary areas for GVC Integration by small and medium enterprises and low-income developing countries*, Report prepared for submission to G20 Trade Ministers Meeting, Istanbul, Turkey, 6 October 2015, 107pp.

¹²⁷ Cusolito, Ana Paula; Safadi, Raed and Taglioni, Daria: *Inclusive Global Value Chains Policy Options for Small and Medium Enterprises and Low-Income Countries*, A co-publication of the World Bank Group and the Organisation for Economic Co-operation and Development, 2016, 139pp.

*the making? The future of manufacturing-led development*¹²⁸ focussed on what smart automation advanced robotics, and 3-D printing, “servicification” of manufacturing, and the Internet and its implications for manufacturing competitiveness, connectivity and capabilities. The volume authored by Daria Taglioni and Deborah Winkler, *Making global value chains work for development*¹²⁹, examines what GVCs mean for the developmental strategies of countries that want to enhance their comparative advantages while moving away from import substitution industrialisation.

However, a significant amount of research is still required to inform the debate about the nature of globalisation, GVCs’s roles and policy options. A steady stream of working papers has been produced to enrich the discussion. Some of the selected papers includes those by Kaushik Basu: *Globalization of labor markets and the growth prospects of nations*¹³⁰; Vilas Pathikonda and Thomas Farole: *The capabilities driving participation in global value chains*¹³¹; Victor Kummritz, Daria Taglioni and Deborah Winkler: *Economic upgrading through global value chain participation which policies increase the value added gains?*¹³²; Cecilia Heuser and Aaditya Mattoo: *Services trade and global value chains*¹³³; and Michele Ruta: *Preferential trade agreements and global value chains – theory, evidence, and open questions.*¹³⁴

Regional value chains and Southern Africa

The World Bank also focussed on how enterprises from developing countries concentrated in various regions could be integrated into value chains. In collaboration

¹²⁸ Hallward-Driemeier, Mary and Nayyar, Gaurav: *Trouble in the Making? The Future of Manufacturing-Led Development*, The World Bank Group, 2017, 255pp

¹²⁹ Taglioni, Daria and Winkler, Deborah: *Making Global Value Chains Work for Development*, The World Bank, 2016, 289pp.

¹³⁰ Basu, Kaushik : *Globalization of Labor Markets and the Growth Prospects of Nations*, Policy Research Working Paper 7590, Development Economics Vice Presidency, Office of the Chief Economist, March 2016

¹³¹ Pathikonda, Vilas and Farole, Thomas: *The Capabilities Driving Participation in Global Value Chains*, Policy Research Working Paper 7804, Trade and Competitiveness Global Practice Group, August 2016.

¹³² Kummritz, Victor; Taglioni, Daria and Winkler, Deborah: *Economic Upgrading through Global Value Chain Participation Which Policies Increase the Value Added Gains?*, Policy Research Working Paper 8007, Trade and Competitiveness Global Practice Group, The World Bank, March 2017.

¹³³ Heuser, Cecilia and Mattoo, Aaditya: *Services Trade and Global Value Chains*, Policy Research Working Paper 8126, Development Research Group Trade and International Integration Team, The World Bank, June 2017.

¹³⁴ Ruta, Michele: *Preferential Trade Agreements and Global Value Chains-Theory, Evidence, and Open Questions*, Policy Research Working Paper 8190, Trade and Competitiveness Global Practice Group, The World Bank, September 2017.

with agencies such as the Southern Africa Customs Union and the Bank of the Netherlands, it measured GVC integration, position and performance of enterprises in countries such as Botswana, Lesotho, Namibia, South Africa and Swaziland. In 2014, Jakob Engel produced the paper *SACU in global value chains: Measuring GVC integration, position, and performance of Botswana, Lesotho, Namibia, South Africa, and Swaziland*. It also examined trade facilitation, FDI, competitiveness and productivity in Southern Africa by producing a series of working papers and a report. In 2015, the World Bank and SACU jointly produced the policy research working paper *Trade facilitation for global and regional value chains in SACU*¹³⁵, while Deborah Winkler and Thomas Farole authored *Global value chain integration and productivity: Evidence from enterprise surveys in Namibia, South Africa, and Swaziland*.¹³⁶ This was preceded by the World Bank-BNPP publication edited by Deborah Winkler and Thomas Farole: *Making foreign direct investment work for Sub-Saharan Africa – local spillovers and competitiveness in global value chains*¹³⁷ and was consolidated in the report *Factory Southern Africa? SACU in global value chains – summary report*.¹³⁸

(h) Africa and Southern Africa

The SADC Summit adopted and released a SADC Industrialisation Strategy and Roadmap 2015-2063 in April 2015. The process leading to its production strategy was supported by 15 national reports on industrial policies, strategies and programmes and priorities of SADC Member States and involved strategic partners such as the United Nations Economic Commission for Africa (UNECA), World Bank, UNIDO and GIZ, the private sector, and non-state actors.

The Regional Strategy is driven by national development strategies, visions and plans and primarily by the SADC Treaty, the Regional Indicative Strategic Development Plan (RISDP), SADC's Industrial Development Policy Framework (IDPF) and the AU's

¹³⁵ The World Bank and SACU: Trade Facilitation for Global and Regional Value Chains in SACU, Policy Research Working Paper 102985, The World Bank, January 2015.

¹³⁶ Winkler, Deborah and Farole, Thomas: Global Value Chain Integration and Productivity: Evidence from Enterprise Surveys in Namibia, South Africa, and Swaziland, Policy Research Working Paper 102986, The World Bank, February 26, 2015.

¹³⁷ Winkler, Deborah and Farole, Thomas (eds): Making Foreign Direct Investment Work for Sub-Saharan Africa- Local Spillovers and Competitiveness in Global Value Chains, The World Bank and BNPP, 2014.

¹³⁸ The World Bank: Factory Southern Africa? SACU in Global Value Chains- Summary Report 102850, 2016.

Accelerated Industrial Development of Africa and Agenda 2063. Global and regional value chains were considered critical to its success.

*“Value chain participation is a crucial element of the Industrialization Strategy because it has the potential to extend production possibilities and enable cross-border utilization of natural and human resources of the region... Cross-border value chain development depends on a number of factors, including cheap and efficient transport and streamlined border logistics, as well as the eradication of “behind the border” obstacles to trade...Most importantly, policymakers should seek to ensure that SADC firms and industries can progress up the technology ladder to avoid being locked indefinitely into low-technology, low-wage “screwdriver” activities”.*¹³⁹

The adoption of the report was preceded by significant work by the African Development Bank and its partners in its regularised *African economic outlook*¹⁴⁰ publications in 2011, 2012 and 2013. The report identified three major challenges faced by the continent: competitiveness, structural transformation and employment. The 2014 *African economic outlook*, entitled *Global value chains and Africa’s industrialisation*,¹⁴¹ examines the evidence on and potential of GVCs in Africa as well as the sectors and policies required to facilitate industrialisation. While the agriculture, manufacturing and services value chains offer greater opportunities, domestic productive capacity and infrastructure constitute serious impediments. The relationships between lead enterprises and their suppliers, including a commitment to develop local links, are critical to value chains’ success.

A number of other multilateral organisations have explored GVCs in Southern Africa. In 2015, Jodie Keane, economic advisor to the Commonwealth Secretariat, produced the working paper *Regional integration, sustainable development and global value chains in Southern Africa*.¹⁴²

¹³⁹ Southern African Development Community (SADC): Industrialisation Strategy and Roadmap 2015-2063, April 2015, p30.

¹⁴⁰ African Development Bank-AfDB (et al): African Economic Outlook: Africa and its Emerging Partners, 2011; African Economic Outlook: Promoting Youth Employment, 2012 and African Economic Outlook: Structural Transformation and Natural Resources, 2013.

¹⁴¹ African Development Bank- AfDB (et al): African Economic Outlook: Global Value Chains and Africa’s Industrialisation, 2014.

¹⁴² Keane, Jodie: Regional Integration, Sustainable Development and Global Value Chains in Southern Africa, Commonwealth Secretariat, undated.

3.1.2. Academic institutions and networks

It is evident from the aforementioned literature that a number of multilateral institutions have relied significantly on the research capacity of external organisations such as academia. While some individual scholars in academic institutions have examined the effects of this particular form of globalisation, specific institutions, such as the GVC at Duke University in the USA and IDS at Sussex in the UK, have made GVCs a core research focus. Research networks have also been established to focus on specific concerns. Thus, it is useful to reflect on some of these institutions and networks, without discounting the work of other academics who have produced working papers, conference papers, journal publications or complete books on the topic. What follows is a brief reflection on some of the research produced.

The Bellagio Value Chain Workshop held at the Rockefeller conference centre in Bellagio, Italy in September 2000 was a seminal networking event that contributed to the establishment of the GVC Initiative, which is currently housed at the Global Value Chains Center (previously known as the Duke University Center on Globalization, Governance & Competitiveness) Duke University, U.S.

Gary Gereffi, John Humphrey, Raphael Kaplinsky and Timothy J. Sturgeon's *Introduction: Globalisation, value chains and development*¹⁴³ and Gary Gereffi, John Humphrey and Timothy Sturgeon's *The governance of global value chains*¹⁴⁴ reflect a collaboration among scholars from Duke University, Institute of Development Studies, Sussex University and the Industrial Performance Center, Massachusetts Institute of Technology (MIT). The latter paper seeks to construct an analytical framework to understand the governance of GVCs, drawing on literature dealing with transaction cost economics, production networks, technological capability and firm-level learning.

The aforementioned authors, with the exception of Raphael Kaplinsky, became the convenors of the GVC Initiative. The participants in a series of subsequent workshops sponsored by the Rockefeller Foundation and Alfred P. Sloan Foundation primarily

¹⁴³ Gary Gereffi, John Humphrey, Raphael Kaplinsky and Timothy J. Sturgeon
Introduction: Globalisation, Value Chains and Development, IDS Bulletin 32.3, 2001.

¹⁴⁴ Gary Gereffi, John Humphrey & Timothy Sturgeon: *The governance of global value chains*, *Review of International Political Economy*, Volume 12 Issue 1, 2005,
Pages 78-104

involved academic researchers from various countries and disciplines, including sociology, economics, geography, regional planning, political science, management and development studies.¹⁴⁵ It also included policy-makers and NGO activists from UNIDO, the UN Conference on Trade and Development, World Trade Organization's International Trade Centre, the World Bank's Development Economics Research Group, the ILO's World Commission on the Social Dimension of Globalization, the International Centre for Trade and Sustainable Development, the AFL-CIO, Oxfam, India's National Council of Applied Economic Research, the Merrimack Valley (Massachusetts) Workforce Investment Board, and the Maquila Solidarity Network/Ethical Trading Action Group.

The GVC Initiative houses a database of various publication types, such as journal articles (447), working papers (154), reports (150), chapters in edited books (133) and books (53). Some of the journal articles that have been logged involve, among others, R. Kaplinsky: *Globalisation and unequalisation: What can be learned from value chain analysis?* (Journal of Development Studies, Vol. 37, Issue 2, 2000, pp. 117-146); Henderson, Peter Martin; Neil Coe and Henry Wai-Chung Yeung: *Global production networks and the analysis of economic development* (Review of International Political Economy, Vol. 9, 2002, Issue 3, 2011, pp. 436-464); John H. Dunning: *The eclectic (OLI) paradigm of international production: Past, present and future* (International Journal of the Economics of Business, Vol. 8, 2001, Issue 2, 2010, pp. 173-190); Gary Gereffi: *Global value chains in a post-Washington Consensus world* (Review of International Political Economy, Vol. 21, 2014, Issue 1: *Global value chains and global production networks in the changing international political economy*, pp. 9-37; Peter Gibbon, Jennifer Bair and Stefano Ponte: *Governing global value chains: An introduction* (Economy and Society, Vol. 37, 2008, Issue 3: *Governing global value chains*, pp. 315-338; Stefano Ponte and Peter Gibbon: *Quality standards, conventions and the governance of global value chains* (Economy and Society, Vol. 34, 2005, Issue 1, pp. 1-31); John Humphrey and Hubert Schmitz: *How does insertion in global value chains affect upgrading in industrial clusters?* (Regional Studies, Vol. 36, 2002, Issue 9, pp. 1017-1027) and Andrea Morrison, Carlo Pietrobelli and Roberta Rabellotti: *Global value*

¹⁴⁵ Timothy J. Sturgeon: *From Commodity Chains to Value Chains: Interdisciplinary Theory Building in an Age of Globalization*, Industry Studies Association Working Papers WP-2008-02, 2008.

chains and technological capabilities: A framework to study learning and innovation in developing countries (Oxford Development Studies, Vol. 36, 2008, Issue 1, pp. 39-58).

This does not preclude the need to continue to survey journals and academic institutions that have also produced literature on GVCs that are not logged on the aforementioned database. Similarly, knowledge has also been produced by research institutions and networks that support organisations such as trade union federations and confederations that are critical of the new forms of globalisation.

3.1.3. Global value chains and labour markets

“Offshoring and especially relocation are often perceived as the “exporting of jobs” which directly results in a loss to the country and its workers... Several studies that provide estimates of the jobs (potentially) lost due to offshoring find a large absolute number of jobs lost because of offshoring, but a relatively small impact when compared with overall churning in the labour market. Furthermore, some of these jobs may have been lost owing to productivity enhancements and technological change, which are not necessarily linked to offshoring... The long-term effect of globalisation primarily seem to involve the composition, rather than the level, of employment. Trade integration leads to changes in the international division of labour, resulting in employment losses in certain industries (e.g. manufacturing). Certain regions, sectors and groups of workers may lose out in this process, e.g. those in industries heavily exposed to international competition which have not been able to adjust to that competition”.¹⁴⁶

The World Commission on the Social Dimension of Globalization, in its report released in February 2004, *A fair globalization: Creating opportunities for all*¹⁴⁷, continue to emphasise the importance of working people benefitting from new forms of globalisation through increasing the number of employment opportunities as well as that these opportunities must comply with the requirements of decent work to ensure social inclusion in economic growth. Thus, a number of employment dynamics must be considered.

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¹⁴⁷ World Commission on the Social Dimension of Globalization: A Fair Globalization: Creating Opportunities For All, ILO, February 2004.

(a) Employment trends

Job losses through job exportation are a common refrain when an assessment is presented of the impacts of this particular form of globalisation. Further, it is argued that GVCs have primarily benefitted skilled workers, while workers in semi-skilled and unskilled positions have been subject to job losses and “informalisation” or “casualisation”. Marion Jansen, Ralf Peters and José Manuel Salazar-Xirinachs (eds) argue, in *Trade and employment – from myths to facts*, that:

“New empirical evidence indicates that the picture may be somewhat different. Two recent studies from Latin America show that job destruction may be higher than job creation, at least for several years after liberalization. Casacuberta and Gandelman (2010) and Muendler (2010) show that trade opening in Uruguay and Brazil resulted in higher job destruction than job creation. Displaced workers were not absorbed by the most competitive industries, but moved into non-trading sectors or out of formal employment. A reason why companies in expanding sectors do not increase their workforce is likely to be the increase of the average productivity in these sectors. Some supporting evidence has been found, by Menezhes-Filho and Muendler (2007) in the case of Brazil.”¹⁴⁸

This was reinforced by an observation at the ILO conference at the College de France in 2015 by Stéphanie Barrientos (University of Manchester, UK) and Alakh N. Sharma (Institute for Human Development, India). They argued that upgrading along the value chain does not necessarily benefit unskilled workers in the same way as skilled workers – unskilled workers are more vulnerable to labour violations owing to value chain dynamics. Similar observations have been made in Bacchetta, Marc; Ernst, Ekkehard and Bustamante, Juana P. in a joint study supported by the ILO and the Secretariat of the WTO: *Globalization and informal jobs in developing countries*.¹⁴⁹ Guy Standing coined the concept *the precariat* to analyse this growing phenomenon. The most prominent of those in which this argument is advanced are contained in the following publications¹⁵⁰: *The precariat: The new dangerous class, Global labour*

¹⁴⁸ Marion Jansen, Ralf Peters, José Manuel Salazar-Xirinachs(eds): *Trade and Employment-From Myths to Facts*, ILO, Geneva, 2011, p7.

¹⁴⁹ Bacchetta, Marc; Ernst, Ekkehard and Bustamante, Juana P. (Prepared by): *Globalization and Informal Jobs in Developing Countries, A Joint Study Of the International Labour Office and the Secretariat of the World Trade Organization*, 2009.

¹⁵⁰ Standing, Guy: *The Precariat: The New Dangerous Class*, London: Bloomsbury Academic, 2011; *Global Labour Flexibility: Seeking Distributive Justice*, Basingstoke: Macmillan, 1999; *Work after Globalization: Building Occupational Citizenship*, Cheltenham, UK: Edward Elgar, 2009 and *A Precariat Charter: From Denizens to Citizens*, London: Bloomsbury Academic, 2014.

flexibility: Seeking distributive justice, Work after globalization: Building occupational citizenship, and A precariat charter: From denizens to citizens.

(b) Collective bargaining

“Real wages and conditions of work have been under pressure, partly as a result of increasing competition for export markets and foreign investment. There has also been growing insecurity among those at work, due to interrelated factors such as the erosion of the welfare state, labour market deregulation and the declining power of trade unions. Changes in technology and work organization have placed a premium on greater labour flexibility, resulting in an increase in contingent work and less secure employment contracts. 28 The interests of both workers and employers need to be recognized, and balanced policies are essential. They need to be based on a new social contract...”¹⁵¹

While organisations such as the ILO continue to emphasise the importance of collective bargaining and social dialogue, the efficacy of labour market arrangements in various countries, particularly their flexibility, have been questioned. However, global and national trade unions have responded in various ways to the new challenges. A notable feature has been the negotiation of cross-border agreements called International Framework Agreements (IFAs) in identified GVCs. By 2007, 62 IFAs had been concluded, as documented in Schmidt, Verena: *Trade union responses to globalization*¹⁵²; Papadakis, Konstantinos (eds): *Cross-border social dialogue and agreements: An emerging global industrial relations framework?*¹⁵³ and Hayter, Susan (ed.): *The role of collective bargaining in the global economy: Negotiating for social justice*.¹⁵⁴ These analyse how the agreements operate in practice, the extent to which they pave the way for cross-border industrial relations, and their legal dimensions and options for international policy action.

¹⁵¹World Commission on the Social Dimension of Globalization: A Fair Globalization: Creating Opportunities For All, ILO, February 2004, p65.

¹⁵² Schmidt, Verena: Trade union responses to globalization. A review by the Global Union Research Network, November 2007, 195pp

¹⁵³ Papadakis, Konstantinos (Eds): Cross-Border Social Dialogue and Agreements: An emerging global industrial relations framework? , ILO, 2008,291pp.

¹⁵⁴ Hayter, Susan (Ed.): The Role of Collective Bargaining in the Global Economy: Negotiating for Social Justice, Edward Elager-ILO, May 2011, 316pp.

(c) Social protection

The correlation between employment trends, wage income and the importance of social protection are explored by Martin Rama in *Globalization and workers in developing countries*¹⁵⁵ and Robertson, Raymond; Brown, Drusilla; Pierre, Gaëlle and Sanchez-Puerta, María Laura in *Globalization, wages, and the quality of jobs – five country studies*.¹⁵⁶ Marc Bacchetta and Marion Jansen's monograph *Making globalization socially sustainable*¹⁵⁷ has argued for the development of a more comprehensive and responsive labour market, social protection, and educational and redistribution policies to deal with globalisation's impacts on developing countries, with particular reference to job losses, inequality and insecurity. Publications that address similar concerns about social protection include:

- Basu, Kaushik: *Globalisation of labor markets and the growth prospects of nations*, Policy Research Working Paper 7590, Development Economics Vice Presidency, Office of the Chief Economist, March 2016.
- Salazar-Xirinachs, José M.; Nübler, Irmgard and Kozul-Wright, Richard (eds): *Transforming economies: Making industrial policy work for growth, jobs and development*, ILO, May 2014.
- Ul Haque, I: *Globalization, neoliberalism and labour*, Discussion Paper No. 173, UNCTAD, July 2004.

(d) Skills development

The discussion paper *Globalization, technology transfer and skill accumulation in low-income countries*¹⁵⁸ stresses the importance of skills development. It also interrogates the capacity in specific countries to adopt new technologies and prospects for further development. Technologies also affect individuals' capacity to adapt constantly to new situations in response to the skills set needed for future employment. This is reinforced by Jansen, Marion and Lee's: *Trade and employment challenges for policy research*¹⁵⁹ and Marc Bacchetta and Marion Jansen's monograph *Making globalization socially*

¹⁵⁵ Rama, Martin: *Globalization and Workers in Developing Countries*, Policy Research Working Paper 2958, The World Bank Development Research Group Public Services, January 2003.

¹⁵⁶ Robertson, Raymond; Brown, Drusilla; Pierre, Gaëlle and Sanchez-Puerta, María Laura (Eds): *Globalization, Wages, and the Quality of Jobs- Five Country Studies*, The World Bank, 2009, 304pp.

¹⁵⁷ Bacchetta, Marc and Jansen, Marion (eds): *Making Globalization Socially Sustainable*, International Labour Organization and World Trade Organization, 2011, 337pp.

¹⁵⁸ Mayer, J: *Globalization, Technology Transfer and Skill Accumulation in Low-Income Countries*, Discussion Paper No. 150, UNCTAD, August 2000.

¹⁵⁹ Jansen, Marion and Lee, (Prepared by): *Trade and Employment Challenges for Policy Research*, A Joint Study of The International Labour Office and the Secretariat of the World Trade Organization, 2007

sustainable.¹⁶⁰ These studies have influenced our approach to understanding the dynamics of technological diffusion and skills formation in the present study. It has led to our research addressing the complicated yet intricate relationship between skills and job grading, which we have applied to each of the five sectors our research focusses on.

(e) Labour market and social policy implications

The explored literature increasingly indicate public institutions' roles in facilitating their engagement and repositioning in the new globalising environment. Apart from the revision of industrial and infrastructure development policies, the importance of labour market, social protection and educational policies is considered critical to the social and economic dimension of any country's integration into the global economy. Joint studies by the ILO and the Secretariat of the WTO prepared by Marion Jansen and Eddy Lee, *Trade and employment challenges for policy research*,¹⁶¹ and Marc Bacchetta and Marion Jansen's book *Making globalization socially sustainable*¹⁶² advocate the adoption of more active labour market and social policies.

3.2. The Impact Assessment Framework

The advent of democracy in South Africa in 1994 has led to its increased incorporation into global networks and markets. A number of companies operative in various industries in SA have been integrated into a number of GVCs at a regional and global level. Companies in the automotive, clothing and textiles, finance, retail, telecommunications, mining and agriculture are often cited as examples of such integration. While some commentators have cited benefits of global participation via GVCs¹⁶³, its implications for the local labour market remain under-researched. This

¹⁶⁰ Bacchetta, Marc and Jansen, Marion (eds): *Making Globalization Socially Sustainable*, International Labour Organization and World Trade Organization, 2011, 337pp.

¹⁶¹ Jansen, Marion and Lee, Eddy (Prepared by): *Trade and Employment Challenges for Policy Research*, A Joint Study of The International Labour Office and the Secretariat of the World Trade Organization, 2007.

¹⁶² Bacchetta, Marc and Jansen, Marion (eds): *Making Globalization Socially Sustainable*, International Labour Organization and World Trade Organization, 2011, 337pp.

¹⁶³ The International Bank for Reconstruction and Development: *Factory Southern Africa? SACU in Global Value Chains-Summary Report*, Trade and Competitiveness Global Practice: The World Bank Group, 2016.

has in part led to the perception that a new form of *casualisation* of the labour market has developed. While it is unclear that the emergence and use of temporary employment services/labour brokers in various industries relate to GVCs, this has attracted the ire of labour unions and NGOs.

The research methodology we used to evaluate GVCs' impacts on SA's labour market sought to gather and analyse both quantitative and qualitative data using a custom-designed **Impact Assessment Framework**, which provides a profile of the structure of SA's economy, the availability of economic performance information to better understand economic sectors and the location of GVCs. The selection of economic sectors and GVCs is based on clearly specified criteria. While it is important to consider the contributions of economic sectors to national growth and employment, the roles and contributions of enterprises involved in GVCs in these sectors should be ascertained. Analysts have distinguished between value chains where MNEs are at the center of the value and a value system consisting of a number of independent firms, including MNEs operating at an industry level. The approach articulated here involves a focus on value chains at an industry level while not discounting the interrelationships with MNEs and independent companies. Thus, this informed our questionnaire construction for surveys, in-depth interviews and focus group discussions with the intention of gathering information at both industry and company levels where required, as reflected in this report.

Further, an analysis of GVCs' impacts on labour market institutions should be considered in the broader context of the growth path that has been adopted by national government. As the enhancement of industry/GVC national competitiveness and growth rest on the effectiveness of a multidimensional business environment. Public policies dealing with various dimensions of GVCs often cite labour market-related conditionalities as an integral part of available support instruments; hence its importance as a criterion for the selection of industrial sectors/GVCs for examination.

3.2.1. Current challenges

David Weil recently coined *fissured workplace* to conceptualise the evolution of the business model that has altered the employment relations (e.g. outsourcing,

subcontracting and the misclassification of workers as independent contractors), and – in turn – the way wages are set for workers in a growing range of industries in the past three decades.¹⁶⁴ Analysts such as Guy Standing¹⁶⁵ have argued that the new globalising trend has led to the production of a new class called *the precariat*, which differs from people involved in standardised work.

“the precariat has insecure labour, flitting in and out of jobs, often with incomplete contracts or forced into indirect labour relationships via agencies or brokers. Of course, there has always been casual labour. This in itself does not distinguish the precariat. The key point is that the precariat is subjected to what I call precariatism – habituation to expecting a life of unstable labour and unstable living.”¹⁶⁶

A number of companies and labour unions have responded to these challenges. Some companies have embarked on processes to secure stability in their suppliers' labour markets, while unions have changed their scope to organise workers along the value chain, to the consternation of those advocating the historical practice of “one industry, one union”. NGOs have also entered the fray when campaigning for the establishment of free trade standards among firms involved in product exports. The evidence of these activities is explicit in some industries, such as the automotive and agricultural industries.

The Department of Agriculture, Forestry and Fisheries (DAFF) has established round tables to facilitate deliberations among stakeholders involved in labour-intensive GVCs. Some of these deliberations have involved the wine and deciduous fruit commodity groups. The agenda items varied, ranging from trade to the conditions of employment among workers. Activism pursued by NGOs such as Women on Farms and labour unions have already identified the need to affect interventions in the value chain in an attempt to influence conditions of employment and wage rates. They have

¹⁶⁴ Weil, David: *Income Equality, Wage Determination, and the Fissured Workplace*, in *After Piketty-The Agenda for Economics and Inequality*, edited by Boushey, H; Bradford De Long, J and Steinbaum, M; Harvard University Press, 2017, 209-231pp.

¹⁶⁵ Standing, Guy: *The Precariat: The New Dangerous Class*, London: Bloomsbury Academic, 2011; *Global Labour Flexibility: Seeking Distributive Justice*, Basingstoke: Macmillan, 1999; *Work after Globalization: Building Occupational Citizenship*, Cheltenham, UK: Edward Elgar, 2009.; *A Precariat Charter: From Denizens to Citizens*, London: Bloomsbury Academic, 2014.

¹⁶⁶ Standing, Guy: *Why the precariat is not a “bogus concept”*, *openDemocracy*, 4 March 2014.

done this through attendance at the AGMs of shareholders of companies such as TESCO, which they have used to expose suppliers' practices. The establishment of WIETA reflects an attempt to engage in the self-regulation of participation in various GVCs that affect the industry.

The entry of companies such as WALMART into SA's retail market and the impacts of its employment practices and sourcing arrangements on the labour market have raised concerns among a number of stakeholders. Similarly, the operations of SA retail giants in the region has also affected its employment practices and sourcing arrangements with its suppliers. Some commentators argue that it has affected conditions of employment in these companies and that of the supplying companies, as evidenced by increasing non-standard work practices.

The DTI has been involved in the development of incentives for the automotive industry with its Automotive Production and Development Programme (APDP). This programme's efficacy depends on the development of the value chain, for instance, component producers and retail services, despite record investment and rising export sales. Vehicles may be assembled in SA, but many of the cars being exported have been assembled mainly using imported components without sufficient localisation and value addition by automotive component suppliers. Does the current model that permits statutory bargaining councils in the metals and engineering (MEIBC), motor (MIBCO), and tyre (Bargaining Council for the New Tyre Manufacturing Industry) industries and a non-statutory centralised collective bargaining arrangements in the auto industry affect the security of supplies of companies in the value chain? Hence the debate about the need for a super bargaining council among some companies.

It is evident from this review that any examination of GVCs in SA must consider the operations of linked enterprises in a particular sector so as to comprehensively understand its dynamics. It is also evident that various GVC types exist related to the position of the dominant firm in the governance arrangements of the value chain. Some sectors that have different governance arrangements include the automotive industry value chain, which has links to motor and engineering industry firms and where collective bargaining arrangement cuts across statutory and non-statutory

forms of centralised bargaining; the food processing industry (wine industry), which is informed by sectoral determinations, plant-level bargaining and centralised bargaining; and the retail industry, which has close links to local firms of suppliers. While collective bargaining in this sector locally cuts across sectoral determinations, plant-level bargaining and centralised bargaining, a cross-border IFA exists with Shoprite Checkers.

The International Standard Industrial Classification of Economic Activities (ISIC)

Stats SA, as the custodian of official statistics in SA, historically collected data about the country's economic activities, including its labour market, consistent with the UNSD-prescribed ISIC. However, for various reasons, it was hard to discern from the nature of collected data the presence and impacts of GVCs on the labour market. First and foremost was the absence of data at division, major group, group and subgroup levels, division and group levels, which will enable the determination of value chain links.¹⁶⁷ Second, it collected data in terms of ISIC version 3, which means that the data were dated and did not enable up-to-date global comparisons.

Thus, we had to rely on administrative data collected by associations that was not quality-assured according to SASQAF, an observation that emphasised the importance of an NSS that facilitates co-operation between data producers consistent with the needs of data users. Senior Stats SA officials provided significant insights into the nature of the problem and availed up-to-date information about UNSD attempts to collect data about GVCs in discussions concerning this project.

Organising Framework for Occupations

The first comprehensive volume of ISCO-08, referred to as Volume 1, was published in 2012. In 2013, the Department of Higher Education and Training issued Guidelines to an Organising Framework for Occupations (OFO), which were meant to assist alignment between ISCO-08 and to provide general guidance on the application of an OFO to users in SA, particularly SETAs, employers, skills development facilitators, etc.

¹⁶⁷ Statistics South Africa: Standard Industrial Classification of all Economic Activities-Seventh Edition, Report No. 09-90-02, October 2012 and Interviews held with Stats SAs Risenga Maluleke (Statistician-General); J De Beer (DDG Economic Statistics) and N. Makhatha (Methodology & Standards) on 25 July and 6 September 2019.

The SETAs appear to have used these guidelines to frame specific applications for the sectors that fall under each of their jurisdictions. In this report, the two principal SETAs that oversee training provision and support in the automotive, capital goods and transport equipment, metal fabrication, fruit and wine sectors are merSETA and AgriSETA. Both of these SETAs formulated responses to the OFO guidelines.

3.2.2. Criteria for the selection of industries and global value chains for analysis

What became evident during the literature review is the need to develop a GVC typology. In this context, a distinction between producer-dominated and buyer-dominated GVCs was developed. Dominant enterprises and industries would essentially determine the standards required for relations between enterprises in the enterprises' supply chain networks.

The criteria for selecting certain industries and GVCs for analysis also had to ascertain whether the support measures provided by government departments and associations assist the development of the GVCs in the context of global competition, with particular reference to, among others:

- The creation of employment
- The creation of decent employment as determined by the ILO
- Whether the SA labour market arrangements promote these objectives
- Do the existing collective bargaining/sectoral determination arrangements promote the desired value chain activities?
- Do the existing skills development arrangements promote the upskilling required by GVCs
- Which changes to the labour market arrangements are required to facilitate or improve competitiveness?

Thus, the priority industries and enterprises identified spanned both producer-dominated and buyer-dominated enterprises, while also considering the prevalence of

a particular mix of labour market arrangements, albeit sectoral determinations, statutory or non-statutory forms of centralised bargaining or company-level bargaining.

3.2.3. Construction of data collection instruments for identified target groups

It is evident that information had to be obtained from identified target groups in specified industries. These included:

- Government departments (e.g. DTI and DAFF) responsible for various incentives for industry-based GVCs.
- Industry associations that facilitate the organisation of enterprises within GVCs
- Trade union associations, including their global affiliations that organise workers among these GVCs
- Existing industry forums that facilitate collective bargaining among GVCs
- Existing industry forums that organise value chain engagements among GVCs.

We developed and used a semi-structured questionnaire for each category of association so as to facilitate in-depth interviews.

We conducted a survey based on the use of a semi-structured questionnaire among enterprises in the identified GVC/sector to gather information in relation to the following questions:

- The creation of employment
- The creation of decent employment as determined by the ILO
- Do South Africa's labour market arrangements promote these objectives?
- Do the existing collective bargaining/sectoral determination arrangements promote the desired value chain activities?
- Which changes are required to the labour market arrangements so as to facilitate or improve competitiveness?
- Do the existing skills development arrangements promote the upskilling required by GVCs?

3.3. Data collection, analysis and the construction of a research report

While Stats SA data could not provide data of considerable depth to enable the effective measurement of the GVCs and the labour market, a considerable amount of data was collected by the business associations and collective bargaining forums. The low response rate of surveyed companies led to the adoption of a strategy of interviewing selected cases in identified industries.

3.3.1. Producer-dominated value chains

The producer-dominated value chains identified for examination were metal fabrication, capital and rail transport equipment and automotive. Apart from constituting the core of manufacturing activities, it is also a significant employer where labour relations and, in turn wage determination is essentially informed by highly self-regulated statutory and non-statutory forms of collective bargaining. Much of the relevant documents were acquired from industry specific information hubs and specialised journals and newspapers such as *Engineering news* as facilitated by some strategic interviews.

(a) Metal fabrication, capital and rail transport equipment

Previous research conducted by Merchantec Research¹⁶⁸ and TIPS¹⁶⁹ provided valuable insights into these industries. SEIFSA provided administrative data in the form of employment trends for its identified clusters. These multiple value chains' employment relations were essentially governed by the MEIBC. While it is arguably the oldest and largest statutory bargaining in the private sector, its main collective agreement is comprehensive and reflects attempts to respond to the challenges of globalisation.¹⁷⁰ It nonetheless involved foreign-owned and locally-owned MNEs who are dominant players in the governance arrangements of company-based value chain

¹⁶⁸ Merchantec Research: Industry Supply Analysis: Deliverable 1, Ferrous Metals Downstream Sector, September 2014; Industry Challenges and Opportunities Analysis: Deliverable 3, Ferrous Metals Downstream Sector, August 2015

¹⁶⁹ Trade and Industry Policy Strategies (TIPS): Manufacturing Subsectors, Metals and metal products, December 2017.

¹⁷⁰ Metal and Engineering Industries Bargaining Council Consolidated Main Agreement, 2011/2014 & 2014/2017.

activities in its affairs pertaining to local employment relations, and – in turn – wage determination.

Further, although significantly affected by a global trading environment, the value chains have been identified for significant government support, albeit through the involvement of enterprises in public sector procurement, various industry support incentives or support for increasing participation in global trade.¹⁷¹ Information that can be gleaned not only from existing government policy documents such as IPAP, but also the activities of business organisations such as SEIFSA, NEASA, CEOSA, SAEFA and PCASA, and trade unions such as NUMSA, Solidariteit, MEWUSA and UASA.

Commodity-specific business organisations such as ISF and its relations with associations and organisations such as SEIFSA, SAISC, POLASA, SASFA, SAISI, and HDGASA facilitated support for locally-owned MNEs such as the AVENG Group. It also engages relevant associations directly involved in the metal fabrication value chain such as AFSA, SAWA, STEASA, SASSDA as well as other related associations such as SACEEC, SAEEC, RRA and SAFCEC.

Foreign-owned MNEs such as South China Rail, North China Rail, Canadian-owned Bombardier Transport, French-owned Alstom and Denmark-owned AVK Holding A/S and locally based MNEs such as Bell Equipment and Gibela Rail are major role-players in the capital and rail transport equipment value chain. COMESA, SACEEC RRA and EPCM facilitated relations between clients and suppliers, playing critical roles in the growth and expansion of the capital and rail equipment industry in Africa and globally.

(b) Automotive

The NAAMSA *Quarterly reports* have been a valuable source of information. They provide information about the number of vehicles that were domestically produced by locally-based OEMs and SA's contribution to global production – the number of vehicles exported and to which regions of the globe and absorbed by the local market,

¹⁷¹ Department of Trade and Industry(DTI): Metals Sector Development Strategy. Pretoria,2005.

the investment levels and types made and the extent of productive capacity used. Interestingly, detailed information is provided about the number of workers employed and whether and the number of shifts used by individual OEMs. This body of information is complemented by the occasional reviews/analysis provided by NAAMSA leadership and analysts

Benchmarking studies have been conducted, particularly by Benchmarking and Manufacturing Analysts SA (Pty) Ltd (B&M Analysts) for both employer associations such as NAAMSA and NACAAM and the value chain initiative the Automotive Supply Chain Competitiveness Initiative (ASCCI), which includes NUMSA.

Labour market issues in relation to the value chain were considered by B&M Analysts when it produced the *ILO automotive study: Draft industry mapping and supplier diagnostic report*, as authored by D. Comrie, J Terreblanche, J Johnson and J Snyman in 2013.¹⁷² Shane Godfrey's ILO funded research for MIBCO *A review of MIBCO's collective bargaining model on MIBCO*¹⁷³ produced in 2017, which provided more insights into the challenges of value chain-related bargaining.

NUMSA, in collaboration with its German counterpart IG Metal, has also researched the automotive industry in the report prepared in 2017 by Melanie Roy, *Building transnational solidarity across global value chains – a South African perspective – Part A for the NUMSA Economic & Policy Institute*.¹⁷⁴ It mapped a number of challenges facing the union based on an analysis of Mercedes Benz and Volkswagen and some tier 1 supplier companies.

3.3.2. Buyer-dominated value chains

The buyer-dominated value chains identified for examination were fruit and wine. A significant number of business/commodity groups facilitate relations between producers and processors. The two value chains were also closely intertwined, in that

¹⁷² Comrie, D; Terreblanche, J; Johnson, J and Snyman, J : ILO Automotive Study: Draft Industry Mapping and Supplier Diagnostic Report, Benchmarking and Manufacturing Analysts SA (Pty) Ltd For The International Labour Organisation (ILO), 15 December 2013

¹⁷³ Godfrey, S: A review of MIBCO's collective bargaining model, Labour and Enterprise Policy Research Group, University of Cape Town, 12 June 2017

¹⁷⁴ Melanie Roy: Building Transnational Solidarity Across Global Value Chains A South African Perspective -Part A, NUMSA Economic & Policy Institute 2017.

producers of fruit such as table grapes were also engaged in wine production in certain areas. Similarly, they were subjected to the same Sectoral Determination for farmworkers and tended to use the same service providers. Many of the relevant documents were acquired from industry-specific information hubs, as facilitated by business organisations such as Fruit SA and associations, Vinpro and its various business units, specialised journals and newspapers, as facilitated by some strategic interviews. The Laborie Dialogue Initiative for fruit and wine in 2015 when a MoU was signed between HORTGRO, Vinpro and FAWU also yielded interesting labour market information. This was augmented by research papers produced by university-based and independent research institutions such as CCRED, IDTT, TIPS, PLAAS, and BFAP.

Attempts were made to address the relationships between the aforementioned support initiatives and strategic companies involved in specific company-related value chains, with limited success. Although multinational enterprises such as DGB and Dole were very responsive, others such as the Du Toit Group, Two-a-Day, KWV and Distel refused to participate owing to the competitive environment and sensitivities concerning ethical trade and labour market issues.

(a) Fruit

In-depth interviews were conducted with the senior leadership of Fruit SA and commodity associations such as CGA, FPEF, HORTGRO, SATI and the South African Subtropical Growers' Association. These interviews generated significant insights into the value chains to which these organisations render support and a trove of documents that contained administrative data.

Significant insights into the labour market dynamics and skills development and documentation were attained from the CEOs of LWO and CAEO. The leadership of AgriSETA and service providers such as KBTC and the Citrus Academy profiled the skills demand and supply situation and challenges. SIZA provided in-depth perspectives on ethical trading and the labour market conditionalities. The situation's gravity was articulated by representatives of trade unions such as FAWU and the African Regional Secretary of Uni Global. We also gained access to the deliberations of FIVCRT, which that involved all the aforementioned stakeholders and the DAFF.

(b) Wine

Vinpro and industry business units such as SALBA, WOSA and WineTech provided access to information about value chain activities. WISE, a previous initiative involving these associations, provided valuable insights into value chain activities that are key to the industry's repositioning. It prepared a collective response by business to the development of a social compact involving other stakeholders such as trade unions, NGOs/NPOs and government departments.

Tridevworx's facilitation of the development of a social compact for WIVCRT exposed it to a trove of information of all the stakeholders, including the DAFF, particularly its use in deliberations about the state and future of value chain activities.

CAEO, together with trade unions such as FAWU, provided critical insights into a range of labour market issues such as demarcation, wage determination models and dispute resolution. The leadership of AgriSETA and service providers such as KBTC and WineTech enriched our insights into the challenges and initiatives being pursued to strengthen skills formation within a dynamically evolving global chain.

3.3.3. Data analysis and the construction of a research report

The Impact Assessment Framework guided the collection of data and the construction of the required conceptual apparatus to process and analyse the information. The triangulation of data dimensions produced by the literature and documentary review, in-depth interviews and administrative data collected from such interviews significantly contributed to the development of this report. We used administrative data and other institutional documentation attained from the aforementioned associations to anchor the analysis.

What is evident is that the legislative framework has been constructed to make provision a range of labour market solutions. It is flexible in that it permits for procedural and interventionist solutions. The former permits various levels of self-regulation at the company and industry levels, pending organisational strengths of

unions and employers, while the latter allows for ministerial intervention, with the ECC being a critical instrument. Mediation and arbitration institutions in the form of the CCMA and the Labour Court augmented local capacity to resolve disputes. However, what is evident is that the impacts of new business models facilitated by GVCs, whether through locally-owned or foreign-owned MNEs, on labour markets is in its infancy. While some collective bargaining forums have in recent years responded thereto and legislative frameworks on temporary employment practices/labour brokers and outsourcing has been developed, the re-demarkation of the scope of the collective bargaining forums remains a significant issue. Similarly, the capacity of institutions (multilateral, state, trade unions, NGOs/NPOs and business associations) to respond to these challenges must be addressed.

This could be an indication of the need to modernise and align labour market institutions to industrial policy initiatives that increasingly emphasise participation in GVCs without having to effect changes in labour market legislation. Our skills development regime in this context should also be evaluated and adjusted to facilitate the synthesis between demand and supply in response to the application of changing technologies.

The measurement of these dynamics, as an integral part of measuring economic activities, should also be reviewed. This will enable us to effectively track the extent of our integration into the global economy with particular reference to our participation in GVCs. The use of the keenly anticipated *UNSD Handbook* could be of great assistance in this regard.

This report is an attempt to log strategic issues that should be attended to if participation in GVCs is to be effective. Further research and action will have to be affected on the identified issues.

SECTION

A

PRODUCER- DOMINATED GLOBAL VALUE CHAINS

According to Stats *South Africa's Quarterly labour force survey*, the manufacturing sector has lost 345 000 jobs between 2008 and 2018. It has been purported that at the heart of these job losses has been the metal and engineering sector, which previously employed more than 1 million workers and currently employs less than 500 000 workers, as SEIFSA President, Elias Monage, lamented.¹⁷⁵ Meanwhile, the automobile sector has increased its share of employment, simultaneously emerging as the most significant contributor to the manufacturing component of SA's GDP. The metal and engineering industry currently employs an estimated 431 390 people as at the end of June 2019, as reflected in *Table 5: The numbers of employees in the metal and engineering and automotive subsectors*.¹⁷⁶ However, there are a number of value chains in this industry. The metal fabrication value chain permeates the basic iron and steel, casting of metals, structural metal products, tanks, reservoirs and steam generators and other fabricated metal products and metalwork service activities subsectors, while the capital and rail transport equipment value chain straddles subsectors such as general and special purpose machinery, electric machinery and apparatus, railway and tramway locomotives and rolling stock and transport equipment.

The automotive value chain covers subsectors such as the casting of metals, bodies for motor vehicles and their engines, parts and accessories for motor vehicles and their engines and the manufacture of new vehicles. It employs an estimated 110 000 people or more, with less than 30% (30 118) engaged by the new motor vehicle manufacturers. The total number employed in the value increases to just less than 500 000, if the number employed in the combined sales and maintenance-related sectors are factored in.

¹⁷⁵ Creamer, Terence: Seifsa president calls for greater industrial policy decisiveness, *Engineering News*, 12th September 2019.

¹⁷⁶ This table was compiled based on administrative data that was provided by SEIFSA and NAAMSA. The data was not assessed in relation to the South African Statistical Quality Assessment Framework (SASQAF).

Number of Employees per Quarter for Metal & Engineering and Automotive subsectors

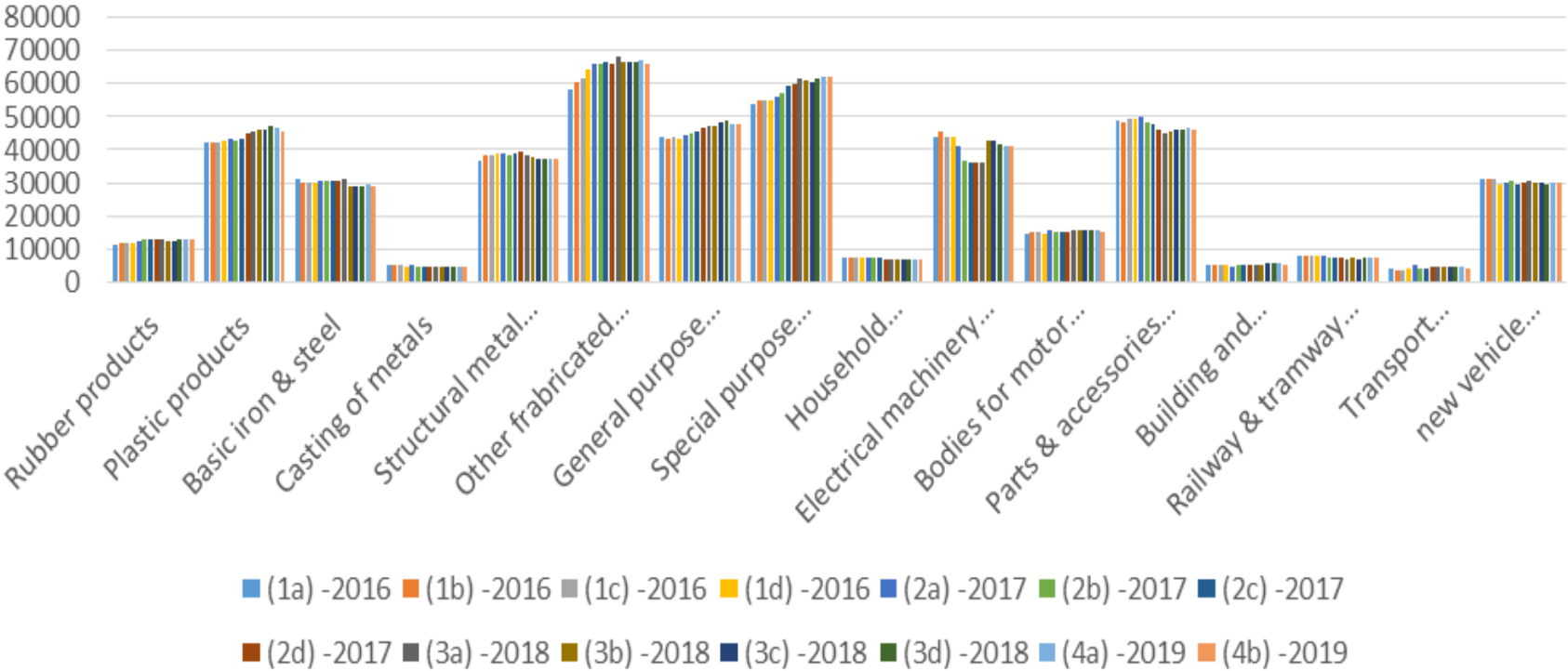


Table 5: Number of employees per metal and engineering and automotive subsectors

Subsectors	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4	2019Q1	2019Q2
Rubber products	11 069	11 717	11 829	11 763	12 110	13 102	12 847	12 819	12 722	12 472	12 501	13 044	13 046	12 908
Plastic products	42 178	42 157	42 096	42 771	43 023	42 795	43 299	44 814	45 664	45 817	46 073	47 059	46 516	45 647
Basic iron and steel	31 236	30 210	30 275	30 259	30 427	30 449	30 342	30 799	31 148	29 171	28 860	29 059	29 260	29 095
Casting of metals	5 023	5 173	4 915	4 800	4 858	4 786	4 691	4 610	4 642	4 516	4 419	4 431	4 414	4 342
Structural metal products, tanks, reservoirs and steam generators	36 420	38 154	38 406	38 592	38 892	38 373	39 009	39 158	38 455	37 980	37 249	36 976	37 439	37 422
Other fabricated metal products; metalwork service activities	58 097	60 492	61 812	64 325	66 074	66 267	66 446	65 917	68 008	66 825	66 402	66 426	67 054	65 809
General purpose machinery	43 753	43 499	43 648	43 537	44 641	45 132	45 591	46 637	47 076	46 921	48 415	48 995	47 564	47 612
Special purpose machinery	53 822	54 678	54 776	55 068	56 036	57 161	59 111	60 110	61 589	60 856	60 568	61 451	62 154	62 057
Household appliances n.e.c	7 196	7 057	7 290	7 048	7 175	7 175	7 221	6 898	6 959	6 587	6 591	6 673	6 633	6 694
Electrical machinery and apparatus n.e.c.	44 067	45 352	43 805	43 628	40 893	36 693	36 238	36 293	36 200	42 599	42 771	41 487	40 949	41 223
Bodies for motor vehicles, trailers, and semi-trailers	14 365	14 870	14 941	14 586	15 368	15 116	15 048	15 008	15 425	15 655	15 665	15 352	15 750	15 317

Parts and accessories for motor vehicles and their engines	48 932	48 353	49 426	49 439	50 123	48 418	47 457	45 827	44 907	45 384	45 834	45 952	46 518	46 295
Building and repairing of ships and boats	4 960	4 976	5 078	4 932	4 730	4 966	4 884	4 934	5 201	5 328	5 505	5 493	5 568	5 302
Railway and tramway locomotives and rolling stock; aircraft and spacecraft	7 870	7 844	7 830	7 946	7 941	7 574	7 391	7 322	6 821	7 034	6 894	7 508	7 539	7 453
Transport equipment n.e.c	3 844	3 535	3 687	4 190	5 166	3 982	4 127	4 261	4 381	4 447	4 503	4 302	4 351	4 214
New vehicle manufacturing industry	31 258	31 184	31 389	29 489	30 197	30 356	29 533	29 808	30 032	29 960	30 265	29 484	30 030	30 118
Total (000)	444 090	44 9251	451 203	452 373	457 654	452 345	453 235	455 215	459 500	461 552	462 515	463 692	464 785	461 508

The automobile sector is perceived as a lifeline to the regeneration of manufacturing employment as facilitated by the South African Automobile Master Plan. A masterplan for the Metal and Engineering Industry has also been mooted by the recently appointed Minister of Trade and Industry, Ebrahim Patel. While the support for and roles of OEMs in the automobile sector value chain have been clarified in government policies, much has to be said about OEMs in the capital and rail transport equipment value chain, which involves foreign-owned and locally-owned MNEs. Both are significantly supported by companies involved in metal fabrication.

The automotive, capital and rail transport equipment and metal fabrication GVCs in SA are predominantly producer-dominated. Interestingly, they are interlinked with metal fabrication processes that provide supplies for the production of automobiles and capital and rail transport equipment. In some instances, large companies such as AVENG are able to provide integrated products and services through its subsidiaries across a number of value chains, ranging from mining, energy, construction, oil and gas, marine, roads and rail. Some are foreign-owned, while others are listed on the JSE and are headquartered here.

Their labour market conditions are governed by a number of statutory and non-statutory arrangements, such as bargaining councils, company level bargaining and sectoral determinations. MIBCO and MEIBC appear to be the predominant statutory councils, while the NBF is a non-statutory form of centralised bargaining. Debates about value chain bargaining permeate deliberations in MIBCO and the NBF. Issues raised range from the demarcation of industries to the restructuring of centralised bargaining councils/forums. Other bargaining councils affected are BCNTMI, NBCLI, NBCCI, MFIBC, NBCRFLI and the TBC. The bottom-line is to ensure some stability in the value chain by eliminating fragmentation in the bargaining processes and by establishing equitable conditions of employment.

The challenges revolve around sectors described according to definitions contained in SIC and its relationships to value chains. Important also the distinction between support arrangements for value chains/industrial sectors and the value chains of specific companies. Its implications for occupational classifications, training and

education and career pathing and impact on remuneration and conditions of employment are a key labour market policy consideration.

What is evident is that the labour market conditions, including skills development across these value chains, are critical to the movement up and repositioning of companies in GVCs. Industry support measures, including effective labour market and skills development, are critical to this process. It is evident that the collective bargaining arrangements and skills development arrangements must be changed and refined to meet up with this challenge. The MEIBC, MIBCO and the NBF, as collective bargaining forums, as well as merSETA, are currently being exposed to the dynamics of these changes. However, the LRA and the Skills Development Act have facilitated the establishment of these institutions to augment self-regulatory arrangements between organised business and labour throughout these value chains.

Thus, it is imperative for these organisations to engage in ways that would result in institutional support for the growth and development of these value chains. How can this be done, given the fragmentation and discord that prevails among the governing organisations while lead or supply companies develop their mandates to local economic development in the current or a changed regulatory environment? The MEIBC has adopted a resolution in its main agreement to pursue the exploration of new bargaining models based on value chains:

*“To this end the parties agree to review collective bargaining in a consultative process with the parties to MEIBC, MIBCO, NTMIBC and ANBF on the following, non-exclusive, list of items: 1. Levels of bargaining and what to bargain at which level, including scheduled and actual rates and the bargaining cycle and processes. 2. A rational value chain based bargaining systems covering the metal, engineering, motor component and assembly industry. 3. Socio-economic issues as they impact on employees’ rights to humane living conditions. 4. Productivity and performance issues as they impact on the employer competitiveness. 5. Exemption processes and procedures”.*¹⁷⁷

Further, the NBF has also adopted a similar resolution that explicitly states the bargaining forum type it envisages; it will incorporate the components, new tyre

¹⁷⁷ Metal and Engineering Industries Bargaining Council (MEIBC): Main Agreement, Annexure J-The Future of Collective Bargaining, Government Notices R. 1050, Government Gazette No 38366, 24 December 2014, p242

manufacturers, bus builders and motor body builders. MIBCO has commissioned an ILO-sponsored study to inform deliberations about future collective bargaining models.

Central to any deliberations about determining the future of collective bargaining could be a process that defines the multiple value chains in the aforementioned bargaining councils, the development of criteria to demarcate a restructured and agreed-upon bargaining council model, the development of agreed-upon occupational and grading structures and skills development strategies to facilitate vertical and horizontal equity in compensation for work performed, including productivity and performance related issues, bargaining levels, cycles and processes, and exemption processes and procedures. While a new collective bargaining dispensation is being pursued, it should be noted that the biggest pension/provident and sick/health funds were historically developed under the auspices of these collective bargaining arrangements. In these circumstances, the pursuit of decent work could be realised, as these bargaining councils/forums epitomised the most developed self-regulated labour market arrangements.

4

THE METAL FABRICATION GLOBAL VALUE CHAIN

South Africa's rich reserves of mineral sources led the Department of Mineral Resources in July 2011 to identify five pilot value chains in which minerals could be beneficiated: energy commodities, iron and steel, pigment and titanium metal production, autocatalytic converters and diesel particulate and jewellery fabrication. Various stages of these value chains can be delineated. The transformation of the processed metal into finished products is usually referred to as metal fabrication. Stats SA defines metal fabrication in terms of the SIC as follows:

“Manufacture of fabricated metal products... includes the manufacture of ‘pure’ metal products (such as parts, containers and structures), usually with a static, immovable function, as opposed to... the manufacture of combinations or assemblies of such metal products (sometimes with other materials) into more complex units that, unless they are purely electrical, electronic or optical, work with moving parts. The manufacture of weapons and ammunition is also included in this division. This division excludes specialized repair and maintenance activities... and the specialized installation of manufactured goods produced in this division in buildings, such as central heating boilers”.¹⁷⁸

4.1. The dimensions of the metal fabrication global value chain

“The steel and engineering sector contributed R335 billion to the South African economy in 2013 and employed on average 291 700 people (SEIFSA). 48% of this production is for the local market with a value of around R150 billion”.¹⁷⁹

The productive capacity and consumption of ferrous and non-ferrous metals constitute a critical element of economic development. Its products generated through value added cutting, bending, and assembling process such as the creation of machines, parts and structures from various raw materials are vital inputs into labour intensive manufacturing processes. It includes the manufacture of basic metals, fabricated metal products, the manufacture of machinery and equipment and of office, accounting and computing machinery, as well as manufacture of electrical machinery and

¹⁷⁸ Stats SA: Standard Industrial Classification of all Economic Activities (Seventh Edition), Report No. 09-90-02, October 2012, p102.

¹⁷⁹ Merchantec Research: Industry Supply Analysis: Deliverable 1, Ferrous Metals Downstream Sector, September 2014, p10.

Table 6: Dimensions of the value chain for metal fabrication

Issues	Suppliers/Inputs	Production capacity, technology and innovation	End-markets and trade	Governance of value chains	Value chain finance	Business environment
Industry	Metal ores production, Mills, Mini-mills and foundries	Metal fabrication processes, including machine shops	Construction, Manufacturing, Transport, Automotive, Infrastructure, Military, Mining and Agriculture industries	Dominated by MNEs such as ArcelorMittal South Africa (AMSA) informing import parity pricing	Local and Foreign Direct Investment (FDI)	Key initiatives that informs the business environment: <ul style="list-style-type: none"> • The national build programme enhancing economic infrastructure, especially bulk transport, electricity and water • Procurement of locally manufactured products to support industrial development • The National Industrial Participation (NIP) Programme to support the development of the key industrial sectors of the economy • The Council for Scientific and Industrial Research's (CSIR) Product Life Cycle Management (PLM) to support SMME development through the various product life-cycle stages including product development, manufacturing simulation, testing and prototyping • The Manufacturing Competitiveness Enhancement Programme (MCEP).
Policy support						
Associations	Chamber of Mines and SEIFSA	SEIFSA and its affiliates, NEASA and the Consolidated Employers Organisation (CEO)	Various	Some of the associations such as SEIFSA organises across value chains while its affiliates focusses on specific segments	Able to provide services to members financed by subscriptions	
Company-based GVCs	Kumba Iron Ore, Assmang, Evraz Highveld Steel and Vanadium and Rio Tinto ArcelorMittal South Africa (AMSA), Scaw Metals, DAV Steel, CISCO, Evraz Highveld Steel and Vanadium	AVENG, MACSTEEL, ROBOR, BSI Steel, BARNES, ALLIED Steelrode, Clotan Steel, Stewarts & Lloyds and Reinforced Steel Contractors (RSC)	Various	Some companies such as AVENG group has an internal value chain		

apparatuses. It is a very significant sector in the manufacturing industry and constitutes roughly one-third of all manufacturing activity.

4.1.1. Suppliers/Inputs

South Africa's iron ore mining industry supplies the entire local demand and beneficiates and exports the remainder. We are the fourth largest exporter of seaborne iron ore after Australia, Brazil and India. These mining operations are essentially owned by Kumba Iron Ore, Assmang, Evraz Highveld Steel and Vanadium and Rio Tinto.

The conversion of the ore or concentrate into an intermediate product such as a metal or alloy takes place in capital-intensive and energy-intensive smelters and refineries.¹⁸⁰ This process involves milling firms that are involved in the production of pig iron and the conversion of pig iron into a range of wrought iron and steel materials available in different forms, such as ingots, plate, sheet and coil.

South Africa is also the third largest exporter of steel relative to its production after the Ukraine and Russia and its production is dominated by MNE ArcelorMittal South Africa (AMSA), which accounts for approximately 75% of domestic production at its plants in Vanderbijlpark and Vereeniging (Gauteng), Newcastle (KwaZulu-Natal) and Saldanha (Western Cape); also, it is the only steel manufacturing plant using the blast furnace process. Other major producers are Scaw Metals, owned by Anglo American and a consortium of empowerment partners; DAV Steel, owned by Cape Gate Holdings; CISCO, owned by Murray & Roberts, Unica, Agnisteel and Evraz Highveld Steel and Vanadium. Columbus Stainless Pty Limited is SA's only producer of stainless- steel flat products. As the primary steel producer in Sub-Saharan Africa, it provides the capacity to supply steel as well as steel products to neighbouring economies.

Further, despite a decline in capacity through plant closures since 2010, in 2015 there were approximately 170 foundries operating in the formal sector, with an output of 374 000 tons employing 13 000 direct and indirect employees. A significant part of supplies

¹⁸⁰ Department of Trade and Industry(DTI): Metals Sector Development Strategy. Pretoria,2005,p15.

to foundries involved the recycling of scrap metal, since these foundries and mini-mills generally do not have the capacity to process ores.¹⁸¹ Scaw Metals, CISCO and Cape Gate use the electric arc furnace (EAF) steelmaking process and use scrap metal and not iron ore as the primary source of feedstock.¹⁸²

4.1.2. Production capacity, technology and innovation

Metal fabricators and machine shops are largely influenced by global business cycles that impact on steel and aluminium prices, where suppliers set domestic prices for steel products based on global steel prices, including logistics costs for a specific market (import parity pricing).

In terms of the ISIC, metal fabricators transform metal into intermediate products or end-products, or treat metals and metal formed products fabricated elsewhere. This includes using metal processes such as forging, stamping, bending, forming and machining, to shape individual pieces of metal. It also includes other processes, such as welding and assembling, to join together separate parts. It excludes the finished production of machinery, computers, electronics, and metal furniture. Machine shops are an important segment of this industry. These businesses are primarily engaged in machining metal and plastic parts as well as parts of other composite materials on a job or order basis using machine tools, such as lathes (including computer numerically controlled); automatic screw machines; and machines for boring, grinding and milling.

Companies such as AVENG, Halumin, MACSTEEL, ROBOR, BSI Steel, BARNES, ALLIED Steelrode, Clotan Steel, Stewarts & Lloyds and Reinforced Steel Contractors (RSC) are key establishments in the metal fabrication process. Their products range from structural steel sections, sheet and plate, tubing, structural tube and pipe, expanded metal, grating and walkway mesh, flat products and roofing, fencing, reinforcing and mesh, hardware, coils and flat sheets, carbon plate, gaskets, bolts and nuts, steam, water, oil and gas valves in carbon steel, cast iron, brass,

¹⁸¹ Merchantec Research: Industry Supply Analysis: Deliverable 1, Ferrous Metals Downstream Sector, September 2014, p7

¹⁸² Merchantec Research: Industry Supply Analysis: Deliverable 1, Ferrous Metals Downstream Sector, September 2014, p7.

bronze and stainless steel, pipe fittings with malleable, wrought steel, butt-weld fittings, copper and pipe fitting fabrication. According to Merchantec Research, these products can be grouped into segments such as:

- Fabricated structural steel (which includes roofing and cladding, transmission pylons, and renewable energy structures)
- Wire products (including cable products)
- Tube and pipe products
- Fasteners
- Speciality alloy steel
- Pressure vessels
- Stainless steel
- Automotive components
- Domestic appliance manufacturing
- Forging (including valves)
- Tooling products
- Rail products
- Drums and packaging.

The aforementioned companies tend to produce products that fall into one or more of these segments. Aveng Trident Steel South Africa, a member of the Aveng Group through its extensive steel yards, modern steel service centres and tube manufacturing plant offers a one-stop service with diverse products such as automotive blanks, special steel, structural and plate, as well as pipe and tube to the entire steel industry spectrum in sub-Saharan Africa.¹⁸³ Halumin, through its aluminium semi-fabrication processes, provides aluminium rolled products and extrusions to customers across South Africa, Africa and the world, focussing on specific product and end-use markets. It is the only major aluminium rolling operation in Sub-Saharan Africa.¹⁸⁴ Ussher Inventions (Pty) Ltd t/a Lasher Tools forges hand tools from locally supplied metal and plastic products using injection moulded

¹⁸³ Response of Lesetja Rabalao, Aveng Trident Steel Employee Relations Manager, 12 December 2018.

¹⁸⁴ The interview responses provided by Clayton Fisher, Group Supply Chain Executive and Sydney Khoza, Senior HRBP on 21 November 2018 reinforces the information provided on its website <https://www.halumin.com/>.

processes with a combination of recycled and virgin materials.¹⁸⁵ With the exception of drums and packaging, each of the segments has a dedicated business association that organises these companies.

Companies' production capacity has been significantly affected by the glut in the supply of steel and the increased influx of imports particularly from countries such as China and India, which are subsidised by government programmes.

*“South Africa has a relatively strong competitive advantage in the iron ore mining and export industry, but lacks competitiveness in the downstream value adding segment as a result of relatively high and increasing costs (labour, transport and electricity) and intense global competition. Local manufacturers have very little advantage of the rich iron ore deposits in South Africa as steel is sold at import parity prices. Steel producers are price makers in South Africa while the manufacturing players are price takers”.*¹⁸⁶

Although speciality steel and high-quality steel are often imported from Europe and the U.S., there are products such as small diameter welded pipe, railway material and bolts and nuts that can easily be made in South Africa. Further, the steel and related components imported for the large infrastructure projects is either locally available, or can be manufactured locally pending sufficient lead time for companies to invest in the development of new capacity, as the experiences of the construction of Medupi and Khusile power plants demonstrate.

*“A key concern at present is the low levels of utilisation with a number of companies saying they were using less than 60% of their current capacity. As a result companies are not investing in new capacity and even new manufacturing technology upgrades have been put on the back burner. Companies would rather increase the number of shifts worked than invest in more production capacity (if demand were to increase). If companies in the fabricated steel industry were to invest in large scale capital projects they would require around 12 months lead time before they would be able to cater for new customers or projects. Most companies in this space have not invested in capital expansion since 2007/8 when the market experienced a boom period.”*¹⁸⁷

¹⁸⁵ Response of Ian Kendall, Managing Director on 04 December 2018

¹⁸⁶ Merchantec Research: Industry Supply Analysis: Deliverable 1, Ferrous Metals Downstream Sector, September 2014, p11.

¹⁸⁷ Ibid, p24.

What is evident is that localisation is critical to the development of the local capacity of enterprises and the local market. Companies such as the locally-listed AVENG Group developed value chains based on relationships between a number of subsidiaries that were involved in mining, steel, manufacturing engineering and construction. Its engineering activities, such as the production of structural steel, fabrication and erection and piping, were critical to its activities in the development of transport (road and rail), power, commercial and industrial infrastructure and its activities in the oil and gas and mining, water environmental sectors in 28 countries globally in regions such as Africa (Aveng Africa Limited), Australia, New Zealand, the Pacific Islands and South East Asia (McConnell Dowell). The steel processing service centres and warehouses and the manufacturing and fabrication plants of Aveng Trident Steel supplies a wide range of steel products, including automotive blanks, special steel, structural and plate, as well as pipe and tube to its distribution, mining, construction and automotive industries. There was still a dependency on the supply of steel from independent mills owned by AMSA and other steel producers and importers who supplied products for fabrication based on import parity pricing.

AMSA, as the only steel milling capacity in sub-Saharan Africa using blast furnace process and an integral part of ArcelorMittal, the world's largest steel company, produced a variety of flat steel, foundry, long steel and tubular products for independent fabricators, albeit large or small, who supplied the agricultural, armament, automotive, bolt and nut, chains, construction, engineering, furniture and appliance, mining, packaging, piping, renewable energy, roofing and cladding and tubing industries. It, together with other milling enterprises, significantly influenced the cost of fabrication processes of independent enterprises, which are essentially price takers through import parity pricing.

Thus, localisation is constrained owing to companies' difficulty to attain a competitive advantage based solely on product, despite holding important patents, since steel quality is determined by international standards. Most value adding downstream companies, whether large, medium or small, compete on the basis of product price, in the absence of advanced intellectual property, to control the global market and the availability of competing local and global products. Thus, customer loyalty tends to be very low. Companies can generate a competitive advantage by being innovative,

providing superior customer service, reducing lead times and providing niche products not mass manufactured in China and India, although there are increased investment in newer technologies in Asia.

4.1.3. End-markets: Local and global trade

Local fabricators and machine shops engage in a diverse array of markets including, agriculture, light and general engineering, mining, rural water, chemical, petro - chemical, automotive, building and construction, fire protection and local authorities. These traditional fabrications markets are beginning to shift and new markets suitable for metal fabrications suppliers are continuously emerging.

The demand for locally produced steel has decreased in relation to increased imports.

*“The South African apparent steel use stagnated over the past five years at around five million tonnes per year, except for 2013 where the number was 500kt higher. Domestic supply of all steel products by local mills on the other side, steadily dropped from 6.5 million tonnes per year in 2010 to below five million tonnes per year in 2016, on average -4.9% per year. Imports of all steel products, however, doubled from 657kt in 2010 to 1.189 million tonnes in 2015, and then dropped slightly to 975 kt in 2016”.*¹⁸⁸

South Africa’s steel demand is likely to increase with the growth of the local economy and that of Sub-Saharan Africa owing to the positive correlation between GDP and the intensity of steel use in developing countries. The DTI indicated that a 4% growth is projected by 2025 for sub-Saharan Africa owing to increased infrastructure investment, particularly in mining, oil and gas as well as increased agricultural production and growing services. The forecast for growth in East Africa is 6%, which will contribute to an increase in demand for products such as pipe and tube, structures and wire.¹⁸⁹ Already, AMSA has reported headline profits for the first time in nearly a decade when it recently released its annual results. This was largely due to economic growth in East Africa. South Africa’s growth needs to be above 1.8% for the situation

¹⁸⁸ South African Iron and Steel Institute (SAISI), Committee of Secondary Manufacturers (COSM) et al.: The Health and Growth Potential of the Steel Manufacturing Industries in SA, undated, p35.

¹⁸⁹ Department of Trade and Industry (DTI): Status of the SA Steel Industry, Presentation to the Portfolio Committee on Trade and Industry, 12 June 2018.

to improve domestically, its CEO, Kobus Venter, claimed.¹⁹⁰ However, there are a range of issues the primary and secondary steel producers will have to deal if they are to become more competitive.

4.1.4. Auxiliary services: Sustainable production and land, water and energy use

A number of auxiliary services have been identified as critical to the value chain's development and competitiveness. Central is the provision of logistics such as rail and seaport transport facilities provided by Transnet and energy supplies by ESKOM, without compromising sustainable environmental considerations. AMSA CEO, Paul O'Flaherty summed up the interdependencies of the operations of suppliers on logistics and energy:

“More specifically, ArcelorMittal South Africa (AMSA) is Kumba’s number one customer, Transnet Freight Rail’s number one customer, Sasol Gas’ number one customer, Exxaro’s number two customer and one of Eskom’s top five customers – the footprint and dependencies are significant.”¹⁹¹

Transport Logistics

The transportation of inputs from the supplier to the metal fabricator establishments is critical to the competitiveness of metal fabrication enterprises. What is significant is that South Africa is far from international markets, while its location on the African continent is favourable. Further, the establishment of development corridors in sub-Saharan Africa intends to facilitate the export of SA-produced metals. While rail is considered cheaper, it remains uncompetitive, and steel merchants have established their own fleets reliant on road over time.

“A general challenge all inland South African manufacturers face is the relatively high cost to ship their products to harbours. South Africa’s rail infrastructure remains highly uncompetitive while road freight cost has also increased steeply over the last 5 years... Inland companies

¹⁹⁰ Gavaza, Mudiwa: Rust belt yet to share in AMSA's turnaround; Sunday Times Business Times; 17 February 2019, p6.

¹⁹¹ Paul O'Flaherty: The Hard Reality about SA Steel Industry, Business Report, 21 September 2015.

*indicated they prefer using road transportation to rail as it is only marginally more expensive but significantly more reliable”.*¹⁹²

Energy usage

Energy is a significant input, particularly for the manufacturing of basic and fabricated metals, which is regarded as an intensive energy user. Scrap metal recycling is a less significant energy user. Aluminium can be endlessly recycled without loss in quality – it is one of the most environmentally friendly metals in terms of how it is produced and applied. It can be easily recycled, as only 5% of the energy required to produce primary aluminium is needed to remelt aluminium for new uses while retaining its distinct properties.

4.1.5. Governance of value chains

The value chain tends to be significantly influenced by suppliers based on the use of import parity pricing for its products. Some of the lead companies involved in metal fabrication processes tend to have developed company value chains that span mining, manufacturing and processing to construction and engineering in South Africa and the rest of Africa, Australasia and Asia. The Aveng Group constitutes a classical case, as reflected by the existence of companies such as Aveng Mining, Aveng Manufacturing, which includes Aveng Trident Steel, Aveng Steel, Aveng Steeldale and Aveng Steel fabrication and Aveng Grinaker-LTA, Aveng Capital Partners, and McConnell Dowell, which deals with construction and engineering.¹⁹³ The company straddles more than one value chain. Through these affiliations, there are strong control or governance arrangements over the value chain. Some lead companies tend to use a multitude of non-affiliated supplier companies using governance arrangements that include the establishment of standards/specifications determined by the lead company.

These companies would collaborate with government and other role-players to inform the development of a business environment that is consistent with its requirements for the industries in which the value chains are prevalent. A large number of business

¹⁹² Merchantec Research: Industry Challenges and Opportunities Analysis: Deliverable 3, Ferrous Metals Downstream Sector, August 2015,p12.

¹⁹³ Aveng presentation: Investor Conference, 19-20 October 2015.

associations have historically been established to provide services to member companies.

Approximately 27 of specific commodity-based associations were affiliated to SEIFSA, an association established in 1941. Although initially an association of approximately 440 companies with regional structures, it evolved into a federation that provides services to a range of commodity or specialised national associations. The range of services and products includes advice, assistance, consultancy, publications, training courses, seminars and conferences on issues covering labour legislation, dispute resolution, employment conditions, health and safety, BBBEE, contract price adjustment and skills development.

Some of its employer associations such as the older Constructional Engineering Association-South Africa (formerly the Transvaal Structural Engineering Association that was established in 1936), South African Valve and Actuator Manufacturers Association (SAVAMA), HDGASA, Light Engineering Industries Association of SA, through SEIFSA, provides similar support services to its members. Some of them also provided specific technical support services relating to the products produced by its members.

Some associations such as the SAISC and its affiliates such as SAMCA and SASFA concentrated on the technical dimensions of support required by its members. Other similar commodity-based associations such as SAWA and ASTPM were unaffiliated.

The ISF is one of 24 recently established private-public partnerships to promote exports of specific commodities. It interacts with associations and organisations such as, SAISC, POLASA, SASFA, SAISA and HDGASA as well as primary steel producers such as ArcelorMittal South Africa, Evraz Highveld Steel, Scaw Metals Group, Cape Gate and Columbus Stainless and steel merchants Aveng Trident Steel, BSI Steel, Genesis Steel, Macsteel, NJR Steel, PM Piping, Robor, Stewarts & Lloyds and Transcape Steels.

ISF also engages relevant associations directly involved in the metal fabrication value chain such as AFSA, SAWA, STEASA, SASSDA as well as other related associations such as SACEEC, SAEEC, RRA and SAFCEC.

NEASA and CEOSA were recently established to represent companies in the various industries not necessarily confined to the production of specific commodities. It focusses on the provision of labour market-related services. However, concerns were expressed about the need for these associations to be strengthened to enable the provision of more effective and cohesive value chain support services for its members.

4.1.6. The business environment and the socio-political context

Through the adoption of IPAP, government intended to create an appropriate business environment to foster industrial development. Metal fabrication was identified as a critical area of intervention to support downstream/mining beneficiation processes. Interventions took the form of the Supplier Development Programmes to increase growth and employment through the co-ordination of the investment plans of SOEs with domestic supplier capabilities. This was later augmented by localisation activities to address the need for increased local demand to drive economies of scale and relieve price and cost pressures. An Instruction Note was issued in January 2017 to support the downstream job-intensive steel sectors such as fabricated structural steel, wire products, roofing and cladding, ducting and structural pipework, gutters, downpipes and launders and frames involving fasteners, joining and connecting components. A Steel Development Fund with an aggregate value of approximately R1.5 billion was established by National Treasury and the IDC to assist qualifying foundries, fabricators, parts and component manufacturers, valve and pump manufacturers, machining plants and capital equipment manufacturers to improve competitiveness and assist companies that are in distress but have a turnaround plan.

Additional support measures involved R&D through the establishment of the National Foundry Technology Network to strengthen foundry industry capabilities and the National Tooling Initiative to strengthen industry tooling capabilities by DTI, DST and

the CSIR. There were concerted attempts by the Competition Commission to address import parity pricing and the operation of cartels involving AMSA.

The crisis in the steel industry in 2015 led to the established a government task team involving the DTI, EDD, National Treasury and IDC to save the industry from the threat of loss of capacity and closure. As a presentation in June 2018 by the DTI to the Portfolio Committee on Trade and Industry in the National Parliament advocated:

“The list of short-medium term measures put in place to support the steel industry:

- 1. Increase in the general rate of customs duty on primary steel products to 10% and safeguard measures for a period of 3 years on hot rolled coil and plate products*
- 2. Tariff increases on a range of downstream products and the deployment of rebates where products are not manufactured or additional value added before export*
- 3. Agreement on a set of principles for flat steel pricing in SA that is priced appropriately to ensure that steel-dependent industries are competitive while at the same time ensuring that the upstream steel mills remain sustainable and that AMSA will not add duties to the prices*
- 4. Local procurement by government – undeeding of primary steel in designated products (requiring the use of locally manufactured primary steel) – designation of downstream steel intensive construction steel products and components*
- 5. Settlement of the Competition Commission issues with AMSA*
- 6. Establishment of a R1.5 bn Steel Development Fund to support key downstream steel sectors/sub sectors*
- 7. Development of a short term negotiated electricity pricing framework for energy intensive users to be implemented*
- 8. Investment support through 12i tax incentives, Incubation support for SME development*
- 9. Scrap metal export tax proposal submitted to National Treasury*
- 10. SARS reference price system being developed for downstream products to address low priced imports”.*¹⁹⁴

¹⁹⁴ Department of Trade and Industry (DTI): Status of the SA Steel Industry, Presentation to the Portfolio Committee on Trade and Industry, 12 June 2018.

4.2. Employment, labour market issues and skills development

The need to retain employment and to enhance employment security in the metal fabrication value chain has essentially been dominated by the need to protect current levels of production capacity and its expansion by enhancing exports. These policies can be strengthened through the aforementioned interventions based on public-private partnerships. Labour market institutions such as employer organisations, unions and bargaining councils referred to in *Table 7: Labour market and skills dimensions of the metal fabrication value chain* have already developed comprehensive agreements detailing under which circumstances employment contractual relations should be entered into at the enterprise level to augment these public-private partnerships.

NUMSA, Solidariteit, MEWUSA and UASA, together with the affiliates of SEIFSA, NEASA, CEOSA and SAEFA and PCASA, formed an integral part of the collective processes to determine conditions of employment and wages in the value chain. This involves both primary and downstream metal producers. Other collective bargaining arrangements, which deal with upstream activities such as mining, involved non-statutory bargaining forums incorporating NUM and the AMCU as well as the respective mining companies supported by the Minerals Council South Africa, have also been brokered. The involvement of the multiparty-governed merSETA is also crucial to facilitate skills development required by the core activities of the value chain. The purpose of this section is to detail the complexity of the labour market and prevailing challenges.

Table 7: Labour market and skills dimensions of the metal fabrication value chain

Issues	Company-level bargaining	Statutory centralised bargaining	Non-statutory centralised bargaining	Global Framework Agreements (GFAs)
Industry	MEIBC house agreements, etc.	MEIBC	Mining industry	
Employment				
Skills programme	Company-level skills development	MERSETA		
Employer associations	Various employers	SEIFSA, NEASA, CEOSA, SAEFA, PCASA	Chamber of Mines	
Trade unions	NUM, NUMSA, AMCU	NUMSA	NUM, AMCU	

4.2.1. Employment trends

It is hard to precisely ascertain the number of employees in a value chain that covers various sectors such as iron ore mining and the conversion of its outputs and scrap metal into intermediate products such as metal or alloys in capital-intensive and energy-intensive smelters and refineries. Further value adding fabrication processes lead to products ranging from structural steel sections, sheet and plate, tubing, structural tube and pipe to pipe fittings with malleable, wrought steel, buttweld fittings, copper and pipe fitting fabrication. The primary reason has been that Stats SA only provides industry data at the level of SIC sectors and not at the division, major group, group and subgroup levels. Trade and Industry Policy Strategies (TIPs) indicated that the metals and metal products segment¹⁹⁵ of the manufacturing industry employed more than 350 000 by 2008. Almost 100 000 jobs were lost in this segment between 2009 and 2016. Since the third quarter of 2017, “it reportedly bounced back” by 20 000 or 8% percent.

¹⁹⁵ Trade and Industry Policy Strategies (TIPS): Manufacturing Subsectors, Metals and metal products, December 2017 argues that the industry consists primarily of the smelting, refining and shaping of base metals such as iron and steel, a range of ferro-alloys, and aluminium products, excluding gold and platinum. It derives from local iron and ferroalloy mining and coal-fired electricity, except for aluminium, which utilises imported ores.

Table 8: Employment trends for some segments of metal fabrication		
	Industry segments	No. of workers per sector, 2013
1	Fabricated structural steel (which includes roofing and cladding, transmission pylons, and renewable energy structures)	111 720 (72 720 fabrication and 30 000 erection)
2	Wire products (including cable products)	5 000 to 6 000
3	Tube and pipe products	7 000 (enable another 13 000 downstream)
4	Fasteners	1 260
5	Speciality alloy steel	unknown
6	Pressure vessels	1 000
7	Hot dip galvanising	4 200
8	Stainless steel	35 000
9	Automotive components	unknown
10	Domestic appliance manufacturing	unknown
11	Forging (including valves)	1 600
12	Tooling products	unknown
13	Rail products	100 000
14	Drums and packaging	unknown
	Total	267 780

(source: Merchantec Research: *Industry supply analysis: Deliverable 1 – ferrous metals downstream sector*, September 2014)

Between November 2013 and September 2014, Merchantec Research conducted a series of interviews with a number of highly experienced senior individuals from each subsector, including, the main industry associations. The largest of these industry associations in each subsector supplied employment information, as reflected in *Table 8: Employment trends for some segments of metal fabrication*. The administrative data provided by the associations and senior individuals could not be quality-assured and only reflects the percentage employed by member companies of the association. It nonetheless provides a useful idea about employment trends for some segments of metal fabrication.

4.2.2. The labour market regulatory environment and wage determination

Although the governance of labour markets of respective industries in the value chain exhibits a high level of self-regulation, the processes to determine conditions of employment and wages vary. The collective bargaining processes differ concerning the mining of metal ores and the primary and downstream production of metals. The determination of conditions of employment informing the latter two production processes currently takes place under the MEIBC's auspices. The then Minister of Labour promulgated the MEIBC Main Agreement in Government Gazette No. 38366 dated 24 December 2014 and was effective from 5 January 2015 to 30 June 2017. Only revised wage schedules agreed to by signatories in terms of the LRA was released by the MEIBC for the period July 2018 to June 2019. No agreement could be reached on the revisions to the general conditions of employment since 2017.¹⁹⁶

The industries currently operate using a 13-grade job and wage structure that corresponds to remuneration rates A, A1, AA, AB, B, C, D, DD, DDD, E, F, G and H which informs remuneration for a 40-hour working week. How the grades and rates have been applied to various industries, including the electrical engineering industry, general engineering, structural metal work and manufacturing engineering has been detailed in various schedules and divisions in the agreement (see *Table 9: Summary of industry divisions/schedules and applicable rates* for a simplified illustration). A number of these divisions such as light fabricating and the manufacturing of gates and fence, chains, tube and pipe, steel reinforcement, industrial fasteners and metal containers can be considered to form an integral part of the metal fabrication value chain.

¹⁹⁶ Interview with Mr V. Ngonyama-a Senior MEIBC Official, 15 April 2019 and 30 November 2019.

Table 9: Summary of industry divisions/schedules and applicable rates

Schedule/Division	Description	Applicable rates
D/0	Light fabricating and/or light manufacturing division (N.E.S.)	D, E, F, G and H
D/1	Agricultural implement and/or irrigation machinery (including windmills) and/or engines manufacturing, erecting and assembling division	AA, B, C, D, DD, E, F and G
D/2	Chain manufacturing division	AA, B, C, D, E, F, G and H
D/3	Cycle manufacturing division	A, AA, C, D, E, F, G and H
D/4	Edge hand and/or small tools (other than precision and/or machine tools) and/or saw manufacturing division	B, C, D, E, F, G and H
D/5	Press Knife and cutter and footwear tack and nail manufacturing division	A, B, C, D, E, F, G and H
D/6	Foundry and/or castings division	A, A1, AA, AB, B, C, D, DDD, E, F, G and H
D/7	Gate and fence manufacturing division	B, C, D, E, F, G and H
D/8	Industrial fasteners manufacturing division	A, AA, B, C, D, DD, E, F, G and H
D/9	Lead products manufacturing division	C, DD, E, F and G
D/10	Manufacture of carbon products division	DDD, E, F, G and H
D/11	Electrical element manufacture division	C, DDD, E, F, G and H
D/12	Windows and/or doors and/or flyscreens and/or louvres and/or burglar bars manufacturing division	AA, B, C, D, E, F, G and H

D/13	Neon Signs and/or electric and/or fluorescent lamp manufacturing and assembling division	A, AA, C, D, DD, DDD, G and H
D/14	Conversion of Plastic polymer, including the manufacture of articles or parts of articles wholly or mainly made of plastic, including the in-house printing of such articles by the manufacturer	A1, B, C, DD, E, F, G and H
D/15	Spring manufacturing division	A1, AA, C, D, G and H
D/16	Steel reinforcement division	AA, B, DDD, E and G
D/17	Tungsten carbide tipped drilling equipment manufacturing division	AA, B, C, D, F, G and H
D/18	Wire drawing and/or working and/or weaving and/or forming manufacturing Division	B, D, F, G and H
D/19	Wire and rope manufacturing division	A1, AA, B, C, F, G and H
D/20	Tube and/or pipe manufacturing division	AA, B, C, D, DD, DDD, E, F, G and H
D/21	The manufacture, including re-manufacture and/or assembly of domestic and/or portable appliances division	A, D, DDD, F, G
D/22	Sheetmetal manufacturing division	AA, B, C, D, DD, E, F, G and H
D/23	Electronic, radio communications and/or telecommunication manufacturing division (including assembly and/or erection)	A, AA, B, C, D, DD, DDD, E, F, G and H
D/24	Tungsten carbide tool manufacture division	AA, D, E, F, G and H
D/25	Motor vehicle parts and components manufacturing division	C, D, E, F, G and H
D/26	Elevator and/or escalator manufacturing division	A, AA, B, C, D, DD, DDD, E, F, G and H
D/27	Locomotive manufacturing division	A, AA, B, C, D, DDD, F, G and H

D/28	Railway wagon manufacturing	A, AA, B, C, D, DD, F, G and H
D/29	Electrical engineering (N.E.S.) division	A, AA, B, C, D, DD, DDD, E, F, G and H
D/30	Bright bar manufacturing division	F, G and H
D/31	Forging division	A, C, D, DD, G and H
D/32	Radio, television and related equipment manufacturing division	A, AA, B, C, D, DD, DDD, E, F, G and H
D/33	Metal container manufacturing	A, AA, AB, B, C, D, DD, DDD, E, F, G and H
Schedule E/1	Coaching stock division	A, AA, B, C, D, DD, DDD, E, F, G and H
E/2	Burglar and other similar alarm systems division	A1, AA, B, D, DD, DDD, F, G and H
Schedule E/3	Industrial refrigeration and air-conditioning industry division	A, AA, C, D, DD, E, F, G and H
Schedule F	Manufacture and/or re-manufacture of electric cable and/or electrical conductors (excluding busbars)	Part II, Section 3(d)
Schedule G	Certain classes of work and/or operations throughout the industries, including the electrical engineering industry, general engineering, structural metal work and manufacturing engineering (n.e.s)	A, AA, B, C, D, DD, DDD, E, F, G and H
Schedule M	Applicable to manufacturing where the employer has applied for and been granted a Certificate of Registration for his establishment or part thereof as a manufacturing engineering establishment	A, AA, B, C, D, DD, DDD, E, F, G and H

Guidelines for the reduction of the 13-grade to five-grade job and wage structure and a related definition of associated skills, which employers can implement on a voluntary basis, was introduced in the agreement. The movement to the five-grade structure at an enterprise level was underpinned by a number of factors, such as the involvement of all parties in a clearly defined and agreed process, the appointment of independent assessors to facilitate a conciliation/advisory arbitration process as an integral part of the development of productivity guidelines:

“An opportunity exists for employers, employees, trade union representatives and other employee representative bodies to negotiate agreements, at company level, with the objective of achieving measurable improvements in productive performance, increase productivity, efficiency, effective utilisation of all resources, flexibility and other related objectives. The negotiations to achieve these objectives should be conducted in accordance with the following principles and guidelines:-

(a) No party may adopt one element of the five grade job and wage structure agreement annexed to this agreement without adopting all of the other components of that agreement, namely:-

(i) Multi-skilling/multi-tasking/flexibility;

(ii) The five grade job and wage model; and

(iii) Job security as set out in the five grade job and wage structure agreement...”.¹⁹⁷

The five-grade structure that was introduced did not preclude the introduction of a Grades 6 and 7. Provision has also been made for the placement of workers in these grades, as informed by the completion of skills training and recognition of prior learning (RPL) processes based on the unit standards required for a grade.

While there has been no comprehensive discussion about the implication of value chain activities on the collective bargaining model to date, provisions were made for the establishment of an Industry Policy Forum (IPF) and procedural arrangements that facilitate responses to technological changes in the industry. These provisions anticipate changes in the global economic environment and the need for the existing bargaining model to be adopted in response thereto.

“The IPF will be tasked with having the mandate of securing agreement between the parties on changes required to promote the growth and viability of the industry as a key contributor to SA’s growth, investment

¹⁹⁷Metal and Engineering Industries Bargaining Council (MEIBC): Main Agreement, Annexure D-Productivity Bargaining, Government Notices R. 1050, Government Gazette No 38366, 24 December 2014 p221.

and employment objectives. The purpose of the Forum shall be to provide leadership and to serve the common good of the Metal and Engineering Industry and all its stakeholders in the furtherance of the following key goals and objectives:

- *Formulate an overall strategy aim improving their standard of living and reducing the cost of business in the industry.*
- *Formulate strategies to secure the increased allocation of Merseta funds for skills training and bursaries and mechanisms to secure access to funds from national Skills Fund.*
- *Identify industry challenges and threats and devise appropriate strategies to positively address these.*
- *Any other jointly agreed objectives and strategies aimed at the common good of the industry and all its stakeholders”.*¹⁹⁸

Both the revised grading structure and the establishment of the IPF were intended to reposition the industry to respond to the challenges of globalisation, including the establishment of GVCs. Limited progress has been attained in the pursuit of these dimensions of the agreement since it was promulgated.¹⁹⁹ Thus, the collective bargaining arrangements in their current form were unresponsive to the demands of GVC development.

4.2.3. Grading and skills development

Thus, the MEIBC’s attempt to position the industry in the changing global environment using the IPF meant a focus on the development of a more skills-based grading structure underpinning the reduction of grades from 13 to 5. Central to this endeavour was understanding the nature of the existing and envisaged grading structure and its implications for the supply of the requisite skills. The latter involved an examination as to whether merSETA is in a position to facilitate the matching of supply and demand consistent with value chain requirements.

(a) Skills-based grading, training and work organisation

The MEIBC Main Agreement broadly addresses the issues of wages and employment conditions. There are ancillary dimensions to the agreement such as skills

¹⁹⁸ Metal and Engineering Industries Bargaining Council (MEIBC): Main Agreement, Annexure D-Productivity Bargaining, Government Notices R. 1050, Government Gazette No 38366, 24 December 2014p.

¹⁹⁹ Interview with Vice Ngonyama, Acting CEO, MEIBC official, 2019.

development, but these dimensions, while significant in their own right, are subjected to the main issues of the Main Agreement such as wages and employment conditions. Part 1 of the Main Agreement, which covers conditions of employment, contains only two clauses that specifically deal with training matters. The first clause makes provision for protection against loss of earnings for workers who undergo training during ordinary working hours (48(1)). The second makes provision for the sharing of time between employers and workers for those undergoing ABET training. This means that half of the time spent by workers on ABET will be compensated by employers, while the other half will be treated as an unpaid contribution by the employee. However, in Part 2 of the MEIBC Agreement, particularly in Annexures B to D, the issues of skills-based grading, training and work organisation are addressed in detail. We will now elaborate on this.

In general, as noted, firms in the metal and engineering industries in SA have operated with a 13-grade job and wage structure. However, in these industries, a process has been afoot for some time whereby a five-grade job and wage structure is being introduced. This means that firms in some of the metal and engineering industries still adhere to a 13-grade job and wage structure, while others have transitioned to a five-grade job and wage structure. The shift from the existing 13-grade job system to the new five-grade job system is completely voluntary, and any shifts that may occur is mutually agreed through collective bargaining between individual employers and worker representatives or registered trade unions recognised at the establishment level, but takes place within the parameters of the Main Agreement, which has the intent of reaching a consensus. The MEIBC Consolidated Main Agreement only sets the minimum wage structures for these 13 or five job grades. Seen across the two spheres, there is absolutely no necessity for wage minima on the 13-grade job structure to correspond with that on the five-grade job structure. However, not all industries that have departed from a 13-grade job and wage structure necessarily have firms that are applying a five-grade job and wage structure in its remuneration policy. The electric cables industry (Schedule F) is implementing an 11-grade job and wage structure. In the gate and fence manufacturing industry (Division D/7), the MEIBC Agreement makes provision for eight job grades and wage levels.

The five-grade job model is designed to enhance multiskilling, multitasking and flexibility in the application of productive work. It is also perceived as a mechanism to support job security in the sector. To effect a smooth transition to a five-grade job model, the MEIBC Main Agreement makes provision for employees to perform all job tasks within their grade or “any tasks or combination of tasks falling within any grade below this level: Provided that, if necessary, the employee has received or is receiving the necessary training to undertake the tasks in question”.²⁰⁰ This provision can only be enforced if employees have received or are receiving the necessary training to undertake the multiple tasks. It compels employers to put into operation the necessary training requirements and assessments of training outcomes. Employees are also required to attend the training courses designed for this purpose and to undergo the corresponding competency-based assessments to measure the success of these outcomes. The additional training undergone will not result in higher employee compensation levels. Employees will only be compensated according to the job grade to which they have been assigned. Shop stewards will also be granted at least one day of leave to undergo shop steward training under the auspices of their trade union so as to understand the implications and content of the overarching five-grade job model for collective bargaining. Thus, a systemic approach is adopted to facilitate the effective implementation of multiskilling and flexibility around the five-grade job model.

At the same time, a process of RPL will also operate in tandem to recognise, validate and certify the skills that workers have tacitly acquired over a period. This process of RPL “involves assessment against agreed standards to obtain credits leading to certification”²⁰¹ and is an ongoing process that can be conducted either continuously or intermittently as the need arises.

In this section, we provide a broad overview and discussion about the indicative tasks associated with each of the grades in the five-grade system, starting with Grade 1 at the bottom and moving up each successive level to Grades 2, 3, 4 and 5.

²⁰⁰ MEIBC Consolidated Main Agreement 2014/2017, Annexure B, para.5

²⁰¹ MEIBC Consolidated Main Agreement 2014/2017, Annexure B, para.19.

An employee at Grade 1 generally works under direct supervision and requires “minimal skill, discretion and judgement”.²⁰² Such an employee generally has no supervisory responsibility. The following tasks apply to this grade:

- *“Operation of automatic machines requiring no setting beyond the location of material and running the machine. Able to carry out basic pre-start machine inspection and lubrication. Operation of machines where such operation is limited to loading, setting the machine in motion, stopping and unloading the machine.*
- *Drilling to jigs, fixtures, stops, templates or dimples.*
- *Operating automatic submerged arc or gas shielded wire or flux cored wire arc welding machines (excluding setting up), butt, flash, projection, resistance or spot or arc spot or seam stud welding machine.*
- *Cutting to pre-set stops, grinding and/or deburring.*
- *Assembly of pre-manufactured components from stock requiring no interpretation or adjustments, but including deburring.*
- *Identification of different products and materials used in the product process or the plant in the area in which the employee works.*
- *The use of basic measurement tools such as a rule, tape slip and ‘no-go’ gauges etc.*
- *Write labels, weight and record.*
- *Operate basic materials handling equipment such as pallet truck and mechanical and fixed pendant hoists.*
- *Packing, stocking, loading, unloading and clearing duties in tool and/or stock and/or materials stores directly linked to the shop-floor and/or production process.*
- *Operating plastic production machines, including running adjustments.*
- *General labouring and cleaning duties, including removal of rust or coating and boiler cleaning and oiling and greasing on non-operating machinery”.*²⁰³

Employees at Grade 2 have a higher competence compared to Grade 1, since they are competent in requisite modules and are able to carry out work within the area and scope of the training they have undergone. Grade 2 employees are required to exercise a limited degree of discretion and judgement that may become virtually automatic with practical experience. Employees in Grade 2 are able to work under direct supervision and can function as a member of a work team. They can understand and utilise basic statistical process control procedures, including the measurement of output specifications. They are also able to consistently meet the production and quality standards set for activities at this level. They are expected to perform the

²⁰² MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 1.

²⁰³ Ibid.

indicative tasks that fall within the normal current operational practices. However, not all the indicated tasks in the following list are automatically required in current operational practices but, generally, the norm of indicative tasks that fall within the Grade 2 level consist of:

- *“Repetition work on semi-automatic or single purpose machines or equipment, including adjustment of material or tools within clearly defined limits.*
- *Assembles components using basic written, spoken and/or diagrammatic instruction in a mass production assembly environment, including mechanical adjustment and the identification of parts and their location.*
- *Basic gas welding skills not involving codes, or oxyacetylene cutting of scrap.*
- *Hand-welding by mechanically fed electrodes or preliminary welding or welding in fixtures (and completion of weld when removed from the fixture).*
- *Operation of pre-set machines, including random checking with fixed gauges and replacement of tipped tooling.*
- *Use of measurement equipment related to the function of this grade.*
- *Use of power-driven materials handling equipment such as a floor-operated crane, forklift and stacker (relevant license to be held where applicable).*
- *Use of computer to input data, produce reports and maintain database.*
- *Receiving locating preparing and issuing materials, tools and/or stock from requisition lists, in tool and/or stock and/or materials stores directly linked to the shop-floor and/or production process, including: * picking of stock; *checking and recording of stock; and * operation of materials and handling equipment”.*²⁰⁴

Grade 3 employees have completed training modules, which give them the formal competence to perform tasks at this level. Thus, they have the competence to exercise a considerable degree of discretion and judgement as well as demonstrate a basic analytical ability. Grade 3 employees have the ability to work under routine supervision and also function as a member of a work team. Further, Grade 3 employees understand and can interpret statistical process control procedures, including the measurement of output specifications and the plotting of charts. They have the ability to consistently meet the production and quality standards set for activities at this level. Where current operational practices are the norm, the tasks that generally apply at Grade 3 level are:

²⁰⁴ MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 2.

- *“Use of drawings and written instructions to set up machines or installation of programs in the case of numerically controlled machines.*
- *Complex assembly of components or sub-assemblies that may require routine adjustment.*
- *Basic fault-finding, basic service and lubrication on machines or products with which the employee is familiar in line with maintenance and/or quality schedules.*
- *Use of keyboard or hard copy to compile statistics and records of activities up to this grade.*
- *Ability to measure accurately, including the use of precision-measuring instruments normally used in the particular work area.*
- *Down hand ferrous welding in a finished run.*
- *Operation of multi-head oxyacetylene cutting, profiling, flame planning or bevel cutting machine.*
- *Setting of plastic production machines”.*²⁰⁵

Grade 4 employees have the training, competence, knowledge and skills to perform autonomous, non-routine tasks of some complexity. After achieving considerable practice and experience, they are required to exercise analytical, problem-solving and decision-making skills, and have the ability to exercise judgement relating to the indicative tasks they have to fulfil. Typically, when required, a Grade 4 employee “works from complex instructions and procedures and can generate reports in a fixed format on activities up to a level four. Such employee may also assist in the provision of on-the-job-training. The Grade 4 employee works under or functions as a leader of a work team and plans and organises activity in his or her immediate area of work. The Grade 4 employee consistently meets the production and quality standards set for activities at this level and uses tools and equipment within the scope of his or her training or competency.²⁰⁶ Given the operational conditions, the indicative tasks typically associated with a Grade 4 employment level are:

- *“Measure and monitor production output and quality standards within a set area or plant with available resources and equipment.*
- *Machinist’s work, including setting up and grinding own tools and maintaining a limited number of machines in terms of their operation and basic service (excluding tool room).*
- *Marking and setting out.*
- *Using a computer to construct simple graphs and spreadsheets.*

²⁰⁵ MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 3.

²⁰⁶ Paraphrased from MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 4.

- *Inventory and store control, including supervision of Grade 2 employees in tool and/or stock and/or material stores directly linked to the shopfloor and/or production process*.²⁰⁷

The grades above Grade 4 are in the artisanal, technical and engineering and supervisory and management ranks. Typically, an incumbent in a Grade 5 level is a qualified artisan or, as the MEIBC Main Agreement puts it, “the equivalent thereof”. The Grade 5 level embodies a set of employment-related skills attributes, which certifies that the holder:

- *“Understands and applies quality control techniques;*
- *Exercises good interpersonal and communication skills;*
- *Exercises discretion within the scope of this grade;*
- *Works under plant level supervision or a part of a team;*
- *Performs non-artisan tasks incidental and peripheral to his or her work, including the operation of materials handling equipment and the cleaning of work areas*”.²⁰⁸

(b) The demand and supply of skills and training

merSETA is primarily responsible for regulating the supply of skills for various components of the value chain. Although most of the industry requires the same skills sets, large scale employers tended to invest in in-house training and apprenticeships to augment specific skills required in companies that manufacture very specific niche products. While the level and quality of institutionally trained candidates met the minimum technical standards, but were mostly unable to deal with variations on their skills or the ability to rapidly learn associated skills, there is a significant gap between the available skills and the skills required for complex projects, as well as shortages of well-qualified engineering professionals across all technical areas in South Africa.

Toward the closing stages of the National Skills Development Strategy (NSDS II), the HSRC conducted an impact assessment of learnerships and apprenticeships under the NSDS for the DOL.²⁰⁹ Of the three case studies undertaken, one assessed the impact of learnerships and apprenticeships within the metal and related services

²⁰⁷ MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 4.

²⁰⁸ MEIBC Consolidated Main Agreement 2014/2017, Annexure C, Grade 5.

²⁰⁹ Human Science Research Council (HSRC) Assessing the impact of learnerships and apprenticeships under NSDS II: Three case study reports, Pretoria, 2012. The three reports were subtitled as follows: Report 1: HWSETA Case Study 2011: Skills development for the Health and Social Sectors; Report 2: MERSETA Case Study 2011: Skills development for the Metal and Related Services sector; Report 3: FASSET Case Study 2011: Skills development for the Financial Sector.

sector over the period in which NSDS II was in operation (2005 to 2010). Some of the stakeholder views on the formation of skills relating to learnership and apprenticeship provision are replicated in the following paragraphs.

Respondents in the metal sector²¹⁰ noted that critical skills shortages were felt particularly in the following trades and occupations:

- Technicians (electrical, chemical and metallurgic)
- Boilermaking and welding (where it was claimed that a “constant demand” existed)
- Foundry men (moulding, melting and pattern making)
- Electricians
- Millwrights
- Tool and dye makers
- Engineers (a respondent told the HSRC researchers: “anything engineering related is a problem”).

Qualitative responses from stakeholders to the HSRC investigation assessing the impacts of learnerships and apprenticeships suggested that the currently available qualifications were inadequate preparation for the required skills levels. One of the factors that aggravated this problem was attributed to the base qualification, which was not what industry needed.²¹¹ The reason given for this by a respondent was because “the curriculum content as well as the trade test requirements is out-dated”.²¹² Another respondent told the HSRC researchers investigating the matter that “some of the content is still from the 1950s” and “the company has to keep obsolete equipment, just to be able to prepare their learners for the trade test”.²¹³ To mitigate for these inadequacies, many companies provide “top-up training” over and above what is specified in the curriculum and trade test. This ensures that learners attached to firms that are described as “own learners” are better prepared for the trade test. Although the trade test was undergoing revisions at the time of the HSRC evaluation, some respondents warned that the approach was back-to-front. Instead, what is required

²¹⁰ *ibid*, Report 2, p 20

²¹¹ *ibid*, Report 2, p 23

²¹² *Ibid.*, p23

²¹³ *Ibid.*, p23-4

was first a revision of the curriculum and then a revision of the trade test, so that the test examines apprentices and trainees on the content of the curriculum. There was also an emphasis by respondents to the HSRC evaluation on the importance of ensuring that qualifications are industry-driven and not provider-driven. This simple recommendation from respondents merely emphasised the importance of a demand-driven curriculum and alludes to the ease with which it can be subverted by a supply-driven curriculum.

While the AATP, which merSETA had adopted from the earlier AARP that was implemented by SEIFSA, was lauded as a positive step, some respondents considered the length of the intense 18 to 24 months of practical experience as still insufficient for a fully qualified artisan. Trainees undergoing conversion to artisan qualifications in the metal industries still needed time to reach the required standard. The AATP is only a base qualification to facilitate entry into the workplace. Thus, further practical experience is necessary to strengthen the competence of artisans who are qualified through the AATP. This insight was confirmed by an earlier external review of the AATP conducted for merSETA by the NBI²¹⁴, which found that AATP graduates were not sufficiently competent upon qualifying and required further development through workplace experience and mentoring of at least two years to become fully proficient artisans.²¹⁵

While learnership qualifications were lauded as being more holistically rounded in relation to soft skills, trainees on learnership programmes were disadvantaged on the technical side and were definitely not at the same level as apprentices. This was because the qualification did not sufficiently expose trainees to the practical side of the training. Learnerships were also perceived as being very labour-intensive.²¹⁶ The paperwork required to implement a learnership was also seen as onerous. Learnership programmes also require assessors and moderators. Thus, the administrative requirements for learnership implementation lead to increased expenses. In contrast,

²¹⁴ National Business Initiative (NBI): External Review of the Accelerated Artisan Training Project (AAT). Johannesburg, 2009 cited in HSRC: Report 2, 2012, pp.24-25.

²¹⁵ Ibid., p24.

²¹⁶ Ibid., p25

companies prefer the apprenticeship route, since it requires less administration and red tape.²¹⁷

The AATP promoted vigorously by merSETA to address and implement the recognition of prior learning in the metal and engineering sector is perceived as providing a basic foundation for artisan development. However, the absence of sufficient practical experience is seen as a shortcoming. Respondents suggest that the current practical experience is far too short and ideally should last at least of 3.5 years. Nonetheless, AATP candidates are still considered to be better than the “usual old school apprentice”, mainly because the AATP has a higher level of theoretical and institutional training. Further, structured work experience accompanied by periodic tests for different training levels tends to provide a better combination of theory and practice.²¹⁸ As one respondent explained to the HSRC researchers, “the pros of having a capable person after two years far outweigh the cons of getting a mediocre person after 4 years”.

Metal and engineering firms that don't have the internal in-house capacity to undertake theoretical training, i.e. the vast majority of firms, typically depend on private training providers or the public FET colleges to fulfil this requirement. Public FET colleges are constrained by weak links to industry as well as training that does not meet the industry's requirements; the respondents to the HSRC study confirmed this.²¹⁹ Facilitators or training instructors at FET colleges typically have not kept abreast of de facto recent workplace practical experiences. Previously, under the MITB, it was compulsory for trainers to be exposed for at least three weeks of workplace training per year. A similar requirement holds for metal and engineering activities in general.

It is generally conceded by employers that the public providers of education and training that are meant to supply industry with intermediate level skills (i.e. skills up to the artisan level) typically use the SETA/SAQA-sanctioned qualification and unit standards as the guides for training. These are usually not abreast of advanced and cutting-edge technological requirements, which are a hallmark of global companies in

²¹⁷ HSRC: Report 2, 2012, p26.

²¹⁸ HSRC: Report 2, 2012, p29.

²¹⁹ Ibid., p35.

the field. Usually, where there are close links between firms and associated stakeholders, the newest developments and technologies are shared. These include best practice forums, annual company-wide meetings or internal training sessions. Suppliers are also used to conduct external technical training. In the motor sector, for instance, manufacturers conduct advanced technical training, which retailers draw on. In contrast, private providers are more inclined, as the HSRC researchers discovered, to have “strong personal ties with the industry” and “close company contact”. While public providers are beginning to respond as private providers do, the public training provision on offer still requires thorough evaluation in relation to the industry’s needs.

Finally, one should also mention concerns raised about SETA administration and processing (in this case, merSETA) of certificates awarded to successful learners. Two respondents told the HSRC researchers that it could “take up to 3 years for learners to get their certificates because of the bureaucracy involved”.²²⁰ The loss of documents simply because the “process goes through too many hands”, causing “a huge delay in turn-around time”²²¹, was not uncommon. This has a direct and dire bearing on recipients, since “learners without a certificate cannot find work as they lack the proof of their qualification”.²²² With more efficient administration, such problems can be avoided.

In the absence of panel firm surveys, it is hard to get an accurate pattern of skills formation initiatives at a firm specific level across any of the subsectors to metal fabrication or capital and rail transport equipment, mainly because the level of reporting by firms in these subsectors varies significantly by enterprise size. Using data derived from merSETA, which ostensibly covers issues of levy contribution and skills development, it is apparent that there are higher reporting levels by large firms compared to medium-sized ones, and this tapers off even more in respect of small firms. In a report by Mzabalazo Advisory Services for merSETA, data was presented of the number of employers assigned to each chamber of merSETA, the percentage of firms paying the skills levy and the percentage of firms that had submitted a workplace skills plan. Although not labelled as such, the data appear to be for the

²²⁰ HSRC, 2012, Report 2, p.41

²²¹ *ibid.*, p.41

²²² *ibid.*, p.41

2017/18 training year (i.e. for April 2017 to March 2018) and is represented in Table 10.

Table 10: Employers per chamber in merSETA			
Chamber	All	Levy-paying	WSP
Auto	750	49%	11%
Metal	12 171	64%	18%
Motor	8 861	56%	16%
New Tyre	172	66%	18%
Plastics	2 865	64%	18%
Unknown	1 637	62%	8%
Total	26 456	61%	17%

(source: Mzabalazo Advisory Services (2018) *A research study for labour and skills demand & supply in formal, SMME, cooperative and informal sectors of the merSETA Region 1 (includes Gauteng, Mpumalanga, North West and Limpopo)*, p. 33)

While the proportion of levy-paying firms for each chamber varies, the total average proportion of levy-paying firms across all merSETA chambers was 61%. Roughly only 17% of merSETA firms submitted a WSP.

Viewed from the perspective of enterprise size, the difference between small levy-paying firms vs. medium and large firms was more dramatic. Similarly, the proportion of medium and large firms that submitted WSPs compared to small firms was even more stark, as is shown in Table 11.

Table 11: Employers by size			
Size	All	Levy-paying	Submitted WSPs
Small	24 101	57%	11%
Medium	1 591	94%	74%
Large	764	92%	81%

(source: Mzabalazo Advisory Services (2018) *A research study for labour and skills demand & supply in formal, SMME, cooperative and informal sectors of the merSETA Region 1 (includes Gauteng, Mpumalanga, North West and Limpopo)*, p. 33.)

The differentiation between levy-paying firms and firms that submitted WSPs was refracted across provinces throughout the country. The merSETA data was grouped further into regions. Thus, SA's nine provinces were grouped into three regions: Regions 1, 2 and 3. The analysis of Labour and Skills Demand undertaken on behalf of merSETA in Region 1 for April 2017 to March 2018 was by Mzabalazo Advisory Services.²²³ The analysis for Regions 2 and 3 for the same period was by Red Flank, a management consulting firm.²²⁴ The regional differentiation between all firms under the auspices of merSETA vs. those that were levy-paying ones and ones that submitted WSPs to merSETA appears in Table 11.

Table 12: Employers by region				
Region	Province	All	Levy-paying	Submitted WSPs
Region 1	Gauteng	11 843	63%	19%
	Limpopo	468	57%	16%
	Mpumalanga	1 847	57%	9%
	North West	585	57%	23%
Region 2	Northern Cape	399	56%	20%
	Western Cape	4 452	63%	17%
	Free State	828	54%	16%
Region 3	Eastern Cape	1 382	64%	18%
	KwaZulu-Natal	3 973	54%	14%
Unknown		679	67%	0%
Total		26 456	61%	17%

(source: Mzabalazo Advisory Services (2018) *A research study for labour and skills demand & supply in formal, SMME, cooperative and informal sectors of the merSETA Region 1 (includes Gauteng, Mpumalanga, North West and Limpopo)*, p. 34)

²²³ Mzabalazo Advisory Services (2018) *A research study for Labour and Skills Demand & Supply in Formal, SMME, Cooperative and Informal Sectors of the merSETA Region 1 (which includes Gauteng, Mpumalanga, North West and Limpopo)* (August 2018).

²²⁴ Red Flank (2018) *Research Study: Labour and Skills Demand and Supply: Final Research Report-Region 2 (July 2018)* & Red Flank (2018) *Research Study: Labour and Skills Demand and Supply: Final Research Report- Region 3 (July 2018)*

Overall, 61% of merSETA firms made contributions to the skills levy, but only 17% of merSETA firms submitted WSPs for the 2017/18 training year. These percentage values varied across provinces with slight downward and upward deviations from the mean for levy-paying firms. A similar pattern was depicted concerning firms submitting WSPs, but only 9% of merSETA firms submitted WSPs in Mpumalanga.

Because of challenges experienced during the research process to obtain a sufficient representative return sample to the questionnaire administered by Tridevworx, we will now highlight the skills development initiatives of the leading firms active in the metal fabrication value chain that have fabrication-related operations in SA. This list of leading enterprises active in the metal fabrication value chain is drawn from companies with a strong presence in the scholarly and industry literature. Industry-related literature refers mainly to magazines produced by industry and trade associations prominent in the metal fabrication value chain and internal company level brochures that highlight noteworthy skills development interventions by the companies concerned. This list in Table 13.

Table 13: Cases of skills initiatives of companies in the metal fabrication value chain

Company	Internal skills development initiatives in SA
ArcelorMittal South Africa (AMSA)	<p>The company offers a wide range of training programmes in professional skills which caters for graduates, as well as programmes for apprenticeships and learnerships at all the operating units of the company.²²⁵ The company operates three separate programmes for graduates. Each of these three programmes are referred to as: graduate-in-training programme, candidate engineer programme and candidate technician programme. Graduates, engineers and technicians are required to have completed a university degree to be accepted to each of these programmes. Graduate-in-training programmes are offered in the following commercial disciplines: finance, information management, human resources, procurement and logistics, corporate communication and sales and marketing. Candidates for the candidate engineers programme and the candidate technician programme are usually reserved for recipients of AMSA bursaries in the engineering disciplines of mechanical engineering, chemical engineering, electrical engineering and information technology.</p> <p>The company also offers extensive programmes in metal production apprenticeships and learnerships. Learners selected for these programmes are required to have passed their Grade 12 with Mathematics, Science and English at a minimum of 50% plus two trade relevant technical subject from an accredited TVET college. ArcelorMittal offers apprenticeships in the following specialised trades: millwright, fitter, fitter and turner, rigger, roller turner, instrument mechanician, refractory mason, electrician, boilermaker, welder.</p>
BSI Steel	<p>As part of its corporate responsibility initiative, BSI Steel would assist Ikhaya Fundisa Techniskills Academy (IFTA) with material support to help plug the shortage of skilled artisans in South Africa.²²⁶ The material support entailed that BSI Steel was to provide IFTA with scrap metal worth R25 000 per month to be used on site by learners being trained as boilermakers, welders, fitters and turners to help them hone their skills. Mandisa Nyathikazi, a director of IFTA, said the BSI Steel initiative would assist at least 80 learners at any given time. Grant Mackenzie, CEO of BSI Steel at the time, said it was a small gesture, “but if every company large and small, that has the wherewithal does something for industry, we will meet our skills requirements in the next few years”.²²⁷</p>
Columbus Stainless (Pty) Ltd	<p>Traineeships offered for graduates and diplomats in specific engineering disciplines such as: mechanical, electronical/electronics, control & instrumentation, industrial and metallurgical engineering. The company also hosts a structured engineer in training programme that is accredited by the Engineering Council of South Africa (ECSA). It offers apprenticeship and operator training programmes in the fields of its operations which is accredited by merSETA. Bursaries are made available by the company to exceptional individual in the above disciplines.</p>
Kumba Iron Ore	<p>The company offers bursary and graduate opportunities to top-performing learners keen to work in the fields of mining, engineering, process, geosciences and finance.</p>
Scaw Metal	<p>The company has a limited annual intake of apprentice training places each year for students who have passed a matric equivalent with Maths and Science. These include learners who have passed matric/technical Grade 12 (Technical Matric) or those currently registered for NCV 4 level at a FET College. In addition, the company also offers practical training in the form of P1 and P2 modules for students studying for engineering diplomas in electrical, mechanical physical/extractive metallurgy, non-destructive testing and chemical engineering disciplines.²²⁸</p>

²²⁵ This information is drawn from the company website in South Africa. See:

<https://arcelormittalsa.com/Peopleamp;Careers.aspx>

²²⁶ <https://www.iol.co.za/business-report/economy/bsi-steel-launches-artisans-training-initiative-806236>

²²⁷ Ibid.

²²⁸ <http://www.scaw.co.za/Pages/Why-work-at-Scaw.aspx>

4.2.4. Companies' access to information and support

However, companies, whether lead companies or companies in the value chain, were central to the attainment of the desired labour market dynamics, as facilitated through the establishment and management of workplace forums as required by the LRA or the skills forums as per the Skills Development Strategy. They were required to comply with prescripts of agreements at the industry level that were regulated by their designated employer and employee representatives. Thus, companies' access to information and support concerning industry-related and labour market issues in particular largely depended on their internal capacity and involvement in employer associations, while trade unions provided requisite access to information and support for members that are employees of such companies.

The presence of employer associations and unions in statutory bargaining councils and SETAs was based on the need for the extensive representation of companies involved in core value chain activities. Most of the 27 employer associations registered as employer associations with the Department of Employment and Labour and involved in the MEIBC are SEIFSA affiliates, with NEASA, PCASA, CEO and SAEFA, a former SEIFSA affiliate, as the exceptions.

SEIFSA, as a federation of employer associations, provided a range of services to its affiliate organising enterprises in specific sectors that have direct relationships to certain value chains. While not registered as an employer association, SEIFSA's responsibilities involve not only providing support services concerning labour market issues, including skills development, but also advice about industry-related matters, as evidenced by the production of research reports such as *State of the metal and engineering industry* and its advocacy programmes concerning the industry's plight.²²⁹

Further, the use of labour brokers has also raised fundamental questions about employment conditions. SEIFSA affiliates such as the Constructional Engineering Association (South Africa) tended to provide an organisational platform for the

²²⁹ Interview with Steel and Engineering Industries Federation of Southern Africa (SEIFSA) executives, Mr Lucio Trentini-Operations Director and Dr Michael Ade-Chief Economist on 9 October 2018.

organisation of companies such as ADCORP and AMT by establishing a labour broking division, while SEIFSA provided for its accreditation.

Some companies that require labour market related services recently established associations such as NEASA and CEOSA based on an organisational model of direct membership. Formed in April 1996, NEASA argued for a new labour market dispensation that is more employer-friendly and that will therefore lead to economic growth. It purports to represent, particularly but not exclusively SMMES on MEIBC, MIBCO and NBCRFLI. It has garnered membership based on the pledge to provide expert assistance in respect of but not limited to disciplinary inquiries, retrenchments, poor work performance and medical incapacity. To this end it, advocates, among others:

- *“the modernisation of the centralised collective bargaining regime;*
- *the scrapping of the extension of collective agreements;*
- *the radical overhauling of the laws surrounding industrial relations so that it no longer serves as a deterrent to employment; and*
- *the adopting of a different approach towards ‘transformation’, both in terms of employment equity and BB-BEE, in order not to inhibit economic growth and employment, but rather to be maximally inclusive in order to serve as an economic stimulant”.*²³⁰

Founded in November 1998, CEOSA²³¹ initially represented member companies employing less than 100 people. It purported to have a membership of more than 20 000 in the public and private sectors and, since 2016, is party to MEIBC and BCCEI. It tended to align its approach toward collective bargaining to that of NEASA, as evidenced by its submissions to the MEIBC. However, a number of business associations are not registered as employer associations; their activities have bearings on value chain activities and its impacts on labour market arrangements.

It is through the process of being represented by these associations that companies access information and support from the vantage point of an employer for company-level labour market issues. Another avenue through which companies accessed information was through the representative organisation of their employees via labour

²³⁰ NEASA: Press Release: While the President want to create jobs – Labour Policies destroy jobs, October 2, 2018, <https://neasa.co.za/press-release-while-the-president-want-to-create-jobs-labour-policies-destroy-jobs/>.

²³¹ <https://ceosa.org.za/about/collective-bargaining/>

unions. The LRA details the rights conferred at company level that enable the organisation of employees. Companies employing more than 100 employees are required to establish workplace forums to deal with conditions of employment and workplace disputes, while the Skills Act promoted the establishment of forums tasked with the development of company level skills plans. Larger companies tended to establish HR capacity so as to ensure compliance with the relevant legislation.

4.2.5. The relationships between employer associations, trade unions and collective bargaining

The MEIBC is one of the oldest statutory bargaining councils in South Africa. It was formed by industry employers and white trade unions organised in the metal and engineering industries. Before 2003, it was referred to as NICISEMI, which was established in 1944. It is only after 1979 that NICISEMI was transformed when African employee organisations were recognised and afforded representation based on the findings of the 1979 Wiehahn Commission of Inquiry and the campaigns of trade unions affiliated to FOSATU.

Thereafter, a number of new dynamics to the main agreements were negotiated. In addition to changing wage rates, the grading structure in relation to training was substantially altered. A process to facilitate the pursuit of a more flexible five-grade structure was introduced. This is reflected in the Main Agreement.

The relationships between the employer associations and trade unions in the MEIBC was recently fraught with problems. This allegedly partly stems from dissent within the ranks of the employer associations, as reflected in the different approaches toward their responses to union demands. Central issues involved the introduction of a changed wage regime that differentiates between enterprise size. Employer associations such as NEASA demanded that a blanket exemption be introduced for SMMEs.

While a good working relationship exists between SEIFSA affiliates and the trade unions, the other associations have tabled demands that will involve the reduction of

conditions of employment if acceded to in the MEIBC.²³² It is in this sense that no comprehensive main agreement has been signed since 2017. Only an amended Settlement Agreement was signed by 20 SEIFSA affiliates and five unions; it could not be extended to non-signatories.²³³ A similar Settlement Agreement was signed by NEASA, CEOSA, SAEFA, PCASA and Solidariteit for the PNF in the MEIBC on 17 June 2017.²³⁴

Agreement could also not be reached on the Consolidated Registration and Administration Expenses Agreement. Litigation led by NEASA and SAEFA disputed the constitutionality of an MEIBC decision made in 2018 to submit such a Consolidated Registration and Administration Expenses Agreement to the Department of Labour for extension to all parties and non-parties in 20 September and 6 November 2018. The Labour Court overturned the MEIBC's decision on 28 November 2018 and provided detailed reasons for the judgement on 15 March 2019.²³⁵ It is alleged that the Department requires the MEIBC's Constitution to be changed to accommodate the changing landscape of the employer representation before any amendments and extensions of the Main Agreement to non-parties is entertained.²³⁶

Although all parties raised concerns about the industry's plight, participation in the envisaged Industrial Policy forum were similarly affected. It is only at the end of 2018 that SEIFSA affiliates and trade unions engaged government about the industry's plight.

Further, critical auxiliary value chain functions such as the transportation of multiple inputs, including the generation and supply of energy, falls outside the aforementioned bargaining council's ambit; it falls under the auspices of the Transnet and the Freight and Logistics Bargaining Councils and company-level bargaining at ESKOM. However, there does appear to be a serious concern that this will cause undue disruptions to value chain activities at this moment owing to the problems being

²³² Interview with Mr V. Ngonyama-a senior MEIBC Official, 15 April 2019 and 30 November 2019.

²³³ MEIBC Circular, Wage Settlement between SEIFSA, MEWUSA, NUMSA, SEAWU, SOLIDARITY and UASA-(Further rectification of Circular dated 23-3-17), 21 September 2017

²³⁴ MEIBC Circular, Plastics Negotiating Forum (PNF) Wage Settlement, 21 September 2017

²³⁵ See Labour Court of South Africa, Case No. JR 1771/18. Johannesburg, 15 March 2019.

²³⁶ Interview with Mr V. Ngonyama-MEIBC Official, 15 April 2019.

experienced with the supply of state-owned energy and transport logistics public enterprises. Enterprises involved in the manufacturing of basic and fabricated metals are regarded as among the most intensive users of energy. Nonetheless, the concerns appear to be more about the sustainable provision of these supplies to the value chain within an acceptable pricing framework, rather than the current collective bargaining model.

However, disputes arose downstream. Here, metal fabrication companies, as suppliers of an array of inputs into a range of value chains, present a challenge. The need for stability in value chains associated with the production of automotive, construction, mining, engineering, agriculture commodities has raised a number of issues, as reflected by prevailing disputes within and between MEIBC, MIBCO, NBF and other forms of collective bargaining and sectoral determination processes. Further, the NBF's aspiration to establish a new bargaining model has compounded the problem. Company membership of employer associations involved in MEIBC, MIBCO or NBF demonstrate the problem's complexity. A typical example is NAACAM, which has members subject to the agreements determined by parties under the auspices of both MEIBC and MIBCO, albeit forms of statutory centralised bargaining. The recent Labour Court case No. PR 3/18 about the scopes of the MEIBC and MIBCO in relation to 12 automotive component companies reflects the ongoing demarcation issues of bargaining councils.

4.3. Key challenges and recommendations

Various challenges in the metal fabrication value chain have been identified to date. Foremost is its capacity to respond to competitiveness as a result of relatively high and increasing costs of labour, transport and electricity as well as intense global competition in a local market in which steel producers, using import parity pricing, are price-makers while the manufacturing players are price takers. Further, it also impacts on responses to market opportunities provided by the development of a regional-based GVC to facilitate growth, including employment growth. However, it is imperative to understand the employment creation prospects based on these challenges while complying with the local labour market regulation and the need to pursue a decent wage agenda.

4.3.1. Employment creation prospects

The value chain's employment creation prospects depend on the extent to which the interested and affected parties were prepared to engage to secure the value chain's sustainability. Government support measures to retain and support the growth of the industry value chain came in the form of the IPAP, targeting the metal fabrication, capital and rail transport equipment cluster programme. Enabling the establishment and expansion of production capacities through localisation programmes has become the mantra for employment creation initiatives. Minister Ebrahim Patel indicated at a recent Southern African Metal and Engineering Indaba that government and industry are working on, among others:

“the Masterplan for the sector, we have met with metals and engineering sector stakeholders in an effort to ensure that they contribute to the formulation of the Plan. Subsequent to the meeting, we have received more than 40 submissions from industry players. I will be appointing a Facilitator so we can further engage the contributors and finalise the plan. The final Masterplan will be a concise, action-oriented and implementable plan”²³⁷.

It is imperative that the interventions identify areas in the labour market in addition to what has been identified to date. Foremost is the need to pursue an agenda that requires labour markets arrangements, including skills as well as the training requirements consistent with newly perceived grading and skills structures to compliment localisation programmes. Further, the prevailing labour relations regime must be revisited to ensure that it compliments employment creation initiatives while augmenting the pursuit of the attainment of decent work.

4.3.2. Compliance with South Africa's labour market legislation

General compliance with labour legislation such as the BCEA and LRA has been established with the Constitution and functioning of the MEIBC. In this context, the MEIBC provides a self-regulatory environment for the labour market conditions in the

²³⁷ Patel, E: Metals and Engineering Sector Masterplan Key to Unlocking Growth Opportunities, Southern African Metals and Engineering Indaba, MEINDABA SEIFSA Press release, IDC Conference Centre, Sandton, 13 September 2019, <https://meindaba.seifsa.co.za/metals-and-engineering-sector-masterplan-key-to-unlocking-growth-opportunities/>.

metal and engineering industry, particularly the metal fabrication value chain. A key question is whether the MEIBC has been functioning to assist with the development of value chain activities. The answer to this question is complex. The MEIBC is one of the oldest bargaining councils in South Africa. It has developed complex procedures and processes to determine conditions of employment and remuneration over various sectors that involve the metal fabrication value chain. Some would argue that some of these are outdated, with reference to its complicated 13-grade job structure, while others would say attempts have been made to affect changes to respond to global challenges.

It is evident that the MEIBC's most recent agreements that contain provisions for greater flexibility in its response to technological changes and the requisite grading, skills structure and training requirements reflect an attempt to make the required adjustments. However, there remain concerns about its structuring according to sectors without considering the imperatives of value chains. This raises questions about the demarcation or scope of the bargaining council, as reflected in previously cited court cases.

What compounds this issue in the metal fabrication value chain is the fact that it supplies a number of value chains, such as agriculture, automotive, capital equipment, rail transport equipment, to mention a few. Interestingly, the MEIBC's scope has historically been structured to provide for approximately 40 sectors in the metal and engineering industry, such as the light fabricating and/or light manufacturing division, agricultural implement and/or irrigation machinery (including windmills) and/or engine manufacturing, erecting and assembling division, foundry and/or castings division, tube and/or pipe manufacturing division, sheetmetal manufacturing division, motor vehicle parts and components manufacturing division, locomotive manufacturing division and railway wagon manufacturing (see *Table 7: Summary of industry divisions/schedules and applicable rates*). However, it does not suffice for companies that provide services and products for multiple value chains.

4.3.3. The pursuit of decent work

Recently, companies have increasingly been outsourcing by using procurement practices such as TEs to augment their production processes. The MEIBC Main Agreement has concluded provisions that permit companies to use such services. However, concerns have also been expressed about cost-cutting deviations from employment conditions such as the provision of protective clothing and other social protection measures in these companies in a less dominant position in the value chain. Such responses by these companies come about as a result of the dictates to cut costs because of the demands of the lead company and increased competition. Although horizontal equity in compensation for work performed was historically dealt with through the determination of minima for similar work across sectors, while the grading linked to occupational structures informs vertical equity structures, as reflected in the Main Agreement, the current state of collective bargaining in the MEIBC could lead to a widening of wage differentials within and between enterprises, as we will illustrate in the next chapter.

4.3.4. Recommendations

While the Minister of Employment and Labour provides oversight to the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Hence the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for the envisaged Metal and Engineering Sector Masterplan.
- Develop a clear understanding about the nature of value chain activities in the metal and engineering sector owing to the existence of multiple value chains.
- Resolve the demarcation issues involving MEIBC and other bargaining councils such as MIBCO.
- Facilitate a discussion between parties involved in the MEIBC to attain consensus about the MEIBC's scope and modus operandi.
- Establish a process to resolve wage determination issues, such as wages linked to occupational, grading and skills issues.
- Develop a clear implementation plan with the timeframes of the consensus attained among the parties.

5

THE CAPITAL AND RAIL TRANSPORT EQUIPMENT GLOBAL VALUE CHAIN

South Africa has and is developing the industrial capability to produce products classified as capital and rail transport equipment, including various types of pumps, industrial equipment used in manufacturing processes, as well as heavy machinery used in mining operations, both in the transporting and processing of mining ores; electrical machinery and professional and scientific equipment relate to electricity generation, transmission and distribution to the point of final consumption and the manufacturing of railway trucks and engines.

5.1. The dimensions of the capital and rail transport equipment global value chain

Capital transport equipment such as for construction, earthmoving and mining and quarrying, bulk materials handling, industrial projects and the minerals and metals industries, underground utility construction and waste processing equipment, instrumentation and electrical construction, mechanical, structural and piping construction was critical in the development of industries ranging from agriculture, forestry, waste-handling and construction mining, quarrying, electrical power generation, marine, OEM solutions, oil and gas, aggregates technology and solutions, waste industries and the provision of government services. Foreign-owned and locally-owned MNEs such as Bell Equipment, Deere and Komatsu dominated the provision of such equipment.

Rail transport equipment such as track, power supply, train control, coaches, locomotives, wagons are critical to supporting the South African rail network, which is the eleventh largest in the world, at 22 298 route kilometres, with total track distance of 30 400km. The recapitalisation of its rail infrastructure and rolling stock (both freight and passenger) has led to the proliferation of a number of projects that aid the localisation of production of rail signalling and rolling stock such as diesel locomotives, electric locomotives, wagons and electric multiple units at varying local content thresholds.

Foreign-owned MNEs such as South China Rail, North China Rail, Canadian-owned Bombardier Transport, French owned Alstom and Danish-owned AVK Holding A/S are

major roleplayers in this value chain. Locally based MNEs such as Bell Equipment and Gibela Rail and should not be discounted. Gibela Rail Transport Consortium was established involving Alstom (61%), Ubumbano Rail (30%) and New Africa Rail (9%). Moving up the value chain is being facilitated by localisation programmes and innovative initiatives such as the CSIR-hosted national programmes, the NCPC-SA, the TLIU and the NFTN. Other initiatives supported by the DTI involve the NTI programme that intends to raise the TDM sector's competitiveness through critical skills development and job creation programmes, technology development and adoption, enterprise development and export promotion.

What is significant is the roles of this value chain in underpinning the manufacturing industry as well as the logistics required by the entire economy, in which transport is the single most important factor. Transport costs comprise more than 50% of the entire logistical costs bill. It is a value adding activity in the value chain that ensures that products and services are available where and when required. "South Africa is a leader in complex, emerging and dynamic logistics environments and has achieved success despite geographical impediments, severe skills shortages and lack of economies of scale".²³⁸

5.1.1. Suppliers/Inputs

The local metal fabrication industry (SIC Division 25) contains important suppliers of producers of local content of capital and rail transport equipment. The preceding chapter detailed the nature of this value chain, including its production capacity. Further, additional supplies were also derived from industries (SIC Division 22, 24, 26 and 27) that **manufacture rubber** (rubber tyres and tubes; retreading and rebuilding of rubber tyres natural or synthetic rubber, unvulcanised, vulcanised or hardened) **and plastics products** (new or spent plastics resins into intermediate or final products, using such processes as compression moulding, extrusion moulding,

²³⁸ Interview with Cobus Rossouw, Chief Integration Officer, Imperial Holdings in Capital Equipment News Supplement, 1 February 2013, p4.

Table 14: The dimensions of the value chain for capital and rail transport equipment

Issues	Suppliers/ Inputs	Production capacity, technology and innovation	End-markets and trade	Governance of value chains	Value chain finance	Business environment
Industry	Mills, mini-mills and foundries	Various types of pumps, industrial equipment used in manufacturing processes, as well as heavy machinery used in mining operations, electrical machinery and professional and scientific equipment relate to electricity generation, transmission and distribution and the manufacturing of railway trucks and engines	Capital equipment for various industries and rail transport	MNEs who are OEMs	Local and Foreign Direct Investment (FDI)	<ol style="list-style-type: none"> 1. Availability of enterprises to provide an adequate supply of raw material and labour. The availability of institutions to provide requisite training and R&D. 2. CSIR-hosted national programmes, the National Cleaner Production Centre of South Africa (NCPC-SA), the Technology Localisation Implementation Unit (TLIU) and the National Foundry Technology Network (NFTN) and the National Tooling Initiative (NTI) programme
Policy support		Strategic Infrastructure Programme (SIP), the DTI's localisation initiatives	NDP and related policies, Trade Agreements		DTI incentives	
Associations	Chamber of Mines, SEIFSA, NEASA, etc.	Conmesa, SEIFSA, NEASA, AMD, etc.				
GVCs	Company-based GVCs such as AMSA	Company based GVCs such as China North Rail, Gibela, AVK Holding A/S, ALSTROM and TELEMUT	Companies such as PRASA and Transnet			

injection moulding, blow moulding and casting); **basic metals** (the smelting and/or refining ferrous and non-ferrous metals from ore, pig or scrap, using electrometallurgic and other process metallurgic techniques, the manufacture of metal alloys and super-alloys by introducing other chemical elements to pure metals to make products such as plate, sheet, strip, bars, rods, wire, tubes, pipes and hollow profiles, and in molten form to make castings and other basic metal products); **computer, electronic and optical products** (computers, computer peripherals, communications equipment, and similar electronic products, as well as the manufacture of components for such products characterized by the design and use of integrated circuits and the application of highly specialised miniaturisation technologies) and **electrical equipment** (products that generate, distribute and use electrical power such as electric motors, generators, transformers and electricity distribution and control apparatus, including electrical lighting and signalling equipment).²³⁹

5.1.2. Production capacity, technology and innovation

Local production capacity of capital equipment was largely developed by locally owned MNEs such as BELL Equipment, Master Drilling and AARD Mining Equipment. A few foreign-owned MNEs such as IVECO established local plants. The bulk of the foreign-owned MNEs imported their equipment while establishing local servicing centers. Most of their equipment was produced in countries such as Germany, the U.S., Brazil, Japan, China and India.

“The South African mining inputs cluster, mainly located in Gauteng, is a well-established regional supply hub for Southern Africa. South Africa’s mining inputs cluster has developed high-level technological competencies over the decades, and in some areas has become globally competitive.

²³⁹ Stats SA: Standard Industrial Classification of all Economic Activities (Seventh Edition), Report No. 09-90-02, October 2012. A number of companies such as Aveng Trident Steel’s products for both capital and rail transport equipment or the range of services for electromechanical equipment, albeit AC and DC traction motors in rail provided by Sulzer are critical inputs to this value chain. This is reflected by the interview responses provided by Hulamin’s Clayton Fisher, Group Supply Chain Executive and Sydney Khoza, Senior HRBP on 21 November 2018, Lesetja Rabalao, Aveng Trident Steel Employee Relations Manager, 12 December 2018 and Sulzer Pumps (SA) (Pty) Ltd’s Ronelle Colyn, Company Secretary, 16 November 2018.

*This is the result of a relatively long history of mining, during which suppliers had to find innovative solutions to the geological and metallurgical challenges of hard rock, deep level mining which characterised the South African gold mines (Walker and Minnitt, 2006; Kaplan, 2011). Such innovative efforts were driven by the Chamber of Mines Research Organisation (COMRO), which undertook significant levels of ‘blue sky’ R&D. A very dynamic national system of innovation (NSI), with strong linkages between mining companies, suppliers, research centres, universities and technical and artisanal schools, underpinned the cluster”.*²⁴⁰

Local production of rail transport equipment has been boosted by the localisation programmes based on a partnership between foreign-owned MNEs and local producers, as reflected with the establishment of GIBELA.

5.1.3. End-markets and local and global trade

The prevalence of large and established agriculture and forestry, mining, construction, manufacturing, retail and wholesale industries meant the existence of local demand essential to absorbing both locally produced and imported products. Further, the demand for such equipment in a resource-rich sub-Saharan Africa provided a significant market for local products, albeit capital equipment or rail transport equipment. Construction and Mining Equipment Suppliers’ Association chairperson Lawrence Peters recently reflected on the number of units sold:

*“The downturn in the industry in 2014 was a knock-on effect of the global downturn in the economy. The sale of new units dropped from 7 520 units in 2013 to 4 747 units in 2016, but 5 614 units were sold in 2017 – an increase of 18.3% from the previous year... We are very vulnerable to exchange rates because most of us in this industry import the equipment, so we will always benefit from the upswing in the exchange rate and not benefit when it goes the other way”.*²⁴¹

Factors that contributed to this improvement was the increase in sub-Saharan African construction projects, a resurgent agriculture industry and the recovery of certain

²⁴⁰ Fessehaie, Judith: The Regional Value Chain for Mining Capital Equipment: Linkages and Firm Upgrading in South Africa and Zambia, Regional Industrialisation And Regional Integration, TIPS Annual Forum 2015, Johannesburg, South Africa 14-15 July 2015, p4.

²⁴¹ Steenhoff-Snethlage, Erin: Engineering News, 6 April 2018.

commodities such as coal, with most of the sales in earthmoving and mining rather than in construction equipment.

The establishment of SACEEC and RRA as export councils will help to facilitate the penetration of global markets by SA-owned and/or SA-based enterprises in both greenfield and brownfield projects as well as the aftermarket. The latter has become a huge growth area, given the lifespan of the use of capital equipment. It is in this context that the SA-based EPCM, which historically facilitated relations between clients and suppliers, will play a critical role in the growth and expansion of the capital and rail equipment industry in Africa.

Bauma Conexpo Africa, an international trade fair for construction machinery, building material machines, mining machines and construction vehicles facilitated marketing and sales, particularly in Sub-Saharan Africa. While the bulk of the merchandise on display was sourced from MNEs that have production capability in countries such as Brazil, India, the U.S., Germany and Japan, SA producers had a significant presence at the fair. While 454 exhibitors from 34 countries attended in 2018, less than 616 exhibitors from 42 countries who showcased their new products and innovations for the African market in its second edition in 2015. South Africa was among the top exhibiting countries, along with China, Germany, Italy, the UK, India, the U.S., France, Turkey and Spain. Sub-Saharan African countries such as Zambia, Zimbabwe, Namibia, Mozambique, Botswana, Ethiopia, Kenya, Nigeria, Zambia and the DRC were well represented.

5.1.4. Auxiliary services: Sustainable production and land, water and energy use

Auxiliary services to support the manufacturing of capital and rail transport equipment varied from the sourcing and transportation of the relevant inputs to the use of local land and energy sources. In the previous chapter, we noted that the manufacturing sector, particularly the metal and metal products dimension, is high user of energy. While components manufacturing is energy-intensive, land utilisation in the establishment and development of manufacturing facilities is a significant factor.

However, the sustainable use of land is also a critical factor throughout the value chains.

The establishment of the 53 000 square metre Dunnottar Train Manufacturing Facility by the Gibela joint venture led by Alstom adjacent to the 80 000 square metre manufacturing and service facility at Alstom Ubunye. Similarly, the 6 000 square metres of Bombardier South Africa to produce high-powered propulsion equipment, including a testing centre for high-power traction converters and electrical cubicles, complemented the Transnet facilities in Koedoespoort, Pretoria and Edwin Swales in Durban, where its locomotives will be assembled and tested. Similarly, the numerous suppliers involved in the value chains also use a significant amount of land to house their production facilities. A similar scenario can be sketched for the capital equipment sector. The activities relating to the use of the final product also involve activities that significantly impact on the use of land in areas such as mining, construction, transport and agriculture.

5.1.5. The governance of value chains

What is evident is that capital equipment OEMs operative in SA and Sub-Saharan Africa, whether both foreign-owned and locally-owned, faced with a number of imperatives in relation to suppliers, affiliated or associate, the specifications/standards that were required. Further, localisation strategies usually meant the provision of some form of assistance to upgrade locally-owned enterprises's capabilities. This enabled OEMs, as leading enterprises, to exercise considerable influence in determining the governance arrangements. MNE enterprises such as Deere and Komatsu with production capabilities outside South Africa developed service centers and/or licensing agreements with enterprises in South Africa, while locally-owned firms such as Bell Equipment established particular relations with local suppliers that are critical to local production capabilities.

As the continent's leading rail country in terms of both freight and passenger infrastructure, as well as rolling stock assets, SA has developed capabilities, skills and expertise as a manufacturer, assembler and supplier of rail infrastructure, rolling stock and components, including the refurbishment and rejuvenation of aged rail and rolling

stock infrastructure and components. However, the production of rail transport equipment was significantly informed by joint initiatives involving foreign and local capability with OEMs such as GE, South China Rail, North China Rail, Alstom and Bombardier bringing foreign technology and expertise.²⁴²

Engineering, Procurement, Construction Management (EPCM), although it is not directly involved in the construction, mining, rail enterprises but is responsible for administering the contractual relations, is a critical interface between the OEM and the client, whether the mining or construction industry.²⁴³ EPCMs such as DRA Global and Senet also played a critical role in developing relationships between capital equipment suppliers and clients in the agriculture, energy, water, ports and marine and processing industries.

While particular OEMs and EPCMs were integral to specific company value chains, influencing the business environment to enable its optimal functioning led to the establishment industry-specific and commodity-specific business associations, including export councils. Established in 1993, CONMESA consists of about 30 construction and mining equipment companies. It seeks to promote the manufacturing, assembly and distribution of particularly construction and mining equipment.

Rail Equipment Cluster of South Africa (RECSA) was established in 2017 in the rolling stock capital equipment industry with the explicit purpose to represent and facilitate collaboration between value chain stakeholders such as EPCMs, equipment and component manufactures, service providers and logistics to grow the sector's capacity, expertise and export readiness and offer easy access to local rail equipment manufacturers.

The RRA, established in October 2000 to represent the players in the railway industry, was supported by the Railways Safety Regulator and the Rail Sector Desk of the DTI to grow and develop the rail industry in South Africa and in the rest of the continent by

²⁴² Sithole, Joseph: Industrial Development Corporation Automotive & Transport Equipment Unit Finance for Rail Projects, Transnet Suppliers-Workshop IDC Building –Sandton, 15 October 2015.

²⁴³ Fessehaie, Judith: The Regional Value Chain for Mining Capital Equipment: Linkages and Firm Upgrading in South Africa and Zambia, Regional Industrialisation And Regional Integration, TIPS Annual Forum 2015, Johannesburg, South Africa 14-15 July 2015.

creating a transparent, fair and competitive environment in the industry, unlocking business opportunities and expanding businesses.

RECSA, together with fellow associations such as VAMCOSA, SAMPEC, HAPEC and SWH-MANCOSA, are members of SACEEC, which represents the capital equipment and project sector, both for new projects and for the aftermarket facilitation role, in assisting the capital equipment sector companies to grow their business through exporting. RRA considered itself an export council of finished rail products.

*“As an Export Council, the RRA is mandated to represent the South African railway industry with the objective of promoting the industry as a competitive exporter of products and services. We help our members position themselves to enter the export arena. We are an integral part of government’s plan to grow exports, diversify the South African product offering, broaden markets and enhance the exporter base through the mobilisation of black-, women- and youth-owned enterprises”.*²⁴⁴

5.1.6. The business environment and socio-political context

IPAP and the Metal Fabrication, Capital and Rail Transport Equipment Initiative provided the policy framework for the respective value chains at industry level. Further, local content provisions are enforced by the DTI and the ECIC, which provides political and commercial risk insurance.

Concerns were raised about the inability of Government and industry’s role players to deliver on the localisation process owing to reliance on imports, which curtail the growth of the capital equipment sector and the manufacturing sector in general. SACEEC’s CEO, Eric Bruggeman, said that a 50% to 70% local content requirement for products would be considered acceptable to stimulate the future growth and sustainability of the local manufacturing sector:

*“We need to slow down the imports. We need to increase local content.... I understand you cannot make everything locally all of a sudden; however, this is money already being spent – it is just being spent in the wrong place..... This is especially relevant, given the fact that local procurement specialists still insist on sourcing products from overseas when local alternatives have in fact proven to be superior in terms of both performance and reliability”.*²⁴⁵

²⁴⁴ RRA: <https://rra.co.za/site/our-work/#1551327465832-81095886-34b0>, 7 March 2019.

²⁴⁵ Odendaal, Natasha: Capital Idea, Engineering News, 22 March 2019.

Despite successful exports to countries and regions such as Russia, Canada, South America, Australia and the U.S., and to a lesser extent Africa, SACEEC members such as Bell Equipment chairperson Gary Bell said that “We have to get the local industry more globally competitive.”²⁴⁶ While local incentives or local tariff barriers help the local market, the cost of doing business and other major input costs and disadvantages, such as significant duty costs on required imported components and parts, which could be resolved through a tariff change, must also be considered, so as to develop local production capacity:

Localisation of production capacity for the rail transport equipment proceeded apace with the development of two joint ventures involving French owned OEM Alstom and local companies that led to the establishment of Gibela and Alstom Ubunye Factory. The former involves the production of “3600 rolling stock coaches... for Passenger Rail Agency of South Africa (PRASA) at Africa’s largest and recently completed, manufacturing plant – Gibela”²⁴⁷ In April 2016 Alstom acquired a 51% shareholding in Commuter Transport & Locomotive Engineering (CTLE) that owned rolling stock manufacturer Union Carriage & Wagon that was established in 1957²⁴⁸. Alstom regarded these initiatives as important to it developing a regional value chain according to Xavier Boisgontier, the Managing Director of Alstom Southern Africa and CEO for Alstom Ubunye who believe the future success of Africa will be strengthened by innovative transportation solutions with Alstom as a willing preferred partner.²⁴⁹ “This large, local footprint enables the company to offer a complete range of systems, equipment, services and manufacturing facilities, contributing to the strengthening of the Southern African Rail Industry”.²⁵⁰

Similarly, in 2014 Bombardier Transportation, which is headquartered in Montreal (Canada), entered into a contractual arrangement with Transnet to produce 240 electric locomotives as part of National Infrastructure Plan to modernise SA’s national

²⁴⁶ *ibid*

²⁴⁷ Engineering News: Alstom at Africa Rail 2019: Rail solutions for Africa, https://www.engineeringnews.co.za/article/alstom-at-africa-rail-2019-rail-solutions-for-africa-2019-06-14/rep_id:4136 , 14 June 2019

²⁴⁸ Alstom: Investing in the future of Southern Africa’s Rail Industry, <https://www.alstom.com/alstom-south-africa>, 9 September 2019.

²⁴⁹ *Op. cit.*: Engineering News: Alstom at Africa Rail 2019: Rail solutions for Africa, https://www.engineeringnews.co.za/article/alstom-at-africa-rail-2019-rail-solutions-for-africa-2019-06-14/rep_id:4136 , 14 June 2019.

²⁵⁰ Alstom: Investing in the future of Southern Africa’s Rail Industry, <https://www.alstom.com/alstom-south-africa>, 9 September 2019.

rail system.²⁵¹ It will produce the Bombardier Mitrac high-power propulsion equipment at its Isando plant, with DCD Rolling Stock producing the car bodies in Boksburg. It should be observed that a controlling stake of 70% of DCD Rolling Stock dedicated to the manufacture, assembly and service of locomotives and other rolling stock for Africa has been acquired by the Russian-owned Transmashholding (TMH) International together with its black economic empowerment partner, MJISA having a 30% shareholding in 2018. Transnet Engineering produces the bogies and undertakes final assembly, commissioning and static testing at its plants in Koedoespoort (Pretoria) and Edwin Swales in Durban.²⁵² Bombardier also produced “96 Bombardier Electrostar vehicles for the Gautrain Rapid Rail Link rail mass transit... and the implementation of the Bombardier Interflo 200 operations control system on several routes in the Greater Durban area”.²⁵³

GESAT, a joint venture formed by GE Transportation, a subsidiary of U.S.-headquartered GE, and the Mineworkers Investment Company (MIC), in 2008 won a contract to supply Transnet with 233 locomotives. Only six were manufactured in the U.S., with the remaining 227 to be manufactured at Transnet Engineering (TE). The bulk of the Transnet contract of procuring 1064 involved 591 locomotives to be produced by CRRC E-LOCO (China South Rail- 359) and CRRC Dalian (China North Rail- 232), of which 491 had to be manufactured in SA.²⁵⁴

Transnet also entered into joint ventures with firms such as RailRunner South Africa (RRSA) to introduce a bimodal rail service that will create an end-to-end supply chain solution to explore, develop, and execute an integrated rail/road door-to-door solution for the African market.²⁵⁵ Generally, these initiatives by OEMs in the rail transport equipment value chain incorporated hundreds of local companies into its value chain.

²⁵¹ Railway News: Bombardier and Transnet Celebrate Handover of First TRAXX Locomotive, <https://railway-news.com/bombardier-transnet-celebrate-handover-first-traxx-locomotive/>, 08 Dec 2017.

²⁵² Ibid and Railway News: Bombardier South African Production Facility Opens, <https://railway-news.com/bombardier-south-african-production-facility-opens/> 26 August 2016.

²⁵³ Ibid.

²⁵⁴ Transnet: Transnet Local Public Procurement Feedback: A Presentation to the Portfolio Committee on Trade and Industry, March 2017.

²⁵⁵ Railway News: South Africa: Transnet Sign Deal with RailRunner to Develop Bimodal Rail Service, <https://railway-news.com/transnet-railrunner-develop-bimodal-rail-service/>, 22 Sep 2016.

5.2. Employment, labour market issues and skills development

Understanding employment trends, labour market conditions and skills requirements of this value chain is challenging. While it is difficult to compute the number of people employed in core value chain activities, their recruitment and employment is governed by institutional arrangements not dissimilar to those of metal fabrication. The MEIBC is the central collective bargaining facilitating instrument within which employer organisations such as SEIFSA, NEASA, PCASA, SAEFA and CEOSA, as with trade unions such as NUMSA, MEWUSA, UASA and Solidarity represented. Similarly, merSETA is entrusted with facilitating the provision of a workforce empowered with the requisite skills. How then are the employment trends, collective bargaining and skills provision arrangements distinctly similar and different from those of metal fabrication?

Although the labour market regulatory environment for its core activities was similar, the same cannot be said of its supplier/input and end-market dimensions. Metal fabrication essentially constituted the supplier/input dimension of the capital equipment and rail transport equipment value chain under the auspices of the MEIBC and merSETA, the non-statutory bargaining involving the Minerals Council and NUM and AMCU and MQASETA governed labour market and skills regulations for mining output that provides the inputs/supplies for the metal fabrication value chain. The end-markets of the capital and rail transport equipment varied from agriculture, mining to construction, where labour market regulations were governed by a number of statutory and non-statutory forms of centralised bargaining, sectoral determinations and company-level bargaining. Nonetheless, it is important to unpack the labour market and skills dimensions of the core activities of the capital and rail transport equipment value chain and the OEMs' influences in this producer-dominated value chain.

Table 15: Labour market and skills dimensions of the capital and rail transport equipment value chain			
Issues	Company-level bargaining	Statutory centralised bargaining	Global Framework Agreement (GFA)
Industry			
Employment	Unknown	Unknown	
Skills programme	MERSETA		
Employer associations	Support provided by associations such as SEIFSA, NEASA	SEIFSA, NEASA, CEOSA, PCASA, SAEFA	
Trade unions	NUMSA, Solidarity, UASA	NUMSA, Solidarity, UASA, MEWUSA	

5.2.1. Employment trends

As noted, it is hard to ascertain employment numbers for this value chain. Employment information for the railway and tramway locomotives and rolling stock; aircraft and spacecraft and transport equipment n.e.c as provided by SEIFSA in *Table 5: Number of employees per metal and engineering and automotive subsectors* nevertheless totalled 11 667. While employment trends of upstream activities such as the supply of various components such the casting of metals, other fabricated metal products; metalwork service activities, special purpose machinery, electrical machinery and apparatus, parts and accessories for motor vehicles and their engines integral to the manufacturing of capital and rail transport equipment would considerably boost employment in the value chain. This will be further augmented by the employment of people in end-market as well as local and global trade activities.

5.2.2. The labour market regulatory environment and wage determination

Trade unions such as NUMSA, MEWUSA, UASA and Solidarity, together with employer associations affiliated to SEIFSA, SAEFA, CEOSA, PCASA and NEASA, formed an integral part of the collective processes to determine conditions of employment and wages in the value chain in the MEIBC.

Although the governance of labour markets of industries in the value chain exhibits high self-regulation, the processes to determine conditions of employment and wages varies. The location of enterprises in these forums usually means adherence to different dynamics of associational life, pending membership of an employer association. Company membership of employer associations involved in the MEIBC, albeit forms of statutory centralised bargaining, means that the availability of inputs/supplies can be subject to the specific collective bargaining processes.

As noted, the MEIBC Main Agreement details a grading and job structure. There are specific divisions in the Main Agreement that details which specific grades apply to the capital equipment and rail transport structure. In addition to divisions dealing with metal fabrication, there are divisions such as the agricultural implement and/or irrigation machinery (including windmills) and/or engine manufacturing erecting and assembling division (D/1); electronic, radio communications and/or telecommunication manufacturing division (including assembly and/or erection) (D/23); locomotive manufacturing division (D/27); railway wagon manufacturing (D/28); coaching stock division (Schedule E/1); and industrial refrigeration and air-Conditioning Industry Division (Schedule E/3).

These divisions have a grading and job structure suited to particular requirements for respective divisions (see *Table 6: Summary of industry divisions/schedules and applicable rates*). The agricultural Implement and/or irrigation machinery (including windmills) and/or engine manufacturing erecting and assembling division (D/1) had an eight-grade job structure, namely AA, B, C, D, DD, E, F and G, while the electronic, radio communications and/or telecommunication manufacturing division (including assembly and/or erection) (D/23) had an 11-grade job structure, namely A, AA, B, C, D, DD, DDD, E, F, G and H. The locomotive manufacturing division (D/27- A, AA, B, C, D, DDD, F, G and H) and the railway wagon manufacturing division (D/28- A, AA, B, C, D, DD, F, G and H) had an eight-grade job structure that was distinct from the 11-grade job structure of the coaching stock division (Schedule E/1- A, AA, B, C, D, DD, DDD, E, F, G and H). The production of industrial refrigeration and air-conditioning industry division (Schedule E/3- A, AA, C, D, DD, E, F, G and H) had a nine-grade job structure.

5.2.3. Grading and skills development

There is a much closer alignment between the skills sets in the capital and rail transport equipment GVC and the metal fabrication GVC. merSETA also addresses the skills issues within a specific chamber that in theory encompasses both these value chains. Thus, there is much overlap in the discussion about skills development in our previous chapter and what we consider in this chapter. This broad overlap is also reflected in the literature, which we drew on to assess the skills development processes within the two value chains, and is commonly subsumed under the metal chamber in reference to merSETA or the metal sector more broadly.

(a) Skills-based grading, training and work organisation

It is important to note that the issues around skills, grading and work organisation that are pertinent to Chapter 4 (on metal fabrication) also applies to this chapter on capital and rail transport equipment, based on the application of the Consolidated Main Agreement to the MEIBC.

(b) The demand for and supply of skills and training

Because of the heavy outlays concerning the utilisation of capital, rail and transport equipment, manufacturers, vendors and customers place a high premium on training the labour force tasked with operating such equipment in the most cost efficient and productive ways possible. In the sphere of transport equipment, Volvo and Scania are among the companies that have made a concerted effort to expand the training programmes for drivers, but also programmes for mechanics and technical personnel responsible for undertaking some of the maintenance that go along with operating these. Scania South Africa for instance provide multiple courses in driver training for customers who purchase Scania trucks. As the Connected Services Manager at Scania South Africa told a reporter from the trade magazine *Capital equipment news*:

*“Our one-on-one driver coaching paves the way for greater driving habits. Our techniques help drivers reduce wear and tear, stress, fuel consumption on the vehicles they operate, while increasing road safety”.*²⁵⁶

²⁵⁶ Munesu Shoko, ‘Reaping proficient driving returns’, *Capital Equipment News*, March 2017, p.23.

The fundamentals of driver training are built into the purchase of a new Scania vehicle. This takes the form of a two-day course. It is complemented by a refresher course designed to assist drivers to eliminate bad driving habits and enhance good habits. According to the Connected Services Manager at Scania South Africa, the refresher course realigns drivers with proper driving habits.²⁵⁷ The course is presented in the period preceding the re-issuing of a competence certificate to drivers who underwent the vehicle introduction course. Scania also offers a third, five-day course on advanced product knowledge aimed at the driver-trainers who are in the employ of customers. Customer in-house trainers help to maintain good driver habits internally.²⁵⁸ The course emphasises issues such as fuel consumption, safety and general driver behaviour. Scania's fleet management platform allows fleet managers to observe the speeds drivers are doing, fuel levels in the tank, odometer readings and when a vehicle is due for service.²⁵⁹

The Volvo Group is another significant OEM involved in SA's transport equipment sector. The entities that make up the Volvo Group in South Africa include: Volvo Trucks, Volvo Bus, Volvo Financial Services, Volvo Penta and UD Trucks. The group employs roughly 1 000 people across the region and has assembly plants in Durban (Volvo Trucks) and Rosslyn (UD Trucks). It operates training facilities for apprenticeship training, learnerships for disabled persons as well as internships.²⁶⁰ In 2018, it was in the process of establishing a specialised Driver Training Academy.²⁶¹

The lack and importance of technical skills is a challenge that is also felt in SA's capital equipment sphere. However, a number of companies are increasing their investment in training provision in the sector. At a recent official opening of *thyssenkrupp's* newly launched R28 million Technical Training Academy, the previous Minister for Higher Education and Training noted that, along with nine other priority trades, there was an acute shortage of automotive and diesel mechanics. The other nine priority trades that are experiencing skills shortages included electricians, boilermakers, plumbers, bricklayers, carpenters and joiners, welders, fitters and turners as well as riggers.²⁶²

²⁵⁷ *ibid.*, p.23.

²⁵⁸ *ibid.*, p.23.

²⁵⁹ *ibid.*, p.23.

²⁶⁰ Munesu Shoko, 'Tackling the skills shortage head on', *Capital Equipment News*, June 2018, p.21.

²⁶¹ *ibid.*, p.21.

²⁶² Munesu Shoko, 'Bridging the skills gap', *Capital Equipment News*, December 2018, p.18.

To bridge the skills gap, Pandor called on industry to work with colleges to help develop the skills that industry needs. More recently, the DHET launched an initiative that focusses on the teaching of 13 trade occupations at 26 of SA's 50 TVET colleges. Known as the Centres of Specialisation Programme, it is designed to address the growing demand for skills needed for the current infrastructure build, which the state oversees.²⁶³

Other OEMs in the capital equipment sector have instituted mitigating measures to address some of the challenges associated with skills shortages. At Bell Equipment for instance there was a concerted effort to grow their own timber. As the General Manager for Group Technical Services at Bell Equipment, Meltus Badenhorst, told *Capital equipment news*: "Annually we enrol an average of 50 apprentices. Out of that number, we employ 10 of the graduates and the rest are available to the industry – for other OEMs or our customer network".²⁶⁴ Further, it is important for mechanics to be motivated and self-sufficient when operating in more difficult environments away from the company's SA home base. Mr Badenhorst noted the contextual challenges that mechanics must function in: "A mechanic needs a minimum of five years of experience to be a successful artisan in Africa because of the nature of the environment. Access to information and secondary assistance from the OEM is often scarce and out of reach, so mechanics are really on their own and have to be self-sufficient".²⁶⁵

A number of other companies in the transport and heavy equipment sector have also made a concerted effort to promote skills development. These include Babcock, which offers apprenticeships in various trades, including diesel mechanic, boilermaker, earthmoving equipment mechanic and fitter/welder.²⁶⁶ According to Calvin Muthelo, Babcock's training manager, the company's apprentice training programmes combine educational material with hands-on workshop experience. Each apprentice at the company is also assigned a qualified tradesperson who works with them for the duration of the programme.²⁶⁷ The various apprenticeship programmes which Babcock offers dedicates a full year to technical theoretical training accompanied by

²⁶³ *ibid.*, p.20.

²⁶⁴ *ibid.*, p.19.

²⁶⁵ Meltus Badenhorst, cited by Munesu Shokoin Capital Equipment News, December 2018, p.19.

²⁶⁶ *ibid.*, p.20.

²⁶⁷ *ibid.*, p.20.

up to three years' relevant workplace experiential learning. During the experiential learning process, apprentices are given opportunities to work on the leading equipment brands Babcock distributes, including Volvo Construction Equipment, Terex Trucks and SDLG.²⁶⁸ Muthelo stated: "Babcock also has various merSETA-accredited workshops where practical tutorials are carried out while the trainers and tutors themselves are continually sent on technical training courses to keep up to date with the latest technology and equipment".²⁶⁹ Since 2016, Babcock's apprentice training programmes have achieved a 100% pass rate. They have also produced a number of qualified female diesel mechanics, which is very unusual in a largely male-dominated environment.²⁷⁰

Similarly, Bell Equipment has also significantly contributed with its own training regime. It operates a fully accredited in-house apprenticeship programme that functions as a full department with a training centre. The apprenticeship programme that it runs is in-depth and longer than what is required by merSETA. In the first two to three months, newly signed apprentices are taken to the firm's Richard's Bay factory, where they receive 11 weeks of theory and practical training on basic hand tool skills, combined with best practice in the earthmoving mechanical field. They are then assigned to one of the Bell Customer Service Centres (CSCs) around the country where they undergo on-the-job training for around 18 months.²⁷¹ As Mr Badenhorst, the GM for Group Technical Services at Bell Equipment, noted:

"During that time, they work through on-the-job modules that the artisan or foreman signs off, for example draining engine oil and refilling engine oil. The apprentice then returns for Bell 2, which is another 11 weeks of theory and practical training in Richards Bay, which is more product specific and in-depth, this time covering advanced hydraulics and electronics, engine systems, fuel management systems, as well as differentials and power trains".²⁷²

After Bell 2, the second phase of theoretical and practical training undergone at the Bell Equipment factory in Richard's Bay, an apprentice returns to their CSC for more

²⁶⁸ *ibid.*, pp.20-21 and drawing from insights from an interview with Calvin Muthelo, the training manager at Babcock.

²⁶⁹ *ibid.*, p.21.

²⁷⁰ *ibid.*, p.21.

²⁷¹ *ibid.*, p.21.

²⁷² Meltus Badenhorst, cited by Munesu Shokoin Capital Equipment News, December 2018, p.21.

on-the-job training, progressing from exposure in a workshop environment to a field service environment. As Badenhorst stated:

*“Every day throws a different challenge and they again work on on-the-job modules that need to be signed off by an artisan, but now they are much more advanced. After approximately 18 months, when we see that the apprentice is ready, we apply to merSETA to book a trade test date. In the final six months they are often allowed to carry out work themselves so that they learn to take responsibility and it’s during this time that we get an indication of a person’s true capability”.*²⁷³

The highly reputable training standards of the Bell Equipment skills development regime led the Department of Transport in Kwa-Zulu Natal to arrange sending a second intake of 26 apprentices to the company for 2019. The company is in discussion with other provinces to also be included in the initiative.²⁷⁴

While it is still necessary for earthmoving equipment mechanics to have the ability to undertake dirty and physically demanding tasks in order to maintain heavy duty capital equipment in working order, the sector has not been insulated from technological intrusions that have begun to change the nature of the job. Thus, even Mr Badenhorst notes that an earthmoving equipment mechanic has evolved over the past 10 years from being a more mechanical to a semi-electronic specialist who also requires advanced hydraulic knowledge.²⁷⁵ According to Mr Badenhorst, earthmoving equipment of 15 years ago typically required some basic tooling and parts to keep it going, while this can no longer be done without a computer and some high-tech tooling. He noted:

*“Mechanics are more like software specialists with a really good understanding of electrics, electronics and hydraulics. This is a challenge for the artisan of today, that is say 40 or 50 years old, because they need a laptop but were born ‘BC’ (before computers)”.*²⁷⁶

²⁷³ *ibid.*, p.21.

²⁷⁴ *ibid.*, p.21.

²⁷⁵ *ibid.*, p.21.

²⁷⁶ *ibid.*, p.21.

Thus, an earthmoving mechanic is required to also become an IT software specialist with enough knowledge to dismantle and replace the hardware. The machine's diagnostics now identify what needs to be replaced. Employers such as Bell Equipment have made a concerted effort to inform and support training institutions about future skills challenges. As a result, a more symbiotic relationship has been cultivated between leading capital equipment firms such as Bell Equipment and public training co-ordinating institutions such as merSETA, which are often negatively caricatured as a hindrance to the skills training dispensation. As the insights from a leading capital equipment manufacturer and vendor shows, a fertile and symbiotic relationship between firms and national training institutions can be actively promoted when shared objectives are promoted. The GM of Group Technical Services at Bell Equipment expressed a similar point in December 2018 to *Capital equipment news*, saying:

*“To prepare ourselves for the needs of the future, we meet annually with the relevant SETAs and sit on a panel that revises the course content so that it evolves to be relevant to the technological developments of today”.*²⁷⁷

The skills training initiatives reported in the capital equipment sector are also replicated to varying degrees in the rail transport sector. While the roles that skills formation initiatives have played in the sector through SOEs should not be under-estimated, the role of the new rail infrastructure and capitalisation process discussed above involving corporate entities such as Gibela are at the forefront of skills development in the sector. It is estimated that this initiative will have a discernible impact on the training of personnel in the sector over the next decade. According to information contained on its website²⁷⁸, more than 200 engineers and technicians, including 80 women, have been trained as full-time Gibela employees. In addition, 50 skilled and semi-skilled artisans and technicians have been recruited to start apprenticeships at the new training centre established by the company. Gibela estimates that its involvement in the South African rail project will require 1 500 artisans and engineers to build the projected 580 trains SA will deploy over the next 10 years. While some of these jobs will be undertaken by individuals who are already fully trained and experienced, the majority of positions will be assigned to men and women who will be trained during the

²⁷⁷ *ibid.*, p.21.

²⁷⁸ <https://www.gibela-rail.com/our-people/training-south-africa/gibela-training-centre>

course of the project as well as those who will receive on-the-job training. There will also be a process of knowledge transfer and upskilling for the entire labour force, which will be tasked to manufacture completely modern trains using cutting-edge technologies. According to the information on Gibela's website²⁷⁹, a process of technology transfer has been instituted between Gibela and Alstom. Known as the Transfer of Technology Programme, it will result in the designation of Alstom experts in various technical fields from centres of excellence around the world passing their skills and experience to South African employees at Gibela. At the initiation of the programme in May 2014, 12 experienced engineers from South Africa commenced training in France. These initial numbers have swelled to more than 100 employees who have received, are receiving or are scheduled to receive similar exposure. Training typically extends between three and 24 months in any of 14 disciplines at Alstom centres of excellence in 11 countries across four continents.²⁸⁰ Communicating further on the progress, Gibela noted that:

*“Some of these trainees are already back in South Africa, working on the trains being tested, and are imparting their advanced rail engineering and operational skills to their colleagues. Another group of 200 South Africans, carefully selected are recruited for these technical qualifications, are scheduled to continue in the footsteps of their colleagues in countries such as Brazil, France, Italy and Belgium to learn additional, specialised skills in train manufacturing between 2016 and 2017”.*²⁸¹

The Alstom-Gibela transfer of technology programme also makes provision for the selection of 100 Alstom employees from plants overseas to be deployed in South Africa on fixed-term contracts to undertake in situ skills transfers.²⁸²

However, the secondary literature does not effectively list the key companies in the rail capital equipment GVC. Thus, there is only a hazy picture of which companies these are, usually on the basis of newspapers and magazines that report on the sector. The more intricate details of these firms are kept within the confines of the employer associations, which are usually guarded about the confidentiality of information and do not publicly broadcast the names of their member companies that form part of such capital equipment value chains. However, the research organisation *Who owns*

²⁷⁹ See <https://www.gibela-rail.com/our-people/training-south-africa>

²⁸⁰ <https://www.gibela-rail.com/our-people/training-south-africa>, *ibid.*

²⁸¹ *ibid.*

²⁸² *ibid.*

whom²⁸³ has listed the principal companies based in South Africa that contribute significant inputs to the rail transport value chain in South Africa and perhaps also internationally. Thus, we have compiled a list of these companies so as to ascertain the extent of skills-based initiatives that are undertaken by each of these companies in South Africa as part of the rail transport manufacturing GVC. Table 16 consolidates these data.

Table 16: Cases of skills initiatives of companies in the capital and rail equipment value chain	
Company	Internal skills development initiatives in SA
ABB South Africa (Pty) Ltd	Operates a Graduate Development Programme for 20 graduates across universities and universities of technology in South Africa. Learnerships in electrical engineering and machining/fitting and turning. Thirty beneficiaries from townships in Gauteng were drawn to participate in internships. Provides scholarships to students from 15 universities across the world, including SA, to study engineering.
ACTOM (Pty) Ltd	Operates three apprenticeship training centres. These are located at Knights (Germiston), in Bellville (Western Cape) and Isando (both through John Thompson) and at Denver (Johannesburg) (through LH Marthinusen).
African Rail and Traction Services (Pty) Ltd	Operates a training facility that offers novice training as well as annual recertification of qualified locomotive drivers and shunters.
Bombela Operating Company (Pty) Ltd	The company however is registered as an accredited training provider with the Transport Education Training Authority (TETA). This registration commenced in January 2018 and ends in April 2020. The unit standards of the training modules offered relate mainly to operating high voltage heavy equipment, operating movement of electrical multiple units or motor coaches, operating a train protection signalling systems or managing a railway control centre.
Gibela Rail Transport Consortium (RF) (Pty) Ltd	Provision for the training of engineers, technicians, artisans and semi-skilled personnel at the new training centre established by the company. A technology transfer programme between Gibela and Alstrom is also in place, enabling a select number of SA engineers to receive further training in France.
Passenger Rail Agency of South Africa	PRASA provides bursaries to students for technical courses and courses in engineering and operations. PRASA also provides internships to students with the required technical qualifications and who will help build PRASA's skills capacity. Specialised disciplines in the technical field at PRASA include electrical engineering, signalling engineering, civil engineering, mechanical engineering and drawing and configuration. The field of operations at PRASA further consist of a number of specialisations, including station operations, train operations, train driver and ticket officer. ²⁸⁴
	The company offers accredited training programmes and industry-specific courses to the public rail transport sector (including freight and passenger transport), private sidings, mining operations and port operations. The job categories as well as job tasks ²⁸⁵ relating to rail equipment manufacture and services include:

²⁸³ <https://www.whoownswhom.co.za>. The report is titled: Rail Transport and Manufacture of Locomotives and Rolling Stock (22 August 2019). This is preceded by an historical report produced on the same subject in February 2017.

²⁸⁴ See PRASA (n.d) Career Day Programme, downloadable at: <https://www.prasa.com/Scholarship%20&%20Busaries%20.html>

²⁸⁵ http://www.rhrrailway.co.za/?page_id=304

R and H Rail (Pty) Ltd	<ul style="list-style-type: none"> • Locomotive driver, train assistant, shunter and rolling stock Maintenance staff training • Rail construction and track maintenance staff training: • Track welding training • Railway signalling environment, effective fault finding and repair of railway signalling equipment training • Vehicles and associated hydraulic equipment training • Overhead electrical training programmes.
SA Freight Logistics (Pty) Ltd	The company provides training for train drivers and shunters, mainly on private sidings in SA as well as beyond its borders. Training is conducted on diesel electric as well as diesel hydraulic locomotives. Its training materials are TETA-accredited and aligned to unit standards. ²⁸⁶
Transnet SOC Ltd	Training and skills development provision in Transnet is spread across all five divisions of the SOE. Transnet also administers a bursary scheme with post-qualification contractual obligations, vacation work opportunities and opportunities for work-integrated learning. The engineering division alone has seven ISO certified factories and engages a workforce of 14 500 qualified personnel. New recruits to the company are drawn from engineering programmes at universities, universities of technology as well as public TVET colleges throughout SA. In addition to talent drawn from outside institutions, Transnet Engineering also operates the Transnet School of Engineering, which has been in existence for over 40 years. The School of Engineering facilitates the progression of staff on apprenticeship training programmes that are generally structured over three phases and span 18 to 36 months. Typical apprenticeship trades supported through the School of Engineering include: welding, electrician, electromechanician, wagon fitter, vehicle builder, diesel electrical fitter, electrical fitter, turner machinist, armature winder and millwright. These programmes are accredited through TETA and merSETA. Engineering students who are recipients of Transnet bursary sponsorship are also given structured job exposure with coaching and mentoring support, which ensures the consolidation of theory and practice. This is known as the <i>engineer in training programme</i> . Provision is also made for bursary recipients from universities of technology to be given similar structured job exposure with coaching and mentoring support under <i>the technician in training programme</i> . These programmes are all under the auspices of the Transnet School of Engineering. ²⁸⁷
Traxtion Sheltam (Pty) Ltd	The company operates a diesel electric technical training centre in Gauteng and is fully accredited by TETA. At its technical training centre, apprentices are put through an intensive three-year training programme that culminates in them becoming fully qualified artisans with a red seal trade test certificate. The technical training centre also offers courses in driver training as well as refresher courses. ²⁸⁸

ABB South Africa (Pty) Ltd operates a Graduate Development Program (GDP) which aims to develop young graduates within specific core skills disciplines, especially in

²⁸⁶ <http://saflog.co.za/home/training/>

²⁸⁷ <https://www.transnetengineering.net/>

²⁸⁸ <https://traxtion.africa/sheltam/>

project management, project control and project engineering. For this purpose, 20 graduates from universities and universities of technology across South Africa participate in the programme, 10 in project management, five in project engineering and five in project control. The career development plan consists of a combination of intensive theoretical training and practical experiences that are aligned to the fundamental competency requirements in each of the focus areas. Each young graduate is assigned to a mentor, who monitors and assesses their progress throughout the program.²⁸⁹

Further, ABB South Africa, in conjunction with Business Sweden and The Ithemba Institute of Technology, embarked on learnerships in electrical engineering and machining/fitting and turning. Thirty beneficiaries from local townships such as Vosloorus, Kagiso and the broader Soweto area have been recruited to participate in this internship. These interns undergo a stringent theoretical curriculum and practical assignments in various ABB departments. The practical assignments seek to expose the learners to the ABB technology and equipment as well as ABB's culture.²⁹⁰

Actom, which is the largest manufacturer, solution provider, repairer and distributor of mechanical equipment in Africa, operates three apprenticeship training centres for all divisions and business units operating in South Africa. The first is a technical training centre at Knights (Germiston), which provides apprenticeship training for electricians, fitters, turners, fitters and turners, tool jig and die makers, welders and armature winders. It has an average annual intake of 30 to 40 apprentices. It also provides training for semi-skilled employees to qualify as artisans through the ATRAMI system, which has been institutionalised in the metal and engineering industries over a number of years. The second Actom technical training centre is under the auspices of John Thompson and operates from two sites in Bellville (Western Cape) and in Isando (Kempton Park), where training is provided for apprentice welders and boilermakers. The joint intake at the two sites is on average between 50 and 60 apprentices per year. The Isando facility also provides advanced training for qualified welders on site at Tutuka, Kendal, Komati and Mathimba power stations, which have satellite on-site

²⁸⁹ <https://new.abb.com/africa/careers/opportunities/graduates>

²⁹⁰ <https://new.abb.com/africa/careers/opportunities/students/internships>

training centres. The third Actom technical training centre is under the auspices of LH Marthinusen at Denver (Johannesburg). It provides apprenticeship training for armature welders and has an average intake of 20 to 30 apprentices. It also provides ATRAMI training. Actom's various business units also make use of university education and training, FET courses, registered (certificated) instructional/experiential training, occupational-directed training (non-certificated skills enhancement) as well as on-the-job training. Finally, Actom operates its own senior management training programme with a component that also provides mentorship in an attempt to enhance management skills throughout the Group.

5.2.4. Company access to information and support and relationships between employer associations, trade unions and collective bargaining

Employer associations and trade unions facilitate the provision of labour market information and a level of support at the company level, as detailed in the preceding chapter (on the metal fabrication value chain). The workplace forums and skills development committees provided companies of a particular size with the required interface between management and worker representatives to deal with labour market issues, including skills development at the company level. Further, the services provided by an independent assessor could assist the parties to introduce a more flexible five-grade structure and to develop productivity agreements as per the Main Agreement.

However, the outsourcing of non-core functions has raised fundamental questions about the nature of standard employment conditions. The Main Agreement, signed in 2014,²⁹¹ tended to provide agreement that details under which circumstances the use of labour brokers or outsourcing would be permissible:

“An Accredited certificate issued by the MEIBC certifying that the TES has undergone a verification audit and has met all the accreditation criteria as developed by the MEIBC, permitting the TES to operate as a Temporary Employment Service Provider in the Industry.

An employer who procures a worker or workers within the meaning of section 198 of the Act from a temporary employment service shall notify the region as defined in clause 3 of this Agreement in writing of the

²⁹¹ MEIBC : Metal Industry Settlement Agreement-1 July 2014-30 June 2017. 29 July 2014.

business name and physical business address of the temporary employment service concerned within seven days from the date on which the services of the worker or workers procured are utilised within that region or, if the services of such workers are already being utilised at the date of coming into operation of this subclause, within seven days of the date of coming into operation of this subclause.²⁹²

The MEIBC intended to engage a Labour Broker Compliance Officer, while the parties resolved to approach the Department of Labour to establish an Ombudsman to deal with issues of non-compliance or breaches to the agreement²⁹³. The SEIFSA affiliate the Constructional Engineering Association (South Africa) provided an organisational platform for the organisation and use of labour broker companies such as ADCORP and AMT by establishing a labour broking division, while SEIFSA provided for its accreditation. Fifty companies were accredited CEA members by November 2018.²⁹⁴

The location of the OEMs in these employer associations is critical to determining the dominant influences in the collective bargaining processes. SEIFSA associations such as the Constructional Engineering Association (South Africa) appears to have organised OEMs companies such as Alstom, Bell Equipment, Tomatsu South Africa and Liebherr-Africa (Pty) Ltd as its members.

NEASA claimed to have a presence of OEMs in its ranks, yet purported to represent and articulate the interests of SMMEs at the same time as pursuing a new collective bargaining model. It refused to sign the Settlement Agreement in July 2014 and, together with recently CEOSA and former SEIFSA affiliate the SA Engineers and Founders Association, opposed the extension of subsequent agreements to non-parties in 2017.

As noted, trade unions such as NUMSA, MEWUSA, UASA, Solidarity, CEPPWAWU, SAEWA and SEIFSA entered into a party agreement, a situation that impacts on vertical and horizontal equity in compensation for similar work performed.

²⁹² MEIBC : Main Agreement, Conditions of Employment, Section 20- Outwork, Temporary Employment Services and Limited Duration Contracts, clauses 3&4, July 2014

²⁹³ MEIBC : Metal Industry Settlement Agreement-1 July 2014-30 June 2017. 29 July 2014.

²⁹⁴ See MEIBC website: https://www.meibc.co.za/images/pdf/labour-brokers/CEA_LBD_Accredite-Companies_15_November_2018.pdf

5.3. Key challenges and recommendations

The capital and rail transport equipment value chain faces many critical challenges. First, the employment creation prospects while complying with the current labour legislation and the need to pursue a decent wage differs for the capital equipment and rail transport dimensions. This is reflected in the need for a more comprehensive localisation programme for the former, while the latter's development has been facilitated under the auspices of the procurement policies of SOEs such as Transnet and PRASA. However, it is not evident to what extent labour market dynamics have been factored into the localisation programmes of the specific initiatives. While skills development and BBBEE feature prominently in these programmes, certain potential problems could be ascertained when dealing with issues such as labour relations that impact on the occupational and grading structures that underpin skills development.

Importantly, the self-regulatory collective bargaining structures tasked with dealing with these vexing problems requires attention so as to ensure fairness and stability in the value chains. A critical element is the need for horizontal and vertical fairness in the determination of wages and conditions of employment within and between firms, involving a multitude of sectors and collective bargaining arrangements across the value chain while not losing sight of the existing labour market regulatory arrangements and the pursuit of decent work.

5.3.1. Employment creation prospects

What is significant is that many OEMs have not located production plants in SA, while a number of OEMs have originated and emerged in SA in the capital equipment component of the value chain. The procurement practices have led to the importation of capital equipment, despite observations that local manufacturing capability does exist. This has led to advocacy on the part of employer associations and individual employers for the local content of the industry to be increased substantially to between 50% and 70%. Further, changes in the current regulatory environment to support not only local exports is envisaged. This, together with supporting state initiatives such as the DTI's National Tooling Initiative (NTI) programme, which intends to raise the

competitiveness of the tool, die and mouldmaking (TDM) sector, as well as skills development programmes are considered critical.

The manufacturing of rail transport equipment has been aided by the localisation initiatives of SOEs such as Transnet and PRASA when procuring rolling stock. The development of local capacity by foreign-owned MNEs such as Bombardier Transport, Alstom and Transmashholding has led to the creation of a significant number of employment opportunities throughout the value chain. They have not only entered into joint ventures with local firms, but have incorporated significant local production capacity into their supply chains and have invested in skills development.

In addition to its Metal Fabrication, Capital and Rail Transport Equipment support programmes, the Trade and Industry Minister Ebrahim Patel at the Southern African Metals and Engineering Indaba in Johannesburg on 13 September 2019 committed government to, among others:

*“We are working on the Masterplan for the sector, we have met with metals and engineering sector stakeholders in an effort to ensure that they contribute to the formulation of the Plan. Subsequent to the meeting, we have received more than 40 submissions from industry players. I will be appointing a Facilitator so we can further engage the contributors and finalise the plan. The final Masterplan will be a concise, action-oriented and implementable plan”.*²⁹⁵

Further, although it is evident that SAAM is a leading example of how to approach the development of a masterplan for a value chain, how such a masterplan will incorporate multiple value chains that exist within the MEIBC’s scope – as illustrated by metal fabrication, capital equipment and rail transport equipment value chains – must be resolved.

5.3.2. Compliance with South Africa’s labour market legislation

While the MEIBC remains the central platform for the self-regulation of labour market issues, there have been certain problems. As noted, collective bargaining currently

²⁹⁵ SEIFSA: Metals and Engineering Sector Masterplan Key to Unlocking Growth Opportunities, Southern African Metals and Engineering Indaba, Johannesburg, 13 September 2019, <https://www.seifsa.co.za/metals-and-engineering-sector-masterplan-key-to-unlocking-growth-opportunities/>

remains among consenting parties without this being extended to non-parties in the sector. Thus, there are questions about how the current impasse among the parties can lead to the establishment of a new bargaining model and what implications it would have for the levels of self-regulation and equity of compensation for work performed.

The question is whether the party agreements should be extended to non-parties. Some of the arguments are that SMMEs should be entirely exempted from the Main Agreement. Further, it is argued that the current minima applicable to these enterprises should be reduced. These matters can only be resolved if representation issues among the employer associations in the MEIBC can be resolved, to enable the Minister of Employment and Labour to extend the agreement. The failure to do so could have implications for horizontal and vertical equity in wage determination and the pursuit of decent work.

5.3.3. The pursuit of decent work

The pursuit of the decent work agenda is being affected by various labour market dynamics under the auspices of the MEIBC. The non-extension of the agreements to non-parties and the fragmentation among the parties in the MEIBC, together with the tendency of some companies to seek relocation to other bargaining councils informed by re-demarkation, are major challenges. This could contribute to increasing wage differentials within and between firms.

The exemption system within the MEIBC has made it hard for companies to attain redress based on their specific circumstances. A number of companies have sought to move to bargaining councils such as MIBCO and regional based Building Industry Bargaining Councils that have lower conditions of employment such as hours of work and wage premiums than MEIBC.

Some of these companies could be part of this extensive value chain. Transnet and PRASA has boasted that the rolling stock being produced and assembled by leading MNEs such as Alstom, Bombardier Transport, CRRC E-LOCO, CRRC Dalian, GESAT and Transmashholding already involves more than 160 component suppliers, of which a significant percentage were large firms. MNEs such as MTU Africa (Pty) Ltd

(engines), Knorr-Bremse (brake system), SKF SA (bearings), Yongji SA (alternators and traction motors) and Aeroservices (toilets) are some of the locally-based component suppliers.

Although it is not clear how many companies fall under the jurisdiction of MEIBC or what their relevant employer class size is, the lack of horizontal and vertical equity in compensation for similar work performed can become a serious issue in collective bargaining processes and can negatively impact on the value chain's stability. A source of such instability could be the scope of application of the wage settlement agreement, including the changes in the grading system in MEIBC. The party wage agreement between SEIFSA affiliates and MEWUSA, NUMSA, SAEWA, SOLIDARITY and UASA for the period ending June 2020, which differs from arrangements for members of NEASA, CEOSA, PCASA and SAEFA and other non-parties, could induce vertical and horizontal wage inequities, particularly between firms in the engineering and metal industries.

5.3.4. Recommendations

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Hence the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime for the envisaged Metal and Engineering Sector Masterplan.
- Develop a clear understanding of the nature of value chain activity in the metal and engineering sector owing to the existence of multiple value chains.
- Resolve the demarcation issues involving MEIBC and other bargaining councils such as MIBCO.
- Facilitate a discussion between parties involved in MEIBC to attain consensus on the scope and modus operandi of MEIBC.
- Establish a process to resolve the wage determination issues such as wages linked to occupational, grading and skills issues.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties.

6

THE AUTOMOTIVE VALUE CHAIN

South Africa's motor industry contributes approximately 7% to GDP. The automotive GVC is largely defined by the activities of original equipment manufacturers and their suppliers. The latter involve the supply of components such as catalytic converters, engines, engine parts, tyres, road wheels, automotive tooling, wiring harnesses, silencers, exhausts, stitched leather components, seat covers and automotive safety glass. The suppliers of these components are multilayered and classified as tier 1, 2 and 3 suppliers. There were approximately 500 component suppliers in 2017.

The production of light vehicles and, to a lesser extent heavy vehicles, is exclusively dominated by a determined number of foreign headquartered MNE-type OMEs. Seven OMEs are producing light vehicles and nine are producing medium and heavy commercial vehicles and bus assemblers. The main car/light vehicle manufacturers include BMW, Ford Motor Company, Isuzu, Mercedes-Benz, NISSAN, Toyota and Volkswagen. The heavy commercial vehicle manufacturers are Bell Equipment, Eicher Trucks (VECV), FAW Trucks, Iveco, Isuzu Trucks, MAN Automotive, MarcoPolo, Mercedes-Benz, Powerstar, Scania, TATA Motors, Toyota, VDL Bus & Coach and the Volvo Group. They tend to produce models for both the internal and external markets, as designated by internal company-level GVCs processes. The sourcing of inputs and the marketing of the vehicles locally and internationally are determined by the assemblers. They also tended to import models/brands that are not locally produced. These company-level GVCs are essentially producer-dominated.

While the seven OEMs are wholly-owned subsidiaries of MNEs, only 75% of the 120 tier 1 component producers are subsidiaries of MNEs, such as Faurecia, Johnson Controls, Mothersons, Yazaki, Sumitomo, Bosch and Behr. It is alleged that Tier 2 and 3 producers are primarily locally-owned companies.

6.1. Dimensions of the automotive GVC

The President of NAAMSA and President and CEO of Toyota South Africa Motors, Mr Andrew Kirby, outlined five critical challenges the value chain faced:

- “Respond to Market Changes
- Optimise Regional Integration
- Establish Infrastructure as an Enabler
- Achieve Global Competitiveness
- Develop an Inclusive Value Chain”.²⁹⁶

Responding to the great many market changes involves understanding market opportunities in SA and Africa, as SA has the potential to be the gateway to Africa. We need to respond to global disruptors, changing customers and changes in retail trends to optimise market potential. This involves the development of regional value chains with particular reference to the African continent. In this context, new vehicle sales could reach 2 million in the next five to 10 years. Trade measures in the form of free trade agreements could facilitate such developments. The existing SADC free trade agreement and the ratification of the TFTA – SADC, COMESA and EAC are critical to the pursuit of this objective. Continental free trade could be cemented with the conclusion of ACFTA.

However, the logistics of developing the automotive industry in Africa involves the development of appropriate road and rail infrastructure. Further, the availability of cleaner fuels and alternate energy source fuels provide additional challenges. It is imperative that global competitiveness relative to continents and countries producing the same or similar inputs/supplies and models such as the Americas (Mexico, Brazil, and the U.S.) be achieved. In this context, an inclusive regional value chain be developed. An examination of the various dimension of the value chain will provide insights about the nature of these challenges.

²⁹⁶ Andrew Kirby: Challenges facing the auto value chain, NAAMSA Automotive Conference, 2018.

Table 17: Dimensions of the value chain for the automotive industry

Issues	Suppliers/Inputs	Production capacity, technology and innovation	End-markets and trade	The governance of value chains	Value chain finance	Business environment
Industry	Tiers 1, 2 and 3 drawn from the engineering, motor leather, tyre and rubber industries	Automotive industry value chain	Aftermarket sales and (including to OEMs) export sales of components	Governance of value chains at an industry level is informed by the activities of associations and labour unions, as reflected by the establishment of ASCCI	Incentive programmes available to component producers and vehicle assemblers	1. The provision of the required infrastructure such as roads, rail and skills development facilities at an industry level 2. Automotive Production and Development Programme APDP) and relevant policies critical to the development of the value chain
Policy support	APDP	APDP	APDP	The policy support is provided by the DTI in collaboration with the employer associations and labour unions as reflected by the APDP	Incentive programmes available to component producers and vehicle assemblers such as the Automotive Investment Scheme (AIS)	
Associations	National Association of Automotive Components and Allied Manufacturers (NAACAM)	The National Association of Automobile Manufacturers of South Africa (NAAMSA)	Retail Motor Industry Organisation (RMI) and the Fuel Retailers Association of South Africa	NAAMSA members primarily involve foreign-owned MNEs who dominate the value chain		

GVCs – industry	Numerous engineering, motor, leather, tyre and rubber industries	Support of numerous MNEs such as BMW, VW, ISUZU, Toyota, Mercedes, NISSAN and Ford and tier 1,2&3 component producers	Locally produced and imported light and heavy vehicles	Automotive Supply Chain Competitiveness Initiative (ASCCI) established in December 2013		
GVCs – company	Numerous engineering, motor leather, tyre and rubber industries. Some are MNEs, such as NGK, Umicore, Cataler, Cannors, Benteler and Eberspächer	Individual MNEs such as BMW, VW, ISUZU, Toyota, Mercedes, NISSAN and Ford	Dealerships linked to MNEs selling products locally and facilitating imports. Aftermarket sales of components	MNEs locally producing vehicles for the local market and exports and importing finished products and locally and globally sourcing inputs/supplies that meet its specific operational standards		

6.1.1. Suppliers/Inputs

South Africa's OEMs rely on around 400 component manufacturers that produce a wide variety of parts, such as catalytic converters, exhaust systems, trim, harnesses, electronics, just-in-time assemblies, bearings, shocks, filters, machined and plastic components and tyres. By 2008, SA had approximately 278 tier 1 component suppliers that supply directly to OEMs, and more than 300 tier 2 and tier 3 suppliers. Tier 1 suppliers became increasingly dominated by imports, while tiers 2 and 3 primarily involved local producers, despite SA's tier 1 suppliers producing at levels benchmarked as near the operational standards required by OEMs.

*“These tier classifications indicate the manufacturers’ role in the automotive value chain. First tier suppliers produce components that are supplied to the vehicle assemblers and aftermarket retailers (MPL and Bentley West, 2005). Tier 2 and Tier 3 suppliers then provide a range of parts to Tier 1 supplier and assemblers. As international automotive production has become increasingly globalised, South African firms have progressively opted to merge with the strategic operations of their parent companies. In turn, this has progressively led to the foreign sourcing of components. In the case of the local production of components, there is therefore a decreasing presence of locally owned component suppliers, and very few component suppliers using local technology (Barnes and Kaplinsky, 2000)”.*²⁹⁷

This represents the most effective area for the increase of local content production. Our major competitors in countries such as Turkey, Thailand and Mexico have attained 60% of local content production.

6.1.2. Production capacity, technology and innovation

Investment to increase the production capacity, technology and innovation of OEMs has increased in the past 10 years from approximately R3 billion to R8 billion in 2017, as demonstrated in *Table 19: Aggregate annual capital expenditure, 2007 to 2017*.

²⁹⁷ Justin Barnes and Briana Meadows: On the Brink? Skills Demand and Supply Issues in the South African Automotive Components Industry, Sector Studies Research Project, Research Commissioned by Department of Labour South Africa, March 2008.

Similarly, the growth in value addition in parts supplied to OEMs has increased annually from R41.7 billion in 2013 to R61.1 billion in 2017. This increase could be attributed to an increase in new model launches by OEMs.

Table 18: Growth in aggregate local content by the seven major light vehicle producers, 2013 and 2017					
Year	2013	2014	2015	2016	2017
Rand value of investment	R41.7 billion	R46.9 billion	R52.8 billion	R58.3 billion	R61.1 billion

However, it is alleged that the percentage contribution to local content has decreased to 38% in 2017 compared to those of competing countries such as Mexico, Turkey and Thailand. The decrease in local content should be ascribed to what NACAAM considers to be

“a number of factors including a general movement towards assembly (as opposed to manufacture) by many Tier 1s, step changes in underlying Tier 2 technologies with the absence of corresponding investment by local Tier 2s, and a generally underdeveloped Tier 2 environment. While this is potentially concerning, it could also be interpreted as representing opportunities to the value of R15.64bn for Tier 2 supplier investment and competitive revitalisation.”²⁹⁸

Existing capacity utilisation in the auto sector suggests that there is still room to increase the existing capacity usage. However, the OEMs envisage increases in export volumes that would require increases in local capacity. This would have certain spin-offs for component producers. Local component producers have nonetheless experienced increased demand for components for the OEMs and the aftermarket as well as increased exports. Further, upgrading was required both in performance and volume in the production of components for the OEMs and the requirements of the South African Automotive Masterplan 2035. Durban Automotive Cluster (DAC) facilitator Meghan King argued that “An additional 500 suppliers are required, with at least 25 percent of them being black-owned to reach SAAM objectives”.²⁹⁹

²⁹⁸ NACAAM Profile and interview with CEO, Renai dated 9 October, 19 & 28 November 2018.

²⁹⁹ Majola, Given: Automotive component industry in need of 500 suppliers, IOL, Business Report, <https://www.iol.co.za/business-report/companies/automotive-component-industry-in-need-of-500-suppliers-33244653>, 19 September 2019, 3:00PM.

Table 19: Aggregate annual capital expenditure, 2007 to 2017

Capital expenditure	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Product/Local/Content/ Export investment/ production facilities	2 458.7	2 807.7	2 215.9	3 351.1	3 522.7	3 837	3 605	6 092	5 948.5	5 146.1	7 144.6
Land and buildings	382.4	329.1	178.7	441.2	176.4	432	424	478	190.5	905	301.4
Support infrastructure (IT, R&D, technical, etc.)	254.4	153.1	74.1	202.4	203.6	409	319	347	464.3	363.5	724.6
Total	3 095.5	3 289.9	2 468.7	3 994.7	3 902.7	4 678	4 348	6 917	6 603.3	6 414.6	8 170.6

Table 20: Average motor vehicle assembly Industry capacity utilisation levels by sector and for the years/quarters

	2012	2013	2014	2015	2016	2017	1st quarter 2018	2nd quarter 2018
Cars	86.5%	68.0%	67.0%	80.4%	76.0%	78.0%	74.4%	83.4%
Light commercial vehicles (LCVs)	87.8%	75.3%	80.5%	80.6%	77.9%	85.3%	74.1%	66.7%
Medium commercial vehicles (MCVs)	84.3%	59.8%	85.7%	97.6%	88.5%	82.9%	69.9%	60.3%
Heavy commercial vehicles (HCVs)	86.9%	69.3%	80.7%	77.4%	80.0%	69.7%	60.5%	55.1%

6.1.3. End-markets and local and global trade

South Africa is ranked 21st internationally in terms of production and contributed approximately 0.64% of global vehicle production of 88 million vehicles each year between 2010 and 2017 (see Table 21 and Table 22). The aim for the local automotive industry is to grow SA vehicle production, predominantly through exports, as a percentage of global production by 2020. In 2017, SA-based OEMs supplied 263 085 (53.8%) of its production of 601 178 vehicles to the SA market, while 338 093 (56.2%) was for exports. Total domestic production constituted 0.62% of the global market share of 97.3 million vehicles.

The bulk of its exports, 190 503 or 56.3%, goes to the European market, while the African market only absorbs 6.5% or 21 848 of domestic production. While Asia and Australasia are considered as having future growth potential, the African market is being perceived as a future growth area if a regional automotive GVC is developed. Former DTI minister Alec Erwin urged South Africa to speedily enter into regional trade relationships in Africa at the National Association of Automobile Manufacturers of South Africa conference at the Festival of Motoring in 2018 by working with the African Association of Automotive Manufacturers:

*“South Africa needed to think about its strategy and galvanise itself into action quickly, because the African Continental Free Trade Agreement had the intention to lower 90 percent of all tariffs to zero in six to 10 years. He said South Africa could in a few years outcompete everyone in Africa, because it would have zero tariff access, but three years later the whole of Africa would revolt against it... Erwin said an ideal vision would be, for instance, for 200 000 units a year of a specific vehicle model to be manufactured in Nigeria that was supplied to a group of countries, including South Africa, and 150 000 units of another to be manufactured in South Africa and supplied to the same group of countries”.*³⁰⁰

Further, the component manufacturers can also benefit not only by supplying local based OEMs and the aftermarket but also through its export activities, which constituted 27% of total domestic production in 2016.

³⁰⁰ Cokayne, Roy: Erwin urges pacts to keep SA car industry afloat, Business Report, Economy, IOL, 4 September 2018, 07:00AM, <https://www.iol.co.za/Business-Report/Economy/Erwin-Urges-Pacts-To-Keep-Sa-Car-Industry-Afloat-16871794>.

Table 21: Vehicles produced in SA for the local and export markets, 2008 to 2017

Vehicle type	Markets	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cars	Domestic market	125 454	94 379	113 740	124 736	120 417	113 356	122 610	112 566	97 824	100 354
	Export	195 670	128 602	181 654	187 529	153 268	151 893	154 920	228 459	238 546	230 957
	Total	321 124	222 981	295 394	312 265	273 685	265 249	277 530	341 025	336 370	331 311
Light commercial vehicles (LCVs)	Domestic Market	118 641	85 663	96 823	108 704	121 638	127 051	137 044	140 310	130 364	136 438
	Export	87 314	45 514	56 950	84 125	123 448	121 345	118 585	102 664	105 219	106 148
	Total	205 955	131 177	153 773	192 829	245 086	248 396	255 629	242 974	235 583	242 586
Medium and heavy commercial vehicles (MCVs/HCVs)	Domestic market	34 659	18 934	22 021	26 656	27 841	30 924	31 558	30 535	26 997	26 293
	Export	1 227	861	861	803	1 076	1 206	1 414	1 124	1 057	988
	Total	35 886	19 795	22 882	27 459	28 917	32 130	32 972	31 659	28 054	27 281
Total domestic production		562 965	373 923	472 049	532 553	547 688	545 775	567 904	617 683	600 008	601 178
Total aggregate exports		284 211	174 947	239 465	272 457	279 606	276 404	276 936	338 847	344 821	338 093

(source: NAAMSA: Quarterly review of business conditions: New motor vehicle manufacturing industry / automotive sector: 1st quarter 2016 to 3rd quarter 2018)

Table 22: South Africa's share of global new vehicle production (in millions of vehicles produced)										
	2000	2006	2010	2011	2012	2013	2014	2015	2016	2017
Global production	58.4	69.33	77.61	79.88	84.14	87.27	89.77	90.84	95.06	97.30
SA's production	0.357	0.588	0.472	0.533	0.547	0.546	0.568	0.617	0.600	0.601
SA's share of global production	0.61%	0.85%	0.61%	0.67%	0.65%	0.63%	0.63%	0.68%	0.63%	0.62%

(source: NAAMSA: Quarterly Review of Business Conditions: New motor vehicle manufacturing industry / automotive sector: 1st quarter 2016 to 3rd quarter 2018)

6.1.4. Auxiliary services: Sustainable production and land, water and energy use

The utilisation of cleaner fuels and alternate fuel sources

While the OEMs are increasing investment in areas such as land, buildings and support infrastructure to develop its production capacity, a number of overarching challenges prevails if an enabling environment is to be established to facilitate the growth of the industry locally and in Africa. NAAMSA President Andrew Kirby emphasised the importance of developing a more comprehensive approach to clean fuels in Africa, which lags behind the European market. The lack of a regulatory framework required to introduce cleaner fuels, coupled with the need to adopt advanced engine technology, has significant cost disadvantages when responding to diverse market requirements.

Further, a roadmap for alternative energy source fuels must be developed. Although charging stations are expanding, they are not catering to consumer expectations. Uncertainty of market growth and the costs of electric vehicles will further hamper infrastructure development.

The road, rail and port infrastructure

There are not enough roads, and a deteriorating infrastructure and increasing traffic congestion will retard the growth of motorisation and the introduction of autonomous vehicles.

Transport logistics are also critical to the development of a competitive advantage. Cargo capacities at critical ports need to be developed by addressing the berthing arrangements at quays and flexible wagon load configuration to optimise rail load capacity are some of the issues raised by Kirby. Visible interlinkages between various modes of transport also help to reduce costs and risks.

6.1.5. The governance of value chains

It is evident that the standards set for supplier requirements to local manufacturers are high, and local component producers find it hard to comply with them.

South Africa has had a history of MNEs (both as OEMs and input/suppliers) developing localised production capability in the automotive industry. Individual MNEs have organised into associations such as NAAMSA for OEMs and NAACAM to deal with shared interests. In December 2013 they, together with the DTI and NUMSA, established the Automotive Supply Chain Competitiveness Initiative (ASCCI) to co-ordinate supply chain developments in the automotive industry. It identified six critical challenges for intervention:

- *“Uncompetitive operating efficiencies;*
- *Uncompetitive input costs, and in particular material costs;*
- *Limited investment in new process and product technology;*
- *Inadequate economies of scale;*
- *Limited economic transformation;*
- *Unconducive policy and regulatory environment”.*³⁰¹

ASCCI entrusted an executive committee with pursuing key objectives to increase supplier manufacturing value add (MVA) and to increase employment. It also had to enable local supply chain capabilities, increase local content and advance transformation. To address supplier capability and localisation, it had to embark on activities to bolster supplier production capabilities, increase local content, spanning competitive local material inputs to investment in new supplier process technologies. This required the development of the necessary strategies to deal with critical policy, regulatory and related issues that influence growth in supplier MVA. Thus, they had to, among others:

- *“Formulate a national competitiveness improvement strategy;*
- *Monitor and coordinate support to regional industries;*
- *Initiate, support and fund localisation research projects;*
- *Engage with local and provincial authorities on the development of local automotive sectors and clusters”.*³⁰²

The situation became even more complex when one considers the upstream activities or suppliers of component manufacturers. Component producers rely on SA-produced

³⁰¹ Automotive Supply Chain Competitiveness Initiative (ASCCI) Brochure, 2013.

³⁰² Automotive Supply Chain Competitiveness Initiative (ASCCI): ASCCI Quarterly, July-September 2013. p5.

materials such as aluminium, brass, leather, platinum group metals, raw automotive glass, stainless steel and steel to produce among others alloy wheels; aluminium products (engine and transmission components, heat exchangers and tubes, suspension components and heat shields); cast iron components (engine/axle/brake/transmission and related types of components); catalytic converters; flexible couplings; leather interiors; machined brass components; and steel jacks.

Roughly 70% of SA's main tier 1 component manufacturers that supply OEMs are NAACAM members. About 110 (tier 1) of the 125 NAACAM members supply to automotive OEMs and aftermarkets. This constitutes 63% of its annual turnover, with exports making up approximately 34% of its turnover. The producers of components such as catalytic convertors, tyre manufacturers, leather producers and engineering components are not NAACAM members, nor are they located in the motor industry as defined by MIBCO's scope. Some are in the engineering industries such as leather, tyre and rubber and engineering, as defined by the scope of the respective bargaining councils.

6.1.6. The business environment and the socio-political context

The Australian experience has demonstrated the importance of the business and socio-political environment. It is imperative that the necessary support policies be established to sustain the development of an automotive industry in South Africa and Africa.

Historically, South Africa has had a well established motor industry with requisite government support since 1961. Between 1961 and 1995, government provided support through a five-yearly six-phase Local Content Programme, which was eventually replaced by a multistakeholder-supported Motor Industry Development Programme (MIDP) in September 1995:

“The MIDP reduced tariffs and provided strong support for exports. The result was rapid export expansion, although the sector remains vulnerable to declining support. Domestic consumers have far greater choice but soaring vehicle and parts imports have contributed to a

*growing trade deficit. Progress has been made in rationalising the industry but it still operates below minimum efficient scale. Growing investment and much higher levels of foreign ownership have modernised the sector and integrated it into global production networks. But the orientation of MNCs is towards the domestic market and South Africa is a long way from being a true export platform for global firms”.*³⁰³

Although vehicle exports increased from 11 553 in 1996 to 277 893 in 2012, a revised support instrument the Automotive Production and Development Programme (APDP) was introduced in 2013 and included support for the component manufacturers. It revolved around the establishment of stable import tariffs, Vehicle Assembly Allowance (VAA), Production Incentive (PI) and an Automotive Investment Scheme (AIS) to ensure compliance with WTO requirements and to eliminate unintended MIDP consequences.

In November 2018, the government announced the newly developed long-term strategic plan for the industry, SAAM, which focusses on local market optimisation; regional market development; localisation; infrastructure development; industry transformation and technology and associated skills development. The APDP was subsequently amended to support SAAM and its lifespan was extended from 2021 to 2035.³⁰⁴

6.2. Employment, labour market issues and skills development

It is evident that the automotive sector value chain has become one of the most significant contributors of the manufacturing sector to SA's GDP and employment growth, especially more recently. Value chain developments have also significantly impacted on its labour market and skills development dynamics. The value chain traverses various statutory bargaining councils and non-statutory central bargaining forums, with the NBF, MIBCO and to a lesser extent MEIBC being the most important.

³⁰³ Barnes, J and Black, A: The Motor Industry Development Programme 1995-2012: What have we learned?, International Conference on Manufacturing-led Growth for Employment and Equality, Johannesburg, May 2013.

³⁰⁴ Department of Trade and Industry (DTI): Minister Rob Davies media statement on the South African Automotive Masterplan 2035 and the Extension of the Automotive Production and Development Programme with amendments, 23 Nov 2018.

Most of the skills development activities are concentrated in merSETA. The OEMs involved in the NBF and merSETA constitute the lead companies seeking to facilitate some stability through some form of rationalisation.

6.2.1. Employment trends

The current automotive sector value chain is a significant employer of labour. Its OEMs collectively employed on average 30 500 people since 2014. The estimated employment of the component manufacturing sector at the end of 2016 was 82 000.

Table 23: Average monthly employment levels in SA's new vehicle manufacturing industry, 2000 to 2018				
2014	2015	2016	2017	2018
29 715	31 260	30 953	30 050	30 265 (30 September)

(source: NAAMSA: *Quarterly review of business conditions: New motor vehicle manufacturing industry / automotive sector: 1st quarter 2016 to 3rd quarter 2018*)

Econometrix has estimated that, for every job opportunity created in the auto manufacturing industry, 8.4 jobs (a total of 468,502) are created in the overall economy.³⁰⁵ According to NUMSA, “Of the close to 500,000 people directly employed in the automotive industry in 2014

- 112,734 (23%) are employed in the manufacturing of motor vehicles and components;
- approximately 385,819 (77%) are employed in the combined sales and maintenance-related sectors”.³⁰⁶

³⁰⁵ Johannes Jordaan, Jeffrey Dinham, Ilse Fieldgate & Sam Rolland: Economic & socio-economic impact of SA automotive industry, Econometrix, NAAMSA Conference, August 2018.

³⁰⁶ Melanie Roy: Building Transnational Solidarity Across Global Value Chains -A South African Perspective -Part A, NUMSA Economic & Policy Institute, 2017.

Table 24: Labour market and skills dimensions of SA's automotive value chain

Issues	Company-level bargaining	Statutory centralised bargaining	Non-statutory centralised bargaining	Global Framework Agreement (GFA)
Industry	Unknown	MIBCO, MEIBC	National Bargaining Forum (NBF)	<ul style="list-style-type: none"> • 44 Global Framework Agreements with MNEs • NUMSA/IndustriALL Global and OEMs such as BMW, Bosch, Daimler, Ford, MAN, Mann & Hummel, PSA Peugeot, Citroen, Renault, Saab, SKF and Volkswagen
Employment	Unknown	82,000 component manufacturing companies organised by NAACAM in 2016	Unknown	
Skills programme	merSETA & inhouse skills development	merSETA	merSETA & inhouse skills development	
Employer associations	Arrangements of Companies affiliated to NAACAM/AMEO-NAAMSA or SAACSA and the New Tyre Manufacturers' Association	Retail Motor Industry Organisation (RMI)	Automobile Manufacturers Employers Organisation (AMEO-NAAMSA)	
Trade unions	NUMSA/MISA/SAWU	NUMSA/MISA/SAWU	NUMSA	
Industry-level GVC	Unknown	N/A	ASCCI	
Company-level GVC	Various	MIBCO, MEIBC, Bargaining Council the New Tyre Manufacturing Industry, Leather Bargaining Council	N/A	

6.2.2. The labour market regulatory environment and wage determination

The automotive industry's labour market dynamics appears to be more challenging. While NUMSA, together with NAAMSA and NAACAM, was integral to the value chain initiative, processes to determine conditions of employment and wages spanned at least three centralised bargaining forums. Other collective bargaining forums come into consideration, more so when dealing with upstream activities.

Although the governance of labour markets of various industries in the value chain exhibit high self-regulation, the processes to determine conditions of employment and wages vary. The collective bargaining processes are fragmented, in accordance with various cited typologies. The component producers are essentially involved in a number of collective bargaining forums that exhibit various degrees of self-regulation. Apart from the dominance of statutory and non-statutory forums, the location of enterprises within these forums usually means adherence to different dynamics of associational life, pending membership of an employer association. Company membership of employer associations involved in MIBCO and MEIBC, albeit both statutory forms of centralised bargaining, means that the availability of inputs/supplies can be subject to the processes of the specific collective bargaining processes. Component producers who are members of employer associations belonging to MIBCO, the NBF or the Bargaining Council for the New Tyre Manufacturing Industry do not have a similar presence in MEIBC, where SEIFSA and NEASA have a significant presence. Only % of its members are direct suppliers to OEMs. A recent Tridevworx survey demonstrated the diverse experiences of companies involved in MEIBC and MIBCO.

While NUMSA is the biggest union in industries involved in the value chain, a number of unions involved in the various collective bargaining councils are involved in the determination of conditions of employment and wages for workers involved in various dimensions of the value chain; these are not specific to the automotive industry. Further, the use of labour brokers has also raised fundamental questions about employment conditions.

In 2010, the automotive industry agreed to establish a statutory bargaining council inclusive of the existing NBF. Further, it agreed in 2016 to pursue the establishment of such a council inclusive of parties outside the NBF:

“The objectives and functions of the proposed broader collective bargaining forum are as follows:

6.2.1. To pursue the possible establishment of a broader collective bargaining forum involving inter alia representatives from the Automobile Manufacturing Industry, Motor Components sector, Vehicle Body Building, Bus Building and Tyre Sectors.

6.2.2. To determine appropriate levels of collective bargaining and to allocate bargaining subjects to designated level. The parties in this context agree that, subject to the outcome of future consultation and the views of the other parties, the desired structure of this collective bargaining forum should be in the form of separate bargaining chambers/chapters for each industry sector... There should furthermore be clear delineation between the substantive bargaining and consultative topics and bargaining modes.

6.2.3. To link with other important structures at National, Regional and Industry level.

6.2.4. To take whatever steps are necessary to support and facilitate more informed and functional collective bargaining in support of initiatives to secure the long-term viability of the Motor Industry.

6.2.5. To seek consensus with employer and union representatives on the establishment of the proposed forums.

*6.2.6. To negotiate the constitution, if so agreed, of the proposed forum and its registration under the Labour Relations Act”.*³⁰⁷

This extraordinary provision in the agreement expresses the need to create a collective bargaining forum to engage in value chain bargaining. While the OEMs have historically been excluded from being part of both the MEIBC (or its predecessor, NICISEMI) and MIBCO (or its predecessor, NICMI), it challenged the prevailing demarcations of these bargaining councils owing to it having jurisdiction over component manufacturers. The fragmentation of collective bargaining arrangements was considered disruptive and therefore inconsistent with value chain requirements.

The discussion not only involved a demarcation of the jurisdiction of collective bargaining structures, but also a restructuring of collective bargaining arrangements consistent with the requirements of value chain bargaining. In this context, MIBCO

³⁰⁷ Automobile Manufacturing Industry: NBF Agreement on Wage Increases and Conditions of Employment for the Period-July 1, 2016-June 30, 2019, p14-15.

embarked on a process to review its operations.³⁰⁸ The ILO-funded research by Shane Godfrey primarily focusses on three of four identified critical issues:

“The research points to four critical issues that need to be addressed at MIBCO:

- (a) The antagonism and distrust between the MIBCO parties;*
- (b) The inefficiency of the bargaining process;*
- (c) The complexity of the current MIBCO agreement and structure (as well as other aspects of the agreement) and the impact this has on negotiations; and,*
- (d) The realignment of sectors to create a new bargaining structure (or structures) and the implications for MIBCO.*

*The focus of this research is mainly on the second, third and fourth issues”.*³⁰⁹

Recommendations are made about a process to be followed and options to be considered in relation to these issues by the parties within and outside MIBCO. Some of the considerations are based on a more comprehensive picture of the value chain’s needs, since MIBCO deliberations are impacted on by those of the NBF. Further, the situation has been compounded as component companies, although one, two or three companies challenged its respective location within the MEIBC or MIBCO, as reflected in Labour Court Case No. PR 3/18.

The problem lies in the demarcation determination in terms of the Industrial Conciliation Act, No. 28 of 1956³¹⁰, when particular production processes prevailed in the companies located in various industries. Changes in production processes that increasingly emphasised the importance of value chains as well as changes to the regulatory regime required a review of existing demarcations of collective bargaining structures. Although the 1996 Commission to Investigate the Development of a Comprehensive Labour Market Policy established broad principles for such as review, and NEDLAC was empowered to effect such a review, changes to the identity of NICISEMI to MEIBC and NICMI to MIBCO did not result in substantial alterations in the demarcation of the jurisdictions of collective bargaining structures.

³⁰⁸ Interview with Tom Mkhwanazi, CEO of MIBCO held on 28 November 2018 and Gordon Edwards, acting CEO held on 12 April 2019. Discussions were also held with Shane Godfrey on 13 December 2018. See also Godfrey, Shane: A review of MIBCO’s collective bargaining model, Labour and Enterprise Policy Research Group, University of Cape Town, 12 June 2017.

³⁰⁹ Godfrey, Shane: A review of MIBCO’s collective bargaining model, Labour and Enterprise Policy Research Group, University of Cape Town, 12 June 2017, p

³¹⁰ Note that on 30 November 1962 the relevant Minister published the determination of the Industrial Tribunal in terms of section 76 of the ICA, 28 of 1956.

If a new collective bargaining model is to be pursued, a number of issues must be addressed to deal with the challenges posed by value chain activities.

6.2.3. Grading and skills development

The collective bargaining models of both the NBF and MIBCO are underpinned by a grading structure informed by skills that facilitate a level of vertical and horizontal equity in compensation for the performance of similar work.

*“Comrie et al highlight skills deficiencies in the automobile assembly and components sectors, but particularly the latter. The major skills that need to be upgraded are world class manufacturing, management and supervisory, and technical skills. Their research shows that the base qualification of many employees at all levels in firms is a Grade 12 or its equivalent supplemented by years of practical experience. They state, however, that such qualifications are no longer adequate given modern production methodologies and advances in technology, which is changing the skills needed by firms. The merSETA has responded to the demands of the sector, in particular through projects such as the Accelerated Artisan Training Programme, but it seems that the SETA has not satisfied demand”.*³¹¹

Minister of Trade and Industry, Rob Davies, added that “locally based vehicle manufacturers have increased spending on training from R177-million a year, in 2013, to R574-million, in 2017”.³¹²

(a) Skills-based grading, training and work organisation

(i) The National Bargaining Forum Collective Bargaining Agreement

Over a substantial period, SA’s automobile sector has developed a system of job grading and work organisation in which skills is a key factor in wages and compensation of employees. This process acquired a clearer institutional structure from the mid-1990s when trade unions, at the behest of NUMSA and automobile employers, introduced a more systematic place for skills recognition and compensation in bargaining and wage agreements. Thus, the current NBF Agreement reflects this outlook, but the principle and logic that underpin this and earlier

³¹¹ Comrie et al, 2013: 8 & 34

³¹² Irma Venter: “Toyota, VW developing seven black component suppliers, says DTI’s Davies”, Engineering News, Creamer Media, 9th November 2018

agreements have also been incorporated into merSETA's policies. To elaborate a skills-based grading, training and work organisation outlook, it is pertinent to first elaborate its specification in the most recent NBF Agreement on Wage Increases and Conditions of Employment.³¹³

While one can discuss skills on its own merits (as we will do first), it is also important to recognise that skills and skills grading are intimately linked to compensation, which will be addressed second. The principle that underlies the NBF Agreement is the promotion of flexibility in the workplace, with education and training as the means by which broad generic skills are secured for the sector. In principle, this is meant to overcome the narrowness of task-based training. Competency in core skills areas such as communications and mathematics are seen as key prerequisites for effective work organisation and technical skills formation. A conscious attempt is made to enable employees to perform work that corresponds to their certification and competency. Thus, the NBF Agreement emphasises two interrelated components: a skills-based grading structure complemented by education and training designed to support changes in work organisation. This is meant to contribute to a highly educated workforce that undertakes rewarding work, which generates vehicles for domestic and international markets. The NBF Agreement emphasises the importance of:

- *“Creating a structure allowing the opportunity for an integrated career path with appropriate education, training and experience for those participating in the structure. Such structure must be aligned to the NQF’ (6.1.3);*
- *‘Facilitating flexible work organisation to meet the individual manufacturers’ and their workforces’ needs (6.1.4)’.*

Under the NBF, the skills structure of employees covered by the agreement extend across seven skills levels (from level 1 to level 7). Level 5 is equivalent to the artisanal level. A skill classified at level 6 can only be attained by artisans with level 5 skills and is commonly reserved for artisans who have qualified for the following eight trades: automotive electrician; electrician (engineering); electronics equipment mechanic; fitter; machine tool setter; motor mechanic; tool, jig and die maker; and turner machinist. The broad guideline that differentiates between skills level and qualification

³¹³ Automobile Manufacturing Industry, NBF Agreement on Wage Increases and Conditions of Employment for the Period: July 1, 2016 – June 30, 2019.

appears in Table 25. This broad guideline also gives the quantum equivalent of artisan modules that have been reached for each skills level.

Table 25: Skills structure of employees covered by the NBF agreement, 2016 to 2019		
Skills level	Qualification	Quantum equivalent
Level 1	Certificate 1	20% artisan module
Level 2	Certificate 2	40% artisan module
Level 3	Certificate 3	60% artisan module
Level 4	Certificate 4	80% artisan module
Level 5	Artisan Trade Certificate	100% artisan module (these include the 8 trades mentioned above and other additional trades where artisan qualifications are offered)
Level 6	Artisan Trade Certificate	120% artisan module but covering the 8 trades mentioned above
Level 7	Multi-skilled certificate	140% artisan module artisan certificate (Technician Certificate)

(source: *Automobile manufacturing industry, NBF Agreement on Wage Increases and Conditions of Employment for the period: July 1, 2016 – June 30, 2019*, p. 69)

(ii) The MIBCO Collective Bargaining Agreement

The following analysis is based on the evidence of job grading as specified in the Main Collective Agreement of MIBCO, covering both parties and non-parties.³¹⁴ However, the MIBCO Agreement expired on 31 August 2019. Because a new agreement is still under consideration, with a likelihood also that evidence relating to job grading may change, necessitating a revision to the present discussion, this will only be clear when a new MIBCO agreement becomes available for scrutiny. Until such time, the discussion of the skills-based grading, training and work organisation under MIBCO will be based on the existing agreement, which expired on 31 August 2019.

³¹⁴ Bargaining Council for the Motor Industry (MIBCO): Extension to Non-Parties of the Main Collective Agreement, Government Gazette, No.40771, 7 April 2017.

The existing MIBCO agreement highlights the diversity of the motor industry by designating it as consisting of establishments spread across seven sectors:

- Manufacturing and vehicle body building establishments (sector 1);
- Manufacturing (production) establishments (e.g. component manufacturers and remanufacturers) (sector 2)
- Reconditioning establishments (sector 3)
- Service and repair establishments (sector 4)
- Fuel dealers, service stations and related establishments (sector 5)
- Dealers sales and distribution establishments (sector 6)
- Automotive parts, accessories, equipment and tools establishments (sector 7).

Similar to the MEIBC, the existing MIBCO Main Agreement still adheres to a 13-grade employment hierarchy spread across establishments that differ in employee-class size across the seven sectors listed above. Also, MIBCO does not follow the NBF system of aligning grades to designated NQF levels. As noted, the NBF adheres to a seven-grade system in its employment ranks. But, unlike the MEIBC Main Agreement, the MIBCO Main Agreement does not specify the skills content of jobs that are classified in specific grades; instead, it assigns jobs categories to specific grade levels. This can be seen in Table 26. For instance, Grades 3 to 6 are reserved for employees classified as operatives but who hold different skills levels. While exceptions are made for journeymen and highly skilled operatives (e.g. operative engine assembler), the MIBCO grading structure classifies the fully qualified artisan or journeyman at Grade 8, whereas a corresponding qualified artisan or journeyman under present arrangements would be classified at Grade 5 under the NBF grading structure.

Table 26: Grading structure of motor industry as per the MIBCO Main Agreement, 2016 to 2019	
Grade	Chapter 1: An establishment which is not registered under either Chapter II, III, IV or V; Chapter 2: Vehicle body building establishment; Chapter 3: Component manufacturing establishment; Chapter 4: An automotive engineering establishment; Chapter 5: Component reconditioning establishment
1	Char, parking garage attendant, forecourt attendant (petrol and diesel outlets), forecourt attendant
2	Driver of motorcycles and/or scooters, general worker, Vulcaniser's operative without wheel balancing, cashier
3	Battery repairer, driver light vehicle <3 500 kg incl. forklifts and tractors, new motor vehicle, motorcycle and tricycle assembler, operative gearbox dismantler, scooter worker
4	Cutter; operative exhaust fitter; operative, Grade 2; operative, Grade 3; operative, Grade AR; operative, Grade B; operative, Grade BR; operative sunroof fitter; operative upholsterer; operative wheel balancer; pattern cutter maker; supervisor, Grade 3; vulcaniser's operative with wheel balancing
5	Armature winder; auto electrician's assistant; body shop assistant; brake drum skimmer; clutch cover assembly setter; diesel pump-room assistant; driver of motor vehicles with a gross vehicle mass >3 500 kg; motorcycle mechanic's assistant; operative air-conditioner fitter; operative, Grade 4; operative, Grade 5; operative, grade BV; operative, Grade CR; operative, Grade CV; operative, Grade DV; operative radio/alarm fitter; operative supervisor; quality controller; radiator repairer; repair shop assistant; seaming machinist; supervisor; supervisor, Grade 4; towbar fitter (excluding electrical wiring)
6	Clutch and brake operative; machine setter; operative, Grade A; senior quality controller; supervisor, Grade 5; wheel alignment worker
7	B/A journeyman; exempted journeyman; operative engine assembler; suspension fitter; towbar fitter (including electrical wiring)
8	Journeyman; service supply salesman

Provision has been made to develop a different grading and remuneration structure for employees who perform functions not accommodated in the aforementioned chapters, namely for, among others:

- (a) Office, stores, sales and clerical employee
- (b) Motor vehicle salesperson
- (c) Bookkeeper

- (d) Accountant
- (e) Parts salesperson
- (f) Traveller
- (g) Supply salesperson.

There are significant advantages in a skills-based job grading system compared to a job grading structure that uses the designation of the job itself although the description of the job alludes directly to the skills the job requires for it to be performed. The skills a job requires can be objectively measured against definitive competency and performance criteria such as the NQF. Jobs classified as such are not fixed into perpetuity. Job obsolescence can erode existing jobs; similarly, as a result of technological and occupational shifts, new jobs that did not exist before can emerge and can become entrenched in particular innovation situations. These jobs can be replaced through a number of configurations: perhaps with lower-level jobs that have the same skills content or corresponding job levels with a significantly higher skills content, or perhaps even with higher-level jobs bearing a significantly higher skills content. A skills-based grading system makes such a transition more efficient as well as more transparent, but it also elevates skills upgrading to a higher and more important factor in economic improvement compared to the quest for job mobility only which in a context of limited job vacancies can be characterised as a quest to fill the shoes of deceased job incumbents.

(a)The demand for and supply of skills and training

It is alleged that merSETA's current structure does not facilitate the production of skills required by the automotive value chain. Perhaps this has to do with the attempt to balance effective regulations on matters pertaining to skills development, which is underwritten and driven by government and which merSETA implements, with flexibility required by firms to respond and adapt to new technological innovations from competitors globally.³¹⁵ To bring greater clarity to the understanding of this process, merSETA has undertaken a Motor Chamber Research Project. The Motor Chamber is one of five chambers established by merSETA to broaden participation from

³¹⁵ A similar point was suggested in an interview with Hosea Morapedi, the Auto and Tyre Chamber Co-ordinator at merSETA, 15 November 2019.

stakeholders in each subsector, but also to gain a firmer understanding of each. The other chambers within merSETA are the Auto Chamber, the Metal Chamber, the New Tyre Chamber and the Plastics Chamber. The input from research by the Motor Chamber has relevance for this discussion of the GVC in the auto sector, because it provides insights into the disruptive changes and technologies that the automotive industry must confront as well as the skills that potentially will have greater importance in the new environment.

A host of disruptive changes and technologies are pertinent in this context. First is the emergence of alternative engine technologies such as plug-in hybrid electric and battery electric vehicles. New battery technology comes with lower costs, even with a tightening of environmental regulations. Second, green manufacturing processes are associated with greater use of recycled material, a reduction of emissions, and a lowering of the carbon footprint. However, green manufacturing processes are expected to add additional costs to the production cycle. Third, new material design to reduce vehicle weight and improve fuel economy is now imperative. Fourth, the onset of infotainment and vehicle connectivity elevates the Internet of Things and makes it possible to have advanced navigation capabilities fitted into new vehicles. Although there are difficulties for smaller producers such as South Africa to compete with electronic and ICT design of infotainment systems, it is still imperative for countries such as South Africa to keep abreast to the changes. A fifth point that the Motor Industry Chamber refers to is the importance of human intervention in the use of robotics and artificial intelligence on both the product and process side. The term being used is *cobots* – humans working interactively with robots. The use of big data to analyse the efficiency of production processes to reduce costs so that a competitive benefit is achieved is a sixth point. Another important point raised in this research is the spread of passive and active safety advantages partly driven by global consumer demand as well as by overseas regulatory requirements. If South Africa does not adapt to these new safety requirements, new vehicles entering the SA market will not possess such features. But it also means that, in global terms, SA vehicles assembled without such technologies are being relegated to low-value areas. Thus, instead of moving up the value chain and actively participating in the manufacture and assembly of vehicles with such technologies, there is the danger that it can lead to moving existing production down the value chain. This research by the Motor Chamber

suggests that this can only be reversed or balanced by moving into higher-value activities such as R&D as well as intellectual property associated with functions such as branding, aftersales and distribution.³¹⁶

A spectrum of skills will be necessary in a new environment similar to that one sketched above. These would affect different layers of the occupational structure. Among the professionals working within the above context, the importance of work ethics and values, leadership and team work, time management, virtual process management and an understanding of business financials, work class manufacturing methodologies and manufacturing assembly techniques are skills that will become indispensable. Similarly, supervisors would require a more comprehensive understanding of health and safety, time management, conflict management, quality processes and lean methodologies. It would have to be determined whether they are able to understand and navigate disruptive changes or whether they are at risk of being replaced by technological development.

Also, artisans and production workers are not immune to the imperatives of adaptive change. A presentation by David Ansara on behalf of the Motor Chamber Research Project stated that, under a new value adding dispensation, it was imperative for artisans to receive further training on visual process management, the implementation of visual process management, and basic business literacy and computer skills. Similarly, production workers would require an understanding of team work, visual process management, personal finance, time management and technical skills. Since production workers in the motor and automotive sector were the lowest-skilled, they also constituted the largest proportion, accounting for 68% of the sector. Thus, they were particularly vulnerable to the GVC disruptives. But it was still to be determined how they would function in the changed environment and the which skills such as computer literacy they required but that still had to be identified.³¹⁷

³¹⁶ merSETA Inter Chamber Minutes of Meeting: 15 and 16 February 2018, pp.24-25.

³¹⁷ merSETA Inter Chamber Minutes of Meeting: 15 and 16 February 2018, p.25. An interview with Hosea Morapedi (Auto and Tyre Chamber Coordinator in merSETA) suggested that the OEM in the auto sector as a whole attempted to mitigate for disruptive processes adversely affecting production workers by setting its own benchmark qualifications for this segment of the workforce. This qualification is known as the Automotive Industry Certificate (AMIC) which is vetted and offered in-house by the OEMs. This qualification bypasses existing qualifications that are offered by South African service providers and TVET colleges.

A workgroup reportback from the Auto Chamber suggested that a level of misalignment is evident between the Skills Development Act and BBBEE, particularly in relation to OEMs. This misalignment seems to occur in the funding incentives and penalties that span these two items of legislation. It was suggested that OEMs can only claim 15% of the expenditure put into training. Further, while all OEMs were involved in international training to enhance skills levels in South Africa, not all these programmes have SAQA accreditation, nor are these necessarily aligned to unit standards.³¹⁸ This inhibits full claims on training expenditure being made by OEMs in terms of the existing legislation. It appears that the higher ceiling that is available for company provided training in terms of BBBEE that an employer representative asserted ranged up to 6%, in contrast to the 1% imposed by the Skills Development Levy, had the potential to dramatically increase OEMs' training cost burdens.³¹⁹ However, because this point was not substantiated through other media sources, it warrants further investigation so as to ascertain in what contexts these points were made in the Auto Chamber of merSETA.³²⁰

The technologies deployed by OEMs, and tier 1 and tier 2 suppliers in particular, have significant impacts on the requirements for new and upgraded skills in the sector. However, from the perspective of the motor sector, which is dedicated to the servicing and repair of new and older motor vehicles used by a cross-spectrum of the working population, the imperatives for skills renewal and upgrading of personnel in this subsector is even more crucial. Technological change through OEMs and tier 1 and tier 2 suppliers necessitates that the curriculum content of the motor sector be upgraded and revised, especially in relation to artisans and technicians, as the sector's technical backbone. Thus, the renewal of training via appropriate training material to prepare the existing workforce and new incumbents for the sector must be continuous. Respondents to the HSRC study into an impact assessment of the NSDS II³²¹ stated

³¹⁸ This point was also emphasised in the interview conducted with Hosea Morapedi (Auto and Tyre Chamber Coordinator in merSETA).

³¹⁹ merSETA Inter Chamber Minutes of Meeting: 15 and 16 February 2018, p.31.

³²⁰ Laura Harris (nee Crosby) has suggested that a more detailed response will be assigned to this question which we posed but only after she has consulted with the broader team of skills development managers at merSETA.

³²¹ HSRC (2012) Assessing the impact of learnerships and apprenticeships under NSDS II: Three case study reports, particularly report titled: MERSETA Case Study 2011: Skills Development for the Metal and Related Services Sector, p27.

that merSETA's attempt to revise and update the learning material "left much to be desired". Another respondent asked why resources were spent on this task and why inordinate amounts were being spent in the process when there is already sufficient international material available that could be used for this purpose, such as James Duffy's *Modern automotive technology*, which is regularly updated and generally suits the requirements of car manufacturers across the globe. Instead, as another respondent indicated, such can be effectively used and can be adapted to the South African context.

Nonetheless, at a company level, the OEMs are at the cutting edge in deploying the latest technology and have the most up-to date-training and skills initiatives to keep themselves abreast of global competition at the inter-firm and the company levels. Each has in-house training facilities, which are instituted even in instances where future recruits to each of these companies get bursary support to pursue studies in fields beneficial to the companies long before they are finally selected for a placing either as interns, work integrated learners or permanent employees. Because OEMs are constantly upgrading and expanding their capital, technological and infrastructural investments, these actions have a reciprocal effect on the training endeavours and skills formation initiatives that are constantly being recalibrated in the workplace. Particularly when OEMs recruit and expand employment numbers in their firms, this leads directly to the induction and training of new staff, particularly operational workers, into the required firm-specific job tasks.³²²

6.2.4. Company access to information and support

Companies' access to labour market and skills development-related support largely depend on their employer association and trade union memberships. Access to information and support for companies were also facilitated and mediated through shop-floor structures such as workplace and skills forums that involve both management and employees, as discussed in preceding chapters.

³²² This point was also emphasised in the interview conducted with Hosea Morapedi (Auto and Tyre Chamber Coordinator in merSETA)

Management is largely supported by previously cited employer associations such as SEIFSA and NEASA in the MEIBC, while RMI, NEASA and the FRA provide support services in MIBCO. The latter represent Fuel Service Station Owners in the retailing of fuel while the RMI consists of 12 associations: ACRA, ERA, MIWA, MDA, MPEA, NADA, SADFA, SAMBRA, SAPRA, SAVABA, TDAFA and VETA.

RMI has engaged various in-house personnel and external consultants to provide services to membership companies and its associations at the CCMA, labour courts and merSETA. NACAAM members were also represented by RMI in MIBCO negotiations. However, each automobile OEM has its own human resource department, which is capable of representing its interests through AMEO, a structure of NAAMSA at the NBF level. Employees of companies represented by the aforementioned associations are essentially represented by NUMSA in the NBF and MIBCO and MISA in MIBCO.

6.2.5. The relationships between employer associations, trade unions and collective bargaining

The relationships between trade unions and employer associations have been diverse, ranging from distrust within and among parties³²³ to relative stability in the various bargaining forums. Both the NBF and MIBCO were recently able to attain agreement on wages and conditions of employment, involving parties and non-parties; and in the case of MIBCO, with minimal disruption.

A central feature of discord has been demarcation issues between the MEIBC and MIBCO and the NBF. A number of companies in the MEIBC fold have in recent years requested to be relocated to other bargaining councils such as MIBCO and regional Building Industry Bargaining Councils. A pivotal case has been the successful application by 12 MEIBC companies to fall in MIBCO's scope. Poignant, is the use of the value chain argument for redemarcation owing to the existing scope of the motor and engineering industries that informed the history of collective bargaining was

³²³ Interview with Tom Mkhwanazi, CEO of MIBCO held on 28 November 2018, Gordon Edwards, acting CEO held on 12 April 2019 and Shane Godfrey, ILO commissioned researcher on 13 December 2018.

determined 60 years ago and emphasises the outcome of the manufacturing process and not the nature of the process:

*“In essence, that argument is that but for the eighth and twelfth applicants, the percentage of each demarcation applicant’s business that relates to the manufacture and supply of automotive components exceeds 90%. In the case of the eighth applicant that figure is 80%, and 86% in respect of the twelfth applicant... Further, the automotive components engineered or manufactured must meet automotive industry specific specifications. They are not intended or made for use in other industries. None of the applicants’ enterprises have discrete portions dedicated to the manufacturer engineering of nonautomotive components will. Put it another way, of the more than 3800 employees engaged by the demarcation applicants, less than 1% are engaged in work activities not related to the production of automotive components”.*³²⁴

The judge ruled in favour of the applicants, determining that “the existence of a value chain or system locates the demarcation applicants within a set of activities in the motor industry in which they receive raw materials, add value through the manufacturing process and sell the finished product to the customer located in the next highest tier”.³²⁵

To compound matters, the NBF agreement on wage increases and conditions of employment for 1 July 2016 to 30 June 2019 reaffirmed the industry’s commitment to incorporate the automobile components sector, vehicle body building, bus building and tyre sectors as separate bargaining chambers/chapters into a new bargaining forum that should seek to be registered under the LRA. All these sectors, currently within the scope of MIBCO, form an integral part of the automotive value chain, which is dominated by a few lead OEMs, which are renowned for influencing terms of settlement within MIBCO.³²⁶

What implications will these developments have for the future demarcation of existing collective bargaining forums and the aspiration to effect value chain bargaining? What are its implications for defining occupations and related grading structures and skills

³²⁴ The Labour Court of South Africa, Case No: PR 3/18, 11 November 2018, Port Elizabeth, p30-31.

³²⁵ Ibid, p31.

³²⁶ Interviews with Renai Moothilal, Executive Director of NACAAM on 9 October, 19 and 28 November 2018 and Messrs Nthato Khukhama and Peter Dantjie of the BMW Group on 29 November 2018.

development as well as vertical and horizontal equity in compensation for similar work performed in the value chain?

6.3. Key challenges and recommendations

It is evident that labour market dynamics that affect the MEIBC, MIBCO and the NBF are rooted in an evolving global automotive value chain that is dominated by leading OEMs. It is a value chain that has emerged as a significant contributor to turning around an ailing manufacturing sector in terms of contributions to economic and employment growth. SAAM has been cited as the leading example of the new growth path to grow and develop the local economy. Similar plans have recently been mooted by government for the metal and engineering and clothing and textile sectors.³²⁷

6.3.1. Employment creation prospects

Three critical factors have been cited as potential drivers of employment creation. Increasing the participation of locally based companies in the value chain through localisation programmes are considered critical to increasing local manufacturing capacity and, thus, employment growth. SAAM has established targets to grow South Africa's contribution to global production to 1%, increase the production of local content to 60%, and to double employment in the manufacturing of motor vehicles and components to 224 000 by 2035. Moving up the value chain also requires investment in innovation and skills development to meet the OEMs' specifications and subsequently improve competitiveness and deepen value addition in the value chain. This involves the capacity of firms to internally deal with skills demand through training and the need for merSETA and the TVETs to supply requisite enterprises with the required capacity to produce and develop the skills compliment. Investment in infrastructure within and outside South Africa to facilitate greater value chain connectivity and the development of an increased market is crucial if it is to move up the value chain.

³²⁷ Patel, E: Metals and Engineering Sector Masterplan Key to Unlocking Growth Opportunities, Southern African Metals and Engineering Indaba, MEINDABA SEIFSA Press release, IDC Conference Centre, Sandton, 13 September 2019, <https://meindaba.seifsa.co.za/metals-and-engineering-sector-masterplan-key-to-unlocking-growth-opportunities/>.

6.3.2. Compliance with South African labour market legislation

As noted, high self-regulation exists in the automotive industry, as evidenced by the existence of statutory collective bargaining arrangements in the form of MEIBC and MIBCO as well as the non-statutory NBF, which involves the OEMs and NUMSA. While the determination of the bargaining councils' scopes will remain a significant issue, the accommodation of value chain-related activities is a critical challenge.

The existing LRA makes provision for the establishment of statutory bargaining councils. Critical to this process is the attainment of representation thresholds required by the Minister of Labour. Further, the scope of bargaining councils must be clearly demarcated. While NEDLAC has been accorded the powers to initially demarcate the bargaining councils' scopes, as recommended by the Commission to Investigate the Development of a Comprehensive Labour Market Policy and provided for in terms of Section 62(9) of the LRA, there is a compelling argument that demarcating sectors without regard for value chains provides for a labour market that is unresponsive to the economic challenges in the globalising environment. Value chain considerations increasingly became important to demarcation, as illustrated by the recent Labour Court case and NEDLAC's response to the initial award. This was reinforced by the NBF's decision to establish a bargaining council that incorporates key components such as component producers and new tyre manufacturers of the automotive value chain.

6.3.3. The pursuit of decent work

The demarcation of the bargaining councils' scopes has implications for the establishment of vertical and horizontal equity in compensation for similar work performed and the concept of decent work. Currently, it is perceived that the movement from MEIBC to MIBCO and the establishment of a new bargaining forum for the automotive value chain will have serious implications for the pursuit of a decent work agenda. Movement by MEIBC-affiliated companies to MIBCO is considered an attempt to reduce the wage bill, while there is scepticism to the establishment of a new automotive value chain because of its alleged higher wage bill implications. Thus, any

form of restructuring based on changed demarcation imperatives would involve addressing these concerns.

Further, the implications of advances in production methods and technology on skills categories and levels and related grading relevant to the specific sector also require review. This will enable the development of substantive agreements on conditions of employment and remuneration that is equitable and fair within and across sectors. Hence, the review and establishment of a revised occupational and grading structure underpinned by a skills development programme will be critical to vertical and horizontal equity as well as fair compensation for similar work performed and the pursuit of the decent work agenda.

5.3.4. Recommendations

While the Minister of Employment and Labour provides oversight to the effective and efficient implementation of the LRA, it is imperative that the malaise within and between bargaining councils be resolved. Hence the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime for SAAM.
- Resolve the demarcation issues involving MEIBC, MIBCO, NBCNTM and NBF.
- Facilitate a discussion between parties involved in MIBCO, NBF and the NBCNTM bargaining councils to attain consensus on the establishment of a new bargaining forum and its requisite scope.
- Establish a process to resolve the occupational, grading and skills issues involving these forums.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties.

SECTION

B

BUYER-DOMINATED GLOBAL VALUE CHAINS

Agro-processing is an industry that is diverse in that it involves a number of value chains that are commodity-specific, such as the red meat, poultry/soya beans/maize, fruit and vegetables, wine, wheat, forestry, fisheries (aquaculture and small-scale fisheries schemes), sugar and biofuels. The production of these commodities spans economic sectors such as agriculture, agro-processing and marketing. It is supported by transversal policy instruments such as Fetsa Tlala, research and innovation, Promoting Climate-Smart Agriculture (CSA), trade, agri business development and support, SIP11 and Biosecurity.³²⁸

The fruit and wine industry has been identified as an area with very high growth potential and it is labour-intensive, with a labour absorption of 1.3 labour/per ha.³²⁹ More than 50% of SA's agricultural related exports involve the fruit and wine industry. It provides more than 10% of direct agricultural employment and a large number of additional employment in support services, processing and distribution. A significant number of the companies involved in the production of these commodities are MNEs, some foreign-owned and some locally-owned, which have developed or form part of sophisticated GVCs.

1. Dimensions of the agro-processing GVC

In the wine industry value chain, DGB, DISTEL and KWV are renowned MNEs that account for a significant portion of SA's exports based on a company value chain that incorporates vineyards, cellars and distributors. MNEs such as the Dole Food Company SA, Delecta Fruit, the DuToit Group and Capespan are key global players in the export of deciduous fruit. These MNEs have also developed the capacity to participate in the global market through the development of their company value chains, which range from farming to processing, packaging and marketing to distributors globally. These MNEs are either entirely or partially locally-owned or foreign-owned. Despite these companies developing various aspects of the value chain, such as logistics and ICT use, as integral parts of their operations, it can be considered to be buyer-dominated. Wholesalers and retailers compete with conventional and specialty supermarkets, stores, natural foods stores, discount

³²⁸ Department of Agriculture, Forestry and Fisheries: Agricultural Policy Action Plan (APAP), November 2014.

³²⁹ Bureau of Food and Agricultural Policy (BFAP), 2011

warehouses, farmers' markets and restaurants on the basis of price, product differentiation and niche market space.

Notably, a number of industry associations have played a critical role in the provision of support services to facilitate the research, innovation and development, education and training, infrastructure development and marketing to enable the integration of these MNEs as well as a range of independent companies into global markets. Vinpro, SALBA, WOSA and VINTECH constitute critical support organisations in the wine industry, while FSA, HOTGRO, SATI, the Citrus Growers Association, South African Subtropical Growers Association and South Africa Fresh Fruit Exporters Forum provide similar services in the wine, fruit and vegetable industry value chain.

Notably, the ARC operates two of eight research stations, which it refers to as campuses, which are associated with the wine and fruit industries respectively. The ARC campus Infruitec is located at Nietvoorbij and specialises in research into deciduous fruit and wine. It borders onto Elsenburg College. The ARC also operates a campus in Nelspruit/Mbombela known as the Institute for Tropical and Subtropical Crops.

However, DAFF and a number of stakeholders have established value chain roundtables based on a Canadian model that has been in existence since 2011.³³⁰ It involved deliberations about the identification of areas of multistakeholder intervention along various segments of the value chain at the industry level. It primarily involved industry associations, trade unions, NGOs and various departments with an interest in agro-processing, such as the DTI and DoL. The Fruit Industry Value Chain Round Table (FIVCRT) was established in 2014 and the Wine Industry Value Round Table (WIVCRT) in 2015. The former identified transformation; resources; employment and worker welfare; R&D and trade as critical focus areas for deliberation. The WIVCRT followed suit and added tourism and marketing to its focus areas.

³³⁰ Department of Agriculture, Forestry and Fisheries: Concept document on Value Chain Round Tables (VCRTs), 2012.

Table 27: The dimensions of the value chain for agro-processing

Issues	Suppliers/Inputs	Production capacity, technology and innovation	End-markets and trade	Governance of value chains	Value chain finance	Business environment
Industry	Agriculture, forestry and fisheries	Manufacturing	Wholesale and retail	Dominated by buyer enterprises	Local and FDI	Key issues and challenges <ul style="list-style-type: none"> • Evolving production environment • Raising production costs (labour, electricity, fuel, agro-inputs, etc.) • Uneven international trade environment (tariffs, SPS, non-tariff barriers) • Inadequate infrastructure (road, rail, ports, etc.) • Policy uncertainties (land reform, NDP, etc.) • Slow pace of transformation <ul style="list-style-type: none"> ○ Development and support of black-owned enterprises ○ Equity schemes ○ Skills development and training ○ Mentorship programmes ○ Bursary programmes ○ Social responsibility programmes
Policy support	APAP, IPAP	APAP, IPAP	Trade agreements		Agro-processing incentive package	
Associations	AgriSA and commodity associations	AgriSA and commodity associations	WOSA, FEDHASA, South Africa Fresh Produce Exporters Forum (FPEF)			
GVCs						
Fruit	Fruit and vegetable farmers	Packaging warehouses and canneries	Wholesale and retail enterprises	Dominated by buyer enterprises		
Wine	Vineyards and Cellars and auxiliary services	Cellars and auxiliary services	WOSA, wholesalers, retailers and the hospitality industry	Dominated by buyer enterprises		

2. The business environment and the socio-political context

A number of dynamics inform the business environment of the wine industry value chain. First and foremost is the existing policy and legislative frameworks that promote an array of interventions in the value chain. These policies, which range from the NDP and APAP, have prioritised agro-processing. For a synopsis of the policy instruments used, the public institutions with responsibility over these matters, and the relevant roleplayers, see Table 28.

3. Labour market dynamics

The labour market environment in the fruit and wine industry value chains is informed by issues such as skills-based grading, training and work organisation, demand and supply of skills and training, and labour relations across the value chains. Key has been the different labour market dynamics for the producers/suppliers, agro-processing, end-markets and trade.

Table 28: Synopsis of institutions that provide industry development and social wage support

	Policy Instrument	Public Institution	CSO/NGO/Private sector
Strategic support for the development of the industry	NDP-MTSF-PSP	Presidency and Premiers	AgriSA-VINPRO, SALBA, NAFU, Fruit SA
	IPAP/APAP	DAFF, Provincial Departments of Agriculture	AgriSA-VINPRO, SALBA, NAFU, Fruit SA
Trade	IPAP/APAP Trade agreements	The DTI and provincial Departments of Economic Development and Tourism, National Agricultural Marketing Council (NAMC)	WOSA, SALBA, FEDHASA, FPEF, MNEs such as DGB, DISTEL, Kromco and KVV and various companies
Infrastructure (including transport, water and energy)	National Infrastructure Plan	Department of Economic Development	Various
Information and innovation	R&D	Department of Science and Technology & Universities, Agricultural Research Council (ARC), CSIR	Wintech, SAWIS and other
Skills	National Skills Development Strategy	DHET, AgriSETA/W&RSETA/Hospitality SETA/public TVETs/other public entities	Accredited private TVETs
Labour market	BCEA, LRA	Department of Labour, CCMA, EEC	CRLS, University of Stellenbosch Legal Aid Clinic (SLAC), Association of Community Advice Offices of South Africa (ACAOSA), WEITA, SIZA
Social development	Social grants	Department of Social development / SASA	Private-public partnership initiatives
Human settlements	Human settlements policies	Provincial Department of Human Settlements and Municipalities	
Health	Health	Provincial Departments of Health & Department of Labour	

Table 29: Labour market and skills dimensions of SA's agro-processing value chain

Issues	Sectoral determinations	Company-level bargaining	Statutory centralised bargaining	Non-statutory centralised bargaining	Global Framework Agreement (GFAs)
Industry	Sectoral Determinations for Agriculture (No. 13), wholesale and retail (No.9), hospitality (No.14)	Numerous particularly in manufacturing	Bargaining Council for the Restaurant, Catering and Allied Trades	None	Global Framework Agreements between Uni Global Union affiliates and Shoprite Checkers, Tesco, Sainsbury, Walmart, etc.
Employment	Unknown	Unknown	Unknown		
Skills programme	AGRISETA, W&RSETA and CATHSSETA				
Employer associations	Submissions by AgriSA and commodity associations	Various enterprises	CATRA		
Trade Unions	FAWU, BAWUSA, Afriwu, SACCAWU and other	FAWU, BAWUSA, Afriwu and other	SACCAWU, CEU, DICHAWU		
GVC				WIVCRT and FIVCRT	

Skills-based grading, training and work organisation

The Sectoral Determinations focussed primarily on minimum wage rates and not the development of an occupational structure informed by skills levels. Sectoral Determination No. 13 merely specifies the remuneration that should be paid to farmworkers. Only the Sectoral Determination No. 9 for the Retail and Wholesale sector provides a more detailed grading structure that broadly details a job category, its description and the relevant remuneration (see *Table 31: The grading structure of retail and wholesale industry as per Sectoral Determination No. 9*). Hence the need to develop a more comprehensive Organising Framework for Occupations (OFO) and requisite training programmes for the sectors.

Table 30: Grading structure of the retail and wholesale industry as per Sectoral Determination No. 9

Job category	Description
General assistant/trolley collector	An employee who is engaged in duties that ranges from accompanying or assisting a driver or other employee who drives a vehicle, but not driving the vehicle; b) accompanying any employee who uses tools, but not using tools independently to marking, branding or stencilling goods by hand / an employee that is tasked with collecting, returning and or recovering shopping trolleys on behalf of employers in the Wholesale and Retail sector
Security guard	An employee who guards, protects or patrols an employer's establishment, buildings, property and goods
Forklift operator	an employee who operates a mobile power-driven hoist used in the loading, unloading, moving or stacking of products and who holds the requisite license
Driver <3 500kg	An employee who drives a motor vehicle for purposes of deliveries or to perform other activities on behalf of an employer and who holds the requisite licence
Merchandiser/Shop assistant/Checker/Deli assistant	An employee who draws goods from a storage area, cleans shelving, unpacks and prices products and removes damaged or expired goods; an employee who packs, replenishes, marks, assembles or assists in the dispatching of products on instruction from a more senior employee; an employee who, under the supervision of a more senior employee, is primarily responsible for the checking, administration, verification and reconciliation of goods for dispatch or receipt at a dispatch or receipt points, and whose functions may include the consolidation and scanning of pallets or goods and the record and storage of conveyance information of pallets or goods; an employee that assists in the Deli by preparing it for service and ensuring that the food items are properly stocked and displayed. They serve ready prepared products, weigh, package and affix price labels to the product before dispatching it to the customer. They may also be tasked with slicing and packaging of cold meats, and incidental tasks include the preparation of basic meals such as sandwiches, salads and a limited number of stews. The preparation of these basic meals is according to a simple recipe and set production schedule.
cashier	An employee who receives payments on behalf of the employer for products or services, issues receipts for payments, deposits payments into the employer's elected bank account or performs any other activities relating to payments

driver 3501<9 000kg	An employee who drives a motor vehicle for purposes of deliveries or to perform other activities on behalf of an employer and who holds the requisite licence
clerk/sales assistant/ sales person/block man/baker	An employee employed in any form of administrative work, including, but not limited to, writing, filing, recording information, reconciling documents; means an employee who prepares products and services for sale, attends to customers' enquiries, assembles products for customers and, with the authority of an employer, accepts payment for products or services sold; means an employee employed to perform the tasks of a sales assistant and who receives, commission payments in terms of clause 3; an employee who manufactures cuts and prepares all meat species using butchery equipment according to specifications required. Associated, but not core to the function would be the preparation, pricing, wrapping, labelling, quality checking, rotating stock and preventing wastage; an employee who prepares, proofs, bakes and finishes off products in accordance with specifications. Associated, but not core to the function may be maintenance of hygiene, monitoring production, stock rotation, training and specialty customer orders
driver 9001 <16 000kg	An employee who drives a motor vehicle for purposes of deliveries or to perform other activities on behalf of an employer and who holds the requisite licence
displayer	An employee who prepares window, promotional or sale display material, whether internally or externally;
driver 160 001kg>	An employee who drives a motor vehicle for purposes of deliveries or to perform other activities on behalf of an employer and who holds the requisite licence
supervisor	An employee who is authorised by an employer or manager to discipline other employees, the responsibility to direct them, to adjust their grievances, and to effectively recommend such action, if in connection with the foregoing the exercise of such authority is not of a merely routine or clerical nature
trainee manager	An employee who receives training on an ongoing basis in the duties and responsibilities of a manager
assistant manager	An employee who is required to support the Manager in managing the activities of the business and who is authorised by the employer, in the Manager's absence, to assume the responsibilities of the Manager
Manager	An employee who is authorised by an employer to manage the activities of a business or part of a business or to manage the employees in a business or part of a business

(source: Sectoral Determination No. 9)

The demand for and supply of skills and training

Education, training and skills development institutions have historically evolved in South Africa to address and supply the skills needs of producers in the agricultural sector. In the more recent period, the skills development challenge that the agricultural sector as a whole confronts has been a growing national preoccupation, particularly since this challenge has not been adequately alleviated. However, because the agricultural sector has complicated training and skills delivery arrangements, which are replicated within the fruit growing sector as a whole, there we will outline the skills development dispensation that currently affects the sector.

Until the late 1990s, when new legislation that have brought SETAs into existence was promulgated, education, training and skills development was provided through a combination of state support (e.g. the Department of Agriculture as well as the DoL) and private sector support (mainly through farmer and agricultural associations as well as through the training provided by individual farmers. The establishment of SETAs in 1999 led to the AgriSETA becoming the principle provider of training in the SA's agricultural sector. AgriSETA does not undertake training. Its principal function has been to facilitate the registration of qualifications for the sector, provide a sector skills plan, disburse monies for training, and accredit training providers to undertake skills training. However, AgriSETA's skills development interventions are typically directed toward the low and intermediate skills levels and occupations.

Currently, around 1 400 accredited training providers are registered with AgriSETA. while most are private providers, there are also registered providers drawn from the public TVET and HE sectors. A large number of non-profit institutions are also active as training providers to AgriSETA. Representative examples of such organisation types operative in the fruit sector are the Boland Training and Community Development Centre, Elgin Community College, Koue Bokkeveld Training Centre and the Overberg Training and Development Initiative. However, this training usually takes the form of short courses that do not necessarily lead to formal qualifications.

Qualifications financed through workplace learning mainly take the form of learnerships. However, there is a severe lack of learnership qualifications in the fruit

sector, as depicted through registered learnerships. Generic farming sector learnerships exist for plant production for levels 1 to 5. A farm worker learnership at level 1 also exists for horticulture. There is only one registered learnership for the fruit sector; it is classified as the National Certificate, Fruit Packaging and Grading Process (level 3).

However, not all training depends on AgriSETA's scope and mandate. Farmers independently undertake skills training of their labour force, although this typically occurs among the larger employers in the fruit sector. Different crop grower associations also support the transmission of skills and technical assistance to members of their association. The costs of such interventions would be covered by members' levies to their respective associations.

However, public HE and public TVET institutions provide the bulk of education, training and skills provision to the incumbents in the intermediate and higher occupational levels in the fruit sector. This is done through the public universities, not all of which have agricultural faculties but may offer courses that have a scientific and technical demand in the fruit sector's different segments. Besides the HE and TVET institutions that offer qualifications for which there is a strong demand in the fruit sector, further training and expertise is available from SA's 13 agricultural colleges, some of which incorporate education and training that directly relates to the fruit sector. One of these is the Cape Institute for Agricultural Training: Elsenburg, which is the result of the amalgamation of the Elsenburg and Kromme Rhee colleges of agriculture. Elsenburg's programme offering is at both the FET and HE levels. Elsenburg also enjoys a strong academic relationship with Stellenbosch University, offering a Bachelor degree in agriculture in association with it. Cedara College of Agriculture (Kwazulu-Natal) has a similar relationship with the University of KwaZulu Natal. Further, the Elsenburg Agricultural College forms part of a deciduous fruit and wine industry cluster with both Stellenbosch University and ARC.

Labour market regulatory environment and labour relations

All the components of both value chains were largely regulated by Sectoral Determinations 9 (wholesale and retail sector), 13 (farm workers) and 14 (hospitality industry), while a significant number of cellars and packhouses involve self-regulatory

company level collective bargaining. An unprecedented arrangement has been the incorporation of labour market issues into fair trade initiatives such as SIZA for the fruit industry value chain and WIETA for the wine industry value chain.

Table 31: The labour market regulatory environment

Component of the value chain	Labour market statute	Bargaining levels	Levels of representation required
Primary producers	BCEA, EEC-Sectoral Determination No. 13	Limited number of company level agreements	No significant threshold required
Cellars/Packhouses	BCEA, LRA, National Minimum Wage	Company-level agreements	More than 50% where company-level agreements exist
Wholesalers/Retailers	BCEA, EEC-Sectoral Determination Number 9	Company-level agreements	More than 50% where company-level agreements exist
Hospitality	BCEA, EEC-Sectoral Determination Number 14; LRA-Statutory Council	Industry agreement on non-wage issues such as pensions	More than 30% to establish Statutory Council (excluding areas in Gauteng that have a bargaining council)
Auxiliary services (metal and engineering, motor, packaging)	LRA-BC/SC	Industry-level agreements on wages and conditions of employment	More than 50%

Since the adoption of the Concept Document on Value Chain Round Tables (VCRTs) in 2012³³¹, VCRTs have been established for the wheat, wine and fruit and vegetable industries by various roleplayers and DAFF. Labour market issues form an integral part of VCRTs' deliberations. Currently, labour market issues are being dealt with based on the implementation of the Sectoral Determination No. 13: Farm workers, particularly at primary and secondary producer levels, and Sectoral Determination 9

³³¹ Department of Agriculture, Forestry and Fisheries(DAFF): Concept Document On Value Chain Round Tables (VCRT), 2011.

for the wholesale and retail industry. Thus, most of the collective bargaining arrangements at the company level apply to some processing and wholesale and retail enterprises where such agreements have been attained. Disputes are dealt with using the CCMA-determined processes. Statutory collective bargaining arrangements exist only in the red meat and grain industries and the hospitality industry in some geographical areas.³³²

Further, a significant challenge is the consideration that the associations organising enterprises in the inputs/supplier component and to a lesser extent the agro-processing components of the value chain such as AgriSA and commodity groups such as Vinpro, SALBA and FSA are not registered as employer associations with the DoL. Employer associations such as the LWO and the KAW or CAEO were registered to represent the interest of primary and secondary producers in these sectors. Trade unions tend not to be well represented in these sectors. Approximately 10% workers are represented by approximately 12 registered unions in agriculture.

The establishment of multistakeholder ethical trade bodies such as WIETA and SIZA marked a significant shift in the approach toward labour market issues. Through social audits of member companies, legal compliance with SA's labour, occupational health and safety legislation is monitored. Also, monitoring is undertaken of the extent to which management systems in companies reflect sustainable ethical principles, policies and practices. Farm worker housing must also meet prescribed safety, health and sanitation standards, and the right to which dignity, family life and broader community development is promoted is also considered. Through membership of the Global Social Compliance Programme (GSCP) and the partnership programme Stronger Together, relationships have been forged with global MNE buyers such as Berry World, Co-op, Global Fruit Point, Greenyard Fresh, Marks and Spencer, Morrisons, Tesco, Vinmonopolet and Waitrose as well as the local associations SALBA and VINPRO.

The forging of relationships at the company and industry levels is compounded by the consideration that the fruit and wine industry at the producer level involves the

³³²Tridevworx: The Effectiveness of Bargaining Council Exemptions in S.A., Department of Labour, July 2014.

production of both fruit and grapes. This is epitomised by the establishment of the Laborie Social Dialogue Initiative, where business organisations such as HORTGRO and Vinpro engaged a significant trade union such as FAWU on labour market issues. Similar issues are being deliberated in the fruit and wine industry value chains. These parties are also represented on ethical trade bodies such as SIZA and WIETA. Although collective bargaining arrangements remain contentious, similar issues such as the required occupational structures, grading arrangements and training requirements are being deliberated in all these forums.

So, how can these initiatives be aligned to effectively and efficiently use the resources devoted to these discussions?

- Notably, the current labour market regulatory arrangements require that certain thresholds in terms of representation be attained before self-regulatory arrangements such as company and centralised collective bargaining arrangements can be affected.
- Coherent occupational and grading structures and more effective training arrangements, particularly among the producers and agro-processors, can only be standardised once value chain-wide bargaining is institutionalised among the industry players.

While the pursuit of social compacts within the fruit and wine industry value chains has raised the need to consider these issues, these initiatives must be co-ordinated in a way align that labour market initiatives to overall strategy for the value chain. Also notably, other components of the value chain such as the wholesale, retail, tourism and hospitality industries have increasingly integrated their economic activities and tend to have different labour market arrangements.

7

The Fruit Industry Value Chain

7.1. Dimensions of the fruit industry value chain

Many commodity groups contribute to the local and global fruit production market, both as a fresh product and through the agro-processing of fruit to generate ancillary products that are then used as inputs into other industries. Here, our analysis will focus mainly on the fruit that typically predominates in the sector's key associations. These cover deciduous fruit (e.g. plums, nectarines, peaches, apples and pears), subtropical fruit (e.g. avocados, mangos and litchis), citrus (e.g. oranges, lemons and grapefruit) and table grapes. In this section, we will provide a broad context of the end-markets that result from the local and global trade of SA-produced fruit in these markets.

7.1.1. Suppliers/Inputs: Primary producers

7.1.1.1 Deciduous fruit

Fruit classified as deciduous include cherries, apricots, peaches, nectarines, plums and pears. Deciduous fruit is cultivated in varying concentrations in all nine provinces, with a high proportion in the Western Cape. Except for apples, where harvesting starts in January, harvesting of deciduous fruit typically starts in October or November. The harvesting of apples and pears stretches through an entire calendar year. The harvesting period for peaches, nectarines and plums is six months, and those for cherries and apricots start in October but last only four months. An estimated 79 912 ha of farmland is dedicated to deciduous fruit production. A more detailed spread of the total area devoted to the cultivation of specific deciduous fruit types appears in Table 33.

Table 32: Total farm land dedicated to deciduous fruit production in SA, with the average tree population shown per ha in 2017		
Fruit	Ha	No. of trees per ha
Grapes*	25 811	
Apples	24 156	1 667
Pears	12 265	1 667
Peaches	6 974	1 250
Plums	5 248	1 524
Prunes	258	
Apricots	2 808	1 250
Nectarines	2 092	1 250
Cherries	299	1 481
Total	79 912	

* Covers dry and table grapes.

(source: *HORTGRO Tree census*, 2017)

Pome fruit

Apples and pears are classified as pome fruit. In SA, 618 producers were associated with the production of pome fruit in 2017. Although there is much overlap between significant dimensions of the production of apples and pears, it is more convenient to first discuss the production characteristics of each of these two separately, so that each can get be elaborated on in greater depth.

The production of apples

The production of apples is almost wholly concentrated in the Western Cape, although apples are cultivated in small pockets in the Free State (472 ha), Mpumalanga (186 ha) and the Eastern Cape outside the Langkloof region (15 ha). The Langkloof region is roughly split between the Eastern Cape and the Western Cape. Langkloof East covers 3 461 ha under apple cultivation and holds just over 4 million apple trees. Langkloof West falls broadly within the geographical confines of the Western Cape and covers 875 ha under apple cultivation and contains just more than 1 million apple trees. The regions of the Western Cape that contain relatively large concentrated

areas under apple production are Ceres (7 452 ha), Groenland (which covers the area surrounding Elgin and Grabouw) (6 429 ha) and Villiersdorp/Vyeboom (3 841 ha). The Ceres area, which is the leading region of apple production in South Africa, has more 10 million apple trees. The Groenland region, which has just over 9.5 million apple trees, is not far behind. These data appear in Table 34.

Table 33: Apple production areas in South Africa in 2017		
District	Number of trees	Area (ha)
Ceres	10 626 911	7 452
Groenland	9 512 407	6 429
Villiersdorp/Vyeboom	4 765 294	3 841
Langkloof East	4 013 990	3 461
Langkloof West	1 056 856	875
Southern Cape	759 083	476
Free State	712 671	472
Piketberg	462 521	328
Klein Karoo	298 244	290
Somerset West	488 518	207
Mpumalanga	262 667	186
Worcester	75 278	43
Wolseley/Tulbagh	48 189	32
Limpopo Province	22 659	23
Eastern Cape	3 739	15
Stellenbosch	20 869	15
Paarl	10 777	9
Franschhoek	3 036	2
North West	528	1
Total	33 144 237	24 156

(source: *HORTGRO Tree census, 2017 in HORTGRO, Key deciduous fruit statistics, 2017*)

A number of apple cultivars are grown in South Africa. Since the number of trees planted per ha was typically the same for all cultivars in 2017, the hectares allocated for planted cultivars determine which particular cultivars are favoured among apple farmers. But there appears to be no overwhelming favourite, but an incremental hierarchy in which Golden Delicious apples held the largest area among cultivars planted in 2017, at 5 701 ha or 24% of the apple production area. This was followed by Royal/Gala (4 142 ha or 17% of the apple production area), Granny Smith (3 718 ha or 15%), Topred/Starking (2 613 ha or 11%), Cripps Pink/Pink Lady (2 565 ha or 11%), Fuji (2 188 ha or 9%), Cripps Red/Joya (1 306 ha or 5%), Braeburn (639 ha or 3%), Kanzi (261 ha or 1%) and African Carmine (208 ha, roughly 1%). The area under apple cultivars increased successively for every year since 2012; for 2012 to 2017, the area under apple cultivation increased by almost 9%. This translates into an annual incremental increase in the growth area of apple cultivation of just under 2% per year between 2012 and 2017.

These data paint only a static picture. One is able to gain a better understanding of the area (in ha) planted per cultivar by comparing cultivar expansion or contraction over time. Fortunately, the HOTGRO Tree census data provides a pattern of cultivar concentration for 2012 to 2017; while this is not a significant scale over which to categorically pronounce about the apple cultivar expansion or contraction trend/pattern, it still provides a medium-scale picture of these trends and patterns.

From 2012 to 2017, the area for all apple cultivars increased from 22 501 ha to 24 156 ha (roughly 9%). This means that apple cultivation in SA since 2012 (and perhaps even before depending on the availability of data from the late 1980s or early 1990s) has been expanding, almost incrementally, for each successive year since 2012. Thus, one would expect a similar pattern for all apple cultivar types, although this is unlikely to occur evenly across cultivars. What does the evidence indicate? As expected, there is variation in the growth of apple cultivar types. In some, the areas of specific cultivars increased only modestly, while for others the area under cultivation showed dramatic expansion in both orchard and tree growth. Some cultivars even showed a decline in the area under cultivation. Golden Delicious, while still the dominant apple cultivar in South Africa, only witnessed a 5% increase in ha cultivated between 2012 and 2017, with the area under cultivation seemingly almost static

between 2015 and 2017. Two other historic mainstay cultivars in the industry, Granny Smith and Topred/Starking, witnessed a contraction in the area under cultivation that amounted to declines of 17% and 15% for 2012 to 2017. However, there were relatively newer cultivars that exceeded the 9% average growth in the area under apple cultivation over this period. Thus, cultivars that showed a more rapid uptake in the area planted for new trees and orchards between 2012 and 2017 were Braeburn (13%), Royal Gala/Gala (21%), Cripps Pink/Pink Lady (23%), Fuji (29%), African Carmine (126%), Kanzi (131%) and Cripps Red/Joya (206%).

The ages of South Africa's apple trees

The aggregate picture of the apple orchard age distribution in South Africa (in ha) suggests that orchards up to three years old constitute 11% of orchard apple trees, with orchards aged 4 to 10 years at 27%, orchards aged 11 to 15 years at 10%, orchards aged 16 to 25 years at 27%, and orchards >25 years at 31%. This is an aggregate picture.

Table 34: Apple orchard age distribution (in ha) in 2017						
Cultivar	0 to 3 years	4 to 10 years	11 to 15 years	16 to 25 years	25+ years	Total
Golden Delicious	344	1 301	455	1 006	2 595	5 701
%	6%	23%	8%	18%	45%	100%
Royal Gala/Gala	446	1 197	589	1 198	711	4 141
%	11%	29%	14%	29%	17%	100%
Granny Smith	211	497	226	489	2 291	3 714
%	6%	13%	6%	13%	62%	100%
Topred/Starking	93	615	232	261	1411	2 612
%	4%	23%	9%	10%	54%	100%
Cripps Pink/Pink Lady	365	841	147	1176	36	2565
%	14%	33%	6%	46%	1%	100%
Fuji	206	1 084	366	499	33	2 188
%	9%	50%	17%	22%	2%	100%
Cripps Red/Joya	579	309	178	226	13	1 305
%	44%	24%	14%	17%	1%	100%
Braeburn	18	155	92	227	147	639
%	3%	24%	14%	36%	23%	100%
Kanzi	45	215	1	0	0	261
%	17%	82%	1%	0%	0%	100%
African Carmine	56	83	28	38	3	208
%	27%	40%	14%	18%	1%	100%
Other	293	115	35	179	195	817
%	36%	14%	4%	22%	24%	100%
Total	2 656	6 412	2 349	5 299	7435	24 151
% of total area (ha)	11%	27%	10%	22%	31%	100%

(source: *HOTGRO Tree census, 2017 in HORTGRO, Key deciduous fruit statistics, 2017*)

In the absence of data on the harvest productivity of apple orchards by age, one answer to this phenomenon is the process of substitution in the planting of different

apple cultivars that has been taking place over the past 25 years. Based on the high proportion of specific orchard cultivars that are 25 years and older, one can confidently surmise that these cultivar types formed the bulk of apple cultivar harvests 25 years ago. Four cultivars stand out in the apple orchards >25 years: 45% of Golden Delicious cultivars (2 595 of 5 701 ha of all Golden Delicious apples were planted 25 or more years ago), 64% of Granny Smith cultivars (2 291 of 3 714 ha), 54% of Topred/Starking apples (1 411 of 2 612 ha) and 23% of Braeburn cultivars (147 of 639 ha) were planted 25 or more years ago. One can hypothetically deduce that these four cultivars would have dominated the apple industry in SA 25 or more years ago.

On the basis of the evidence at hand, one can draw similar conclusions for a later period (16 to 25 years ago). Thus, 16 to 25 years ago, besides Golden Delicious cultivars, an historical mainstay of the apple industry and still the largest per ha, at 5 701 ha, the very popular cultivars at the time were Royal Gala/Gala (29% of these cultivars, i.e. 1 198 of 4 141 ha, were planted 16 to 25 years ago), Cripps Pink/Pink Lady (46% or 1 176 of 2 612 was planted 16 to 25 years ago) and, despite operating from a low base, Braeburn (36% were planted 16 to 25 years ago) was extremely popular as an emerging variety during this period.

The cohort of cultivar varieties 11 to 15 years ago suggests that there was almost an interregnum in the industry: no specific apple cultivars were dominant. But this is also the period from which the lowest smallest number of trees and orchards that were established remain: only 10% of the apple cultivars planted 11 to 15 years ago are still in existence today. This may either have been the case of a small generation of apple plantings during this period, or a higher proportion of cultivars planted during this period may have subsequently been uprooted and replaced with other cultivar varieties. Future interviews with key industry informants will shed light on this.

If we examine the trend for the more recent period, particularly cultivar varieties planted between 2007 and 2014, there is an even spread in the principal varieties of cultivars planted in terms of the percentage each contributes to its overall uptake (especially for the leading cultivars for the apple sector as a whole, such as Golden Delicious, Royal Gala/Gala, Granny Smith and Topred/Starking). There are areas where cultivars differ. But over the past three years, the apple cultivars that have had

the largest plantings per ha were, in order of rank: Cripps Red/Joya (579 ha), Royal Gala/Gala (446 ha), Cripps Pink/Pink Lady (365 ha), and Golden Delicious (344 ha). In terms of overall rank of ha under cultivation for each variety, Golden Delicious (5 701 ha) is still at the top, followed by Royal Gala/Gala (4 141 ha), Granny Smith (3 714 ha), Topred/Starking (2 612 ha), Cripps Pink/Pink Lady (2 565 ha) and Fuji (2 188 ha). Nonetheless, there is a noticeable trend of new cultivar varieties being planted with increasing intensity. This is particularly noticeable for Fuji, Kanzi and African Carmine. In the case of Fuji, 50% of all such orchards was planted between 2007 and 2014. Thereafter, there is a gradual decline in the intensity of new trees planted, especially between 2015 and 2017. One would have to ascertain the trend over a longer period to be absolutely sure what the precise trend is in the more recent uptakes of specific cultivars. Even though they operated from a small base, Kanzi and African Carmine apple appear to have gained popularity between 2007 and 2014.

From 2015 to 2017, although covering a shorter interval highlights a different ranking in terms of the apple cultivars which have gained the largest area of new plantings since 2017. If we ranked the area covered by new orchard growth and use rank in area covered as a proxy for popularity, the following varieties were the most popular apple cultivars planted since 2015: Cripps Red/Joya (579 ha), Royal Gala/Gala (446 ha), Cripps Pink/Pink Lady (365 ha), Golden Delicious (344 ha), Granny Smith (211 ha) and Fuji (206 ha). Thus, even though new cultivars cyclically enter apple orchard holdings, often gaining a high area of cultivation for specific periods, intermittently displacing the traditional mainstays of the industry (Golden Delicious, Royal Gala/Gala and Granny Smith), these traditional cultivars remain popular among farmers. Thus, it will take long period for these mainstay cultivars to be completely displaced, particularly considering the trend for the more recent period in which they continue to be cultivated. Since there are qualitative reasons for this, the interviews with key informants may indeed shed further light on this phenomenon.

The production of pears

As shown above and further below, as well in the chapter on the wine industry, the farmland area dedicated to apple and grape production is roughly equivalent (i.e. 25 811 ha for grapes and 24 156 ha for apples), and these two fruit types account for 62.5% of the area allocated to deciduous fruit cultivation in SA. This means that pears,

the next ranked fruit type in terms of area assigned for cultivation, accounts for less than half the area (i.e. 12 265 ha), at half the number of fruit trees (16.3 million) than those of apples or grapes.

Table 35: The pear production areas in South Africa in 2017		
District	Number of trees	Area (ha)
Ceres	5 892 366	4 551
Langkloof East	2 121 937	1 689
Wolseley/Tulbagh	2 110 547	1 495
Groenland	2 229 421	1473
Villiersdorp/Vyeboom	1 559 709	1 093
Klein Karoo	943 105	892
Langkloof West	280 090	236
Piketberg	240 119	207
Southern Cape	225 802	160
Somerset West	291 457	148
Worcester	152 875	108
Paarl	127 814	99
Stellenbosch	119 216	84
Franschhoek	20 890	16
Eastern Cape	10 470	11
Mpumalanga	858	1
Total	16 326 676	12 265

(source: *HORTGRO Tree Census, 2017 in HORTGRO, Key deciduous fruit statistics, 2017*)

Since the major portion of deciduous production is historically associated with Mediterranean type of climates, the production areas where pears are concentrated in South Africa generally mirrors that where apples and other deciduous fruits are found. This is mainly in the Western Cape, parts of the Eastern Cape and on a lower scale in parts of Mpumalanga. Although the cultivation of pears is spread throughout the Western Cape, areas with a high concentration of production, close to or exceeding 1

million fruit trees include Ceres (5.89 million trees over 4 551 ha), Langkloof East (1 689 ha), Wolseley/Tulbagh (1 495 ha), Groenland (1 473 ha), Villiersdorp/Vyeboom (1 093 ha) and Klein Karoo (892 ha).

The ages of South Africa's pear trees

Unlike apples, where there is a noticeable pattern of substitution by farmers of different pear cultivars, a similar pattern is not as noticeable for the pear industry. The three dominant pear cultivars in 2017 appear to have largely maintained their positions over the past 25 years: Peckham's Triumph, Forelle and William's Bon Chretien.³³³ However, there were periods in the past when cultivars such as Abate Fetel, Rosmarie and Cheeky enjoyed intermittent popularity among farmers. However, this intermittent popularity was not strong enough to displace the three dominant cultivars.

Stone fruit

Fruits classified as stone fruit include apricots, peaches, nectarines, plums and cherries. According to data from HORTGRO, in 2017, 924 producers in SA were associated with the production of stone fruit. Significantly, the bulk of stone fruit is sold as fresh produce, at 76% of stone fruit industry income in 2017 being generated by fresh sales. Overall, in 2017, stone fruit production in SA generated a turnover of R2.7 billion.

The production of apricots

The overall size of the area assigned to apricot production in South Africa is quite modest, at only 2 808 ha. The bulk of apricots (78%) are grown take in the Klein Karoo. The remaining apricot areas are broadly spread throughout the traditional deciduous producing areas of the Western and Eastern Cape. While the cultivation of apricots is slowly becoming more diffuse and spread out, only 3% of apricots are grown outside the Western Cape.³³⁴

³³³ See, HORTGRO, Key Deciduous Fruit Statistics, 2017.

³³⁴ See Table 36 below.

Table 36: Stone fruit production areas in South Africa in 2017

	Apricots	Dessert peaches	Cling peaches	Nectarines	Plums	Prunes	Cherries
District	Area (ha)	Area (ha)	Area (ha)	Area (ha)	Area (ha)	Area (HA)	Area (HA)
Klein Karoo	2 196	246	2 885	193	1 665	21	
Ceres	103	280	883	864	332	107	139
Piketberg	110	214	75	84	81	3	
Limpopo	14	241	21	165	32	0	
Worcester	93	33	427	65	139	3	37
Langkloof West	85	10	36	41	68	0	
Wolseley/Tulbagh	22	149	334	236	600	116	
Langkloof East	49	24	86	32	162	1	
Paarl	27	103	30	208	976	0	1<
Villiersdorp/Vyeboom	48	4	163	51	122	0	
Groenland		5	15	9	79	0	1
Free State	3	80	19	7	3	3	84
Southern Cape	28	7	323	1	101	0	
Mpumalanga	8	59	76	20	5	0	14
Stellenbosch	2	10	20	48	403	0	

Eastern Cape	5	10	26	11	10	4	
Upper Orange River	9	8	0	5	25	0	
Namakwaland				6			
Cape Town	6				16	0	
North West		31	4	28	2	0	24
Franschhoek		17	15	18	337	0	
Somerset West					89	0	
KwaZulu Natal		0	6				
Total	2 808	1 530	5 445	2092	5 248	258	299

(source: *HOTGRO tree census, 2017*)

The Bulida cultivar is the most popular apricot cultivar, with 51% of all SA's apricot orchards being of this variety. Apart from Bulida, other popular cultivars in the apricot sector include Soldonne, Bebeco, Imperial/Palsteyn, Supergold and Charisma. Including Bulida, all these cultivars account for 89% of apricot orchards under cultivation in SA.

The ages of South Africa's apricot trees

A disconcerting feature of the age distribution of SA's apricot orchards is that 48% of all apricot orchards are 18 years or older. This relatively high number of older and mature orchards contrasts to the significantly small proportion of apricot orchards younger than six years. Only 9% of SA's apricot orchards are five years old or younger.

The trend discussed above to an extent signifies a level of under-investment in apricot farming particularly in the development of new and young orchards. Perhaps this is a result of the crippling droughts that have been experienced in the Western Cape, particularly the Karoo, over the past few years. As noted, the Karoo also accounts for 78% of SA's apricot production. It will be insightful to get further insights into this phenomenon from in-depth interviews with informants.

The production of peaches

Generally, as illustrated in Table 36, two varieties or types of peaches are found in South Africa: dessert peaches and cling peaches. Each of these varieties has their own distinct cultivars. The production area associated with cling peach production is roughly 3.5 times larger than the production area of dessert peaches. This means that 5 444 ha of farmland are dedicated to cling peach production, while only 1 531 ha are used for dessert peach farming. While there is virtually a mirror image in the production areas in which dessert and cling peaches are produced, each area contributes to different levels of production and output for each variety. While the four highest production areas for dessert peaches in terms of rank are Ceres, Klein Karoo, Limpopo and Piketberg, these areas do not have the same rank in the measurement of cling peach production areas. The most prominent area for cling peach production remains the Klein Karoo, at 53% of the production area assigned to cling peach production, followed by Ceres, Worcester and Wolseley/Tulbagh. Notably, Limpopo has the third largest production area assigned to the production of dessert peaches, at 241 ha.

Simultaneously, only 21 ha in Limpopo is dedicated to cling peaches. The production areas assigned to cling peaches are wholly in the Western Cape: 96% of the production area given to cling peaches is in the Western Cape vs. only 4% outside the province. In contrast, 30% of dessert peaches are cultivated in production areas outside the Western Cape, with Limpopo having an important role.

The ages of South Africa's peach trees

Dessert peaches

A wide spectrum of dessert peach cultivars are found in dessert peach production areas of SA, without any specific cultivar receiving total dominance. The leading dessert peach cultivars are Transvalia and Summer Sun which, together, account for 15% of all SA's dessert peach cultivars.

Cling peaches

Among cling peach cultivars, Keisie perhaps remains the most dominant accounting for almost 25% of SA's cling peach production area. Nonetheless, there is still a sizeable production area assigned to less dominant cling peach cultivars. These cling varieties include Sandvliet, Kakamas, Cascade, Oom Sarel, Western Sun, Supreme and Professor Neethling, which collectively constitute 60% of the production area associated with cling peach farming. Combining this with Keisie means that the cling peach cultivars listed above collectively account for just fractionally over 84% of SA's cling peach cultivation.

The production of nectarines

The farming of nectarines also mirrors the locations of the production areas of peach and other deciduous fruit. In terms of size, as shown in Table 36, the total production area assigned to nectarine farming and production is fairly small, at only 2 092 ha, roughly 30% of the size of the area associated with peach farming (both dessert and cling).

The production of plums and prunes

As can be seen in Table 36, the combined area allocated to the cultivation of plums and prunes is almost roughly the same as that devoted to cling peaches. While both plums and prunes are mainly cultivated in the Western Cape, small pockets are found

in other provinces, at less than 1% of the overall area under either plums or prunes. In the Western Cape, prune cultivation occurs mainly in two adjacent districts of the Boland: Wolseley/Tulbagh and Ceres. Both also contribute significantly to SA's six leading plum producing districts, in order of rank: Klein Karoo, Paarl, Wolseley/Tulbagh, Stellenbosch, Franschhoek and Ceres.

The production of cherries

Like the cultivation and production of prunes, the size of the cherry production areas in SA in 2017 amounted to only 299 ha. This is illustrated in the far right-hand column of Table 36. Thus, it remains a niche fruit. Because of its small size as a fruit sector, cherry production also has a wider geographical spread. It is not only concentrated in traditional deciduous areas of the Western Cape, since 40% of its trees and orchards is spread across other provinces, such as the Free State, North West and Mpumalanga. The main cherry districts in the Western Cape are Ceres and Worcester.

The production of dried grapes

In the deciduous fruit sector, the subsector associated with the production of dried grapes is categorised differently and separately from the subsectors associated with table grapes or wine. Nonetheless, there are likely to be overlaps between all three areas, because not all grapes produced in the dried grape producing regions would necessarily find their way solely into the end-production of dried grapes. The region is likely to produce grapes that enter the table grape sector and grapes that enter wine production. The precise decision and calculation of these trends would likely be taken at the level of the farm production unit and would depend on other qualitative characteristics such as fruit size, water content, etc.

The main dried grape production regions are the Orange River and the Namaqualand, which collectively account for 16 586 ha of grapes dedicated solely to dried fruit production. These two regions are marginally smaller than the 17 680 ha assigned to the entire stone fruit sector of the deciduous industry (i.e. apricots, peaches, nectarines, plums, prunes and cherries). As Table 37 shows, 14 654 ha or 88% of dried grapes cultivated and produced in SA is drawn from the Orange River region, with the remaining 12% (1 932 of 16 586 ha) is cultivated in the Namaqualand.

Table 37: Area planted per cultivar in dry grape production per region in SA		
Cultivar	Orange River	Namaqualand
Thompson Seedless/Sultana	5 894	200
Merbein Seedless	3 348	243
Prime	1 271	16
Sugraone	1 027	44
Flame Seedless	923	57
Crimson Seedless	250	199
Currents	7	549
Regal Seedless	117	21
Sunred Seedless	2	12
Selma Pete	92	26
Other*	1 722	565
Total	14 654	1 932

* Further breakdowns of the data under *Other* are not available.

(source: HORTGRO, *Key deciduous fruit statistics, 2017*, p. 61)

A wide spectrum of cultivars is associated with the production of dry grapes, including Thompson Seedless/Sultanas, Merbein Seedless, Prime, Sugraone and Flame Seedless. Notably, virtually the entire crop of currents produced in SA annually derives from the Namaqualand.

The production of table grapes

SA's production of table grapes takes place in five key regions, all supplied through a natural perennial water source – typically a river source:

- Northern provinces, which cover the southern parts where a plethora of tributaries feed into the Vaal, Crocodile and Limpopo rivers as well as parts of northern Gauteng and northwestern Mpumalanga;
- Orange River, especially the western part where the river stretches from Sker pionpunt upward toward Upington and beyond
- Olifants River in the Western Cape
- Berg River in the Western Cape
- Hex River in the Western Cape.

Although the demarcation between producers of table grapes and those who produce grapes for other commodity outputs (e.g. dried grapes and wine) is not necessarily cast in stone, since different orchards on the same farm can theoretically produce grapes that feed into each of the various commodity output activities, in a relative sense only, the production of table grapes is distinct from that of dried grapes or that of wine.

Over the past decade, there has been a discernible upward trend in the land allocated for the production for table grapes, which has contributed significantly to the increased output recorded for table grape production. A 10-year synopsis of the regional growth in the number of ha assigned to table grape cultivation appears in Table 39.

Table 38: Regional growth of SA's table grape cultivation (in ha), 2008 to 2018			
Region	2008	2018	% change
Northern provinces	1 196	2 096	75.3%
Orange River	4 041	6 147	52.1%
Olifants River	491	1 318	168.4%
Berg River	3 647	5 109	40.1%
Hex River	4 636	6 397	38.0%
Grand total	14 011	21 067	50.4%

(source: SATI, 2018 Statistics, p. 4)

Table 38 shows that SA's total area under table grape cultivation increased by a massive 50.4% between 2008 to 2018. Notably, above-average increases in the area under cultivation were recorded in particular for the Olifants River (168.4%) and the northern provinces (75.3), which was supported by positive growth statistics for the remaining table grape regions. We will now examine the extent to which this increase in ha dedicated to table grapes translated into increased outputs in table grape crop harvests and subsequently product entering the local and international markets.

Table 39: Regional production of table grape (in cartons), 2008/9 to 2017/8

Region	2008-19	2017-18	% change
Northern provinces	3 438 559	6 828 762	98.6%
Orange River	15 192 418	19 015 641	25.2%
Olifants River	1 574 661	2 802 436	80.0%
Berg River	11 596 689	13 052 616	12.6%
Hex River	18 869 156	20 365 295	7.9%
Grand total	50 671 483	62 064 749	22.5%

(source: SATI, 2018 Statistics, p. 15)

While the regional growth in tables grapes cultivated in ha between 2008 and 2018 increased by 50.4%, as the data in Table 39 shows, this did not translate into an automatic equivalent increase in the cartons of table grapes produced for this period. Thus, for 2008-19 to 2017-18, the number of cartons of table grapes increased by 22.5%. Perhaps this is due to the diminishing returns from the expanded area under cultivation through use of marginal soils or limitations in the natural resource inputs such as water resources needed to irrigate larger areas. Or it may have been the result of a diminution in the quality of table grapes produced from a wider area. Interviews with key stakeholders can shed further light on this phenomenon. The clear exception however was recorded for the northern provinces where the area under table grape cultivation increased by 75.3% over the 10-year period from 2008 to 2018 but the percentage increase in the amount of table grape cartons produced over the same period increased by an even higher margin to 98.6%. This effectively means that higher land and other input variable productivities contributed to an even higher output productivities in table grapes produced.

7.1.1.2 Citrus

Citrus production is made up of a number of different fruits (e.g. oranges, lemons, grapefruit, soft citrus). Each distinct type is also associated with different plant types (e.g. valencia vs. navel oranges). Further, they are also differentiated by plant varieties. Valencia oranges planted across SA are typically consist of these varieties:

Midnight, Valencia Late, Delta, Turkey and Bennie. Similarly, navel oranges harvested in SA consist of plant varieties such as Palmer, Bahianinha, Cambria, Washington and Novelina. Also, many other varieties of each are planted and harvested on a smaller scale. The same characterisation applies to other citrus fruits such as grapefruit/pomelo, lemons/limes and soft citrus such as clementines, mandarin hybrids and satsumas. Potentially, through hybridisation, new plant varieties that have attributes such as tenacity, water dependence and yield characteristics of production conditions in the southern African climatic and soil context can rapidly come into favour.

In 2017, 74 902 ha of land in SA was devoted to citrus cultivation and production. If the citrus cultivation and production in Zimbabwe and Swaziland is included in the tabulation, the production area expands to 77 708 ha. Except for Gauteng and the Free State, SA's citrus production is spread across the remaining seven provinces, albeit unevenly. Table 40 lists the data on production areas by province, and includes the production areas for Zimbabwe and Swaziland that likely has links across various dimensions with the fruit value chain in which South Africa's production is inserted.

Table 40: Production areas for citrus in South Africa (includes Swaziland and Zimbabwe)		
Province	Area (ha)	Percentage
Limpopo	32 334	41.61%
Eastern Cape	20 171	25.96%
Western Cape	12 960	16.68%
Mpumalanga	5 739	7.38%
Zimbabwe	1 958	2.52%
KwaZulu-Natal	1 780	2.29%
Northern Cape	1 492	1.92%
Swaziland	848	1.09%
North West	426	0.55%
Grand total	77 708	100

(source: *Citrus Growers Association, Key industry statistics, 2017 export season*, p. 4)

Limpopo is SA's largest citrus producing area, followed by the Eastern Cape and the Western Cape (excluding Zimbabwe and Swaziland); these three provinces collectively make up 87.4% of SA's citrus production.

Table 41: Area planted per citrus group correlated with new plantings					
Variety	Area (ha)	%	New plantings		
			2012	2017	% change
Valencia/Midseason	28 435	36.6	1 367 732	1 435 184	4.9
Naval	16 190	20.8		(21.17%)	
Soft citrus	13 256	17.1	1 056 049	3 367 297	218.8
				(49.67%)	
Lemons and limes	11 909	15.3	675 600	1 761 740	160.7
				(25.99%)	
Grapefruit	7 886	10.1	31 020	202 505	552.8
				(2.99%)	
Other	32	0.1	23 022	11 907	-51.72
				(0.18%)	
Grand total	77 708	100	3 153 423	6 778 633	114.9

Note: Plant sales are used as a proxy for new plantings.

(source: *Citrus Growers Association, Key industry statistics, 2017 export season, p. 6*)

Concerning variety in the citrus group (i.e. plant types), more than half of citrus cultivation (57.4%) is dedicated to the production of oranges, with the Valencia/Midseason variety accounting for 36.6% of ha under citrus production, followed by Naval oranges, which account for 20.8% of ha. Concerning area under orange production as a whole, this translates into 44 625 ha. Soft citrus (Clementines, Mandarin Hybrid and Satsuma) account for a further 17% of land under overall citrus production, or 13 256 ha. The land area assigned to lemons and limes is 11 909 ha, or 15.3% of the total area dedicated to citrus production. Finally, roughly one-tenth of the ha used for citrus production is assigned to the cultivation and production of grapefruit.

Plantings

Since 57.4% of the area devoted to citrus production is dedicated to the cultivation of all orange types, one would have expected new plantings to reflect this pattern. In 2012, the proportionate differences between the percentage of citrus production dedicated to oranges vs. new orange tree plants was closer to 57.4% as a proportion of citrus hectareage vs. 43.37% of citrus tree plantings attributable to oranges. Over the past five years, this percentage distribution between the number of ha dedicated to the production of oranges and the number of tree plantings has widened, with new tree plantings only increasing by 4.9%, resulting in new tree plantings of oranges contributing to only 21.17% of all new tree plantings in the citrus sector during 2017. This may reflect the longevity of established orange tree orchards, which do not have to be renewed at a high tempo. It may also reflect a gradual substitution and diversification in citrus for other citrus varieties, which will gradually make for an incrementally larger contribution to citrus production.

Before these trends are explored in greater detail, notably, that soft citrus plantings constituted 49.67% of all citrus tree plantings in 2017. Even more significant is that soft citrus tree planting was lower than the orange tree plantings in 2012. Proportionately, the ratios for these two citrus varieties were 33.49% vs. 43.37%. Between 2012 to 2017, there was an increase in soft citrus plantings (i.e. clementines and mandarins) equivalent to 218.8%, whereas the increase registered in orange tree plantings for the same period was only 4.9%. Even lemon and lime plantings which were less than half of orange tree plantings in 2012, had surpassed the number of tree plantings for oranges in 2017. This overtaking was due to the significantly higher annual increment in lemon and lime tree plantings for 2012 to 2017 compared to orange tree planting. Over the five-year period, lemon and lime plantings increased by 160.7%.

New citrus plantings in 2017 highlight both an uneven spread in different plant types and within each plant type, an unevenness of plantings in different plant varieties. This unevenness is also seen in the geographical concentration of production areas. For instance, the same three provinces have the highest production areas assigned to the cultivation of different varieties of valencia and navel oranges. However, the area

allocated to valencia oranges is four times as large in Limpopo as in the Eastern Cape and, compared to the Western Cape, the area for valencia oranges in Limpopo is seven times as large. Conversely, the production area reserved for navel oranges is 50% greater in the Eastern Cape than in both Limpopo and the Western Cape. The production area for navel oranges in Limpopo and the Western Cape are almost equivalent.

While the distribution in plantings for Valencia and Navel oranges in SA's citrus sector in 2017 was 65.6:34.4 or 940 653 to 493 963, plantings for different varieties of valencia and navel oranges in the sector diverged significantly. Thus, in terms of a ranking by number of plantings, the following varieties dominated Valencia types in 2017: Midnight (585 424), Bennie (83 600), Late (78 265), Delta (51 042) and Turkey (41 902). Correspondingly, the plant varieties that dominated the plantings of navel oranges in 2017 included Cambria (137 375), Witkrans (127 425), Washington (52 057), Cara Cara (37 156), Fischer (33 048) and Bahianinha (28 110).

The dominant varieties of plantings for grapefruit/pomelo for 2017 were Star Ruby (154 625) and Marsh (35 400). In the same period, the dominant plant varieties for lemons and limes were Eureka (1 467 715), Lisbon (153 189), Limoneira (83 890) and Genoa (35 716).

Similar uneven distributions in plantings were recorded for soft citrus. Thus, for Clementine, the dominant varieties of plantings were the Nules (449 851) and Andes (118 454) varieties. For Mandarin Hybrids, the dominant varieties among plantings for 2017 included Nadorcott (922 538), Leanri (599 510), Or (393 674), Tango (273 256), Nova (254 696), ARCCIT1614 (53 693), Queen (40 500) and Tambor (39 436). Finally, the dominant planting varieties of Satsumas in 2017 were Belalate (28 114) followed by Miho Wase (20 675).

The ages of South Africa's fruit trees

The *2018 Report of the key industry statistics* for the Citrus Growers Association presents data on the age distribution of orchards for both Navel and Valencia oranges. While the data are not linked to the fruit yield of single trees or fruit yield per ha for trees according to age, they show that both Navel and Valencia trees have a

commercially productive lifespan that stretches from one-year old to roughly 40-year old trees. However, it appears that, for both Navel and Valencia, there is a tapering off of the number of trees older than 20 years for Navels and 22 years for Valencia. This could imply many things, and the interviews should shed further light on these matters.

It is only logical to expect the number of trees in the aggregate to decline with age, because older trees endure a significantly longer duration of climate, disease and human settlement vagaries (e.g. fires and other hazards brought about by human settlement encroachment) compared to younger trees. Perhaps younger trees, as a result of the initial planting and investment outlay, are also given greater attention so as to ensure survival and quality control of the fruit harvested at the start of their growth cycle. Thus, for Navel and Valencia, a higher proportion of trees under commercial agriculture are younger than 20 and 22 years, respectively. However, it is also logical to assume that as new land is brought under citrus cultivation, the tree age will almost wholly start from fledgling plantings or trees less than a year old. One still has to pose the question to the major citrus growers what the precise effects of citrus tree age are on the yield and the quality of the harvested fruit.

The age distributions of soft citrus, grapefruit, lemons and limes do not exactly mirror that of oranges. More importantly, the orchards and the age distributions of these remaining varieties appear to have a shorter lifespan. This may not be the result of specific botanical characteristics in the fruits in question but, more particularly, the result of a relatively later uptake in the commercial farming of these varieties, especially soft citrus, grapefruit, lemons and limes. Evidentially, soft citrus trees or orchards in SA have an age distribution between 1 and 30 years. However, the largest cohort of soft citrus fruit appears to be harvested from trees between 1 to 8 years. Thereafter, there is a significant decline in soft citrus harvests drawn from trees aged 9 to 16, but there is a slight numerical increase in harvests from trees aged 17 to 19 years. Thereafter, there is a gradual decline in harvests derived from soft citrus trees aged 20 years or more.

There is a further peculiarity in harvests from grapefruit, lemon and lime orchards and trees that share a similar pattern. In the case of grapefruit, data from the *Key industry statistics* of the Citrus Growers Association shows that the bulk of grapefruit harvests

for 2017 was harvested from grapefruit orchards and trees between 7 and 14 years old. Another upward swing in harvest output was recorded from grapefruit trees between 20 and 23 years old. Thus, two upward age cohort cycles among grapefruit trees are responsible for the bulk of harvested fruit. It also appears that the bulk of grapefruit trees generating commercial harvests ranged from 1 to 25 years. Incidentally, there is a similar age distribution patterns of lemon and lime trees, which appear to have a commercial lifespan of up to 25 years. The evidence shows that the bulk of lemon and lime harvests were obtained from trees or orchards ranging from 1 to 7 years and again trees aged 19 to 21.

7.1.1.3 Subtropical fruit

The key subtropical fruit in our analysis into the labour market effects and implications of GVCs are avocados, litchis and mangos. Unlike deciduous and citrus fruit, the employer associations active in SA's avocado, litchi and mango industries do not release their annual industry producer and marketing statistics into the public domain. The employer associations that oversee these three different subtropical fruit industries are SAAGA (established in 1947), SALGA and SAMGA.

Avocados

Since there is insufficient data about the inputs into primary production at this stage, we will briefly comment on the specific structure in which each of these grower associations is organised. Although one is able to glean limited insights into how these associations are organised, a slightly greater level of organisational detail can be extracted about SAAGA. According to its website³³⁵, SA's avocado industry consists of approximately 17 500 ha of orchards. Most these are situated in northeastern part of SA, primarily in Limpopo and Mpumalanga where the warm subtropical climate is conducive. These traditional areas of avocado production typically receive an annual rainfall above 1 000mm. Nonetheless, avocados are also grown commercially in specific areas of KwaZulu-Natal, the Eastern Cape and Western Cape. The SAAGA suggests that the industry is expanding in terms of orchard production at around 1 000 ha per year. Total production in 2018 was estimated at 170 000 tons, of which approximately 50% or 86 000 tons was exported mainly to Europe and the UK. The

³³⁵ See: avocado.co.za

remainder of the crop is consumed domestically, while 10% is processed further as puree and avocado oil.

However, a healthy global demand for avocados has resulted in requirement for a perennial supply of the product drawn from both production centres elsewhere on the globe as well as locally. This has resulted in the supplementation of local seasonal production outputs, which extends from February to November when SA's season in ends. Nonetheless, this production output is synchronised to feed into a perennial global demand. Even in SA, geographical and climatic differences contribute to some variations in output availability. For instance, the Fuerte avocado cultivar is harvested from March to May in SA's northern regions and in July and August in KwaZulu-Natal.

According to SAAGA, 80% of avocado trees produced in SA nurseries are the dark-skinned Hass and Hass-type cultivars such as Carmen, Gem, Lamb-Hass and Maluma. Green-skinned cultivars such as Fuerte, Pinkerton, Ryan and Reed make up the remaining 20% of nursery tree production.³³⁶

While it has not been possible to obtain more detailed statistical information about the production organisation and product outputs for the avocado industry as a whole, the industry typically has a structured format. This can be differentiated between the farming of avocados, the packaging process, which may involve either the farmer or an external packaging company, to the exporting entity or companies further along the value chain. SAAGA also provides contact lists of nurseries that supply farmers and producers with new plants to either replenish existing orchards or to develop new orchards. Notably, SAAGA acknowledges that in the area under cultivation is expanding roughly by 1 000 ha per year. Whether nurseries are separate entities from avocado farms or part of these, both nursery development and farm development and expansion will continue to generate labour-absorbing employment, even though there are insufficient statistics to measure this process. However, from the list of companies involved in avocado nurseries and avocado exports, the only company names that are common to both is Westfalia Fruit.

³³⁶ See: avocado.co.za

A highly sophisticated export logistic system is used to bring avocados from producers to markets, especially global fruit markets. Most of the avocados that are exported from SA are transported by sea in refrigerated containers in a controlled atmosphere. Where fruit destined for markets is not ripened prior to retail, 1-MCP or Smart Fresh treatment is used as an alternative method in the export logistics process. However, even when avocados are transported from orchard to packhouse and subsequently to port, use is made of refrigerated road transport trucks so as to ensure that the produce reaches the port destination in a good condition. The avocados are typically containerised in the port prior to shipping. Despite being approximately 1 800km from the principal production region, Cape Town remains SA's major export port. The sea voyage from Cape Town to Europe typically takes 14 to 18 days. Overall, after packaging at the point of production, it takes roughly 25 days for the fruit to reach European retailers. Thus, it is vital that strict control of all links in the cold chain is maintained to ensure high fruit quality standards.

Litchis

To a degree, as subtropical fruit, the litchi industry mirrors the avocado industry. However, because there are very few statistics to draw on, one can only provide a rough summarise litchi production in SA. Employers in the sector are supported by SALGA. The only data that SALGA provides on its website relate to member companies in the industry and that have businesses organised into exporters, processors and as packhouses. Besides the names and addresses of member companies in the above divisions, there is no further information about production and the industry's organisation. Some companies that are listed as SAAGA members are also listed as SALGA members, although these companies are mostly listed as exporters. These include Afrupro Marketing, Agrilink, C. Tabanelli Export, Core Fruit, HL Hall & Son, It'So Fresh Export and Premier Fruit Exports. No other details are provided.

Mangos

As is the case for litchis, there are insufficient statistics to allow for a comprehensive overview or synopsis of SA's mango industry. Yet there is some resemblance in the categories used to depict different activities in the value chain to those observed in the avocado and litchi industries. Thus, companies that are SAMGA members are

grouped into three divisions, excluding producers or farmers for which no information is provided. Besides the names and contact addresses of SAMGA members, they are exporters, packhouses or processors. A number of companies are listed across two or more activities; these include companies such as: Alliance Fruit, Jonkmanspruit, Unifrutti, Westfalia, Valley Export Fruit Packers and Wild Hawk Farm. SAMGA also provides a regional membership list of processors that are members. This regional list contains companies in the following regions: Gauteng (three companies), Hoedspruit (nine companies listed as processors), Letaba (15 companies), Nelspruit/White River (three companies), Onderberg (four companies) and Soutpansberg (three companies). Ultimately, each of these activities that go beyond initial agricultural cultivation and harvesting entail labour force activities that reflect the complexity of the activities engaged in.

7.1.2. Production capacity, technology and innovation

“Higher value is not associated with more processing, but with functional and process upgrading to maintain quality and preserve the shelf life of fresh fruit, as the highest value product. This is referred to as ‘industrialisation of freshness’ (Cramer, 2017) and entails investments in pack houses, cold chain facilities and logistics, as well as 0 100 200 300 400 500 600 700 Index, 2001=100 South Africa Brazil Chile Mexico India 21 growing the most desirable fruit varieties. The process of exporting fresh fruit to international markets requires more technological sophistication, packaging, temperature and disease control, and computerised logistics than exporting lower value processed fruit juice (Cramer and Sender, 2015).”³³⁷

Since 72% of total fruit production is sold in export and local fresh markets, it is critical that farmers and packhouses comply with global farming standards such as Global GAP concerning the use of pesticides and water quality.³³⁸ Various commodity associations, in association with the Department of Agriculture, Forestry and Fisheries determines the quality standards for exports. Criteria that must be met include fruit

³³⁷ Chisoro-Dube, S; das Nair, R; Nkhonjeram, M and Tempia, N: Structural transformation in agriculture and agro-processing value chains, Industrial Development Think Tank (IDTT), 30 April 2018, p20-21. See also Cramer, C. (2017). The Industrialisation of freshness and its implications for African development. Presentation at the SOAS Africa conference 2017 Actors and Perspectives in the future of African development'. and Cramer, C., & Sender, J. (2015). Agro-processing, wage employment and export revenue: Opportunities for strategic intervention. Trade and Industrial Policy Strategies (TIPS).

³³⁸ Chisoro-Dube, S., Paremoer, T Jahari, C., and Kilama, B. Growth and development of the oilseeds-edible-oils value chain in Tanzania and South Africa. CCRED Working Paper 2018/3, 2018).

maturity, size and blemish levels. Further, quality inspections are carried out on all consignments destined for shipping by the Perishable Producers Export Control Board (PPECB), a parastatal organisation in the sector that also ensures that standards for refrigerated road transport and refrigerated containers are met. Growers that export have must also comply with Good Agricultural Practices standards laid down by the Department of Agriculture, Forestry and Fisheries. Further, more than 95% of the industry is Global GAP-accredited.

'Reject' fruits and vegetables are processed into to juice concentrates, purees, pulps and preserves at manufacturing establishments and only accounts for an estimated 29% of total fruit production. It adds value by increasing the fruit's shelf life, but generates lower returns than fresh fruit, despite the high capital investments and sophisticated infrastructure and skills required for these manufacturing activities.³³⁹

7.1.3. End-markets, local trade and global trade

7.1.3.1. Deciduous fruit

Economic indicator data issued by HORTGRO shows that roughly 2 231 producers are involved in the deciduous fruit growing industry. This contributes to an annual turnover of roughly R12.35 billion in 2017. Overall, the sector also has a high export concentration: approximately 44% of production is exported. The industry provides an estimated 1.34 permanent jobs for every ha of farmland devoted to deciduous farming.

Pome fruit

According to HORTGRO, 91% of SA's pome fruit industry income is generated through sales of fresh fruit. The pome sector (apples and pears) had an annual turnover of R8.37 billion in 2017. SA's largest export markets for pome fruit are differentiated, with 31% of our apple exports going to the Far East and Asia, while 37% of pears are exported to Europe.

³³⁹ Ibid and van Lin, Micha; van den Bos, Aart and Sterras, Nazeem: The Current State of Fruit & Vegetable Agro-Processing in South Africa-Challenges and Opportunities, Final report, 26 November 2018.

Distribution of the apple harvest output

If one examines the apple industry, in particular the disaggregation of the tonnage distribution of overall production, one can generally advance some key statements. In 2017, 25% of SA's annual apple harvest was sold on local markets. The definition used by HORTGRO for local markets includes all market sales undertaken in SA as well as direct sales to supermarkets. A further 44% of the total apple harvest tonnage is exported as fresh produce, while a further 31% enters the agro-industrial processing cycle as inputs into various by products and other commodities in which these are an input. Dried apples constitute a mere fraction of the crop distribution, accounting for 0.026% of overall tonnage, or 240 tons in 2017.

While the overall production of apples in tonnage has increased incrementally between 2008 and 2017, a similar pattern of incremental increases was recorded for fresh apples traded on local markets, exported apples and processed apples. The pattern for dried apples was different; its output increased from 1 720 tons in 2008 reaching a high midpoint of 3 160 tons in 2014. However, thereafter, dried apple production declined noticeably to only 240 tons in 2017.

Bearing in mind that apple quality issues come into play in the distribution of the overall apple harvest, the data nonetheless provides insights into the split in the total harvest between exports, sales to local markets and processing. As noted, this split in overall product distribution in 2017 was 44%, 25% and 31%, respectively. If we look at the price realised per ton for apples on export sales of fresh produce vs. sales on local markets of fresh produce, vs. processed apples per ton, there is a stark contrast. In 2017, the net price realisation on exports for apples per ton was R9 651, R5 554 per ton from local sales, and R1 336 per ton for processed apples. Thus, a higher nominal income value is derived from exporting apples compared to apples assigned to local sales. Similarly, a higher nominal income value was obtained from apples sold on local markets compared to those processed further up the value chain. These patterns were already noticeable from an earlier period. However, the pattern in the historical trend in apple prices

Export destinations: Deciduous fruit

Table 42: Export market percentages for selected deciduous fruit in 2017								
Market segment	Apples	Pears	Apricots	Peaches	Nectarines	Plums	Cherries	Dried Grapes
Far East and Asia	31%	17%	1%	2%	1%	5%	17%	2%
Africa	30%	3%	1%	2%	<1%	1%	2%	12%
UK	18%	6%	27%	36%	57%	26%	50%	6%
Middle East	7%	19%	46%	42%	17%	18%	19%	2%
Europe	6%	37%	25%	15%	22%	45%	7%	57%
Russia	4%	13%		<1%		4%		
Indian Ocean Islands	3%	2%	<1%	3%	2%	1%	5%	
U.S. and Canada	<1%	3%		<1%	<1%	<1%		19%
South America								2%
Amount exported in 2017	33.4 million (12.5kg) cartons	17.4 million (12.5kg) cartons	774 240 (4.75kg) cartons	2.17 million (2.5kg) cartons	4.12 million (2.5kg) cartons	12.34 million (5.25kg) cartons	234 922kg	48 888 tons

(source: HORTGRO, *Key deciduous fruit statistics, 2017*)

since 2008 shows that, between 2008 to 2017, the net export price realisation per ton increased by 78%. In the same period, the sales price of apples sold on local markets increased by 53% per ton. In contrast, the average price realised for processed apples over the same period increased by 25% per ton. Thus, higher net income values are generated by exports compared to sales on local markets, which generate higher income values than processed apples.

While the analysis of apples provides insights into the complexity of the distributions of all deciduous fruit types in markets and a timely reminder of the structures and compositions of commodity value chains, it is not possible to provide the same level of detail for all deciduous fruit types. A synoptic outline of the export destinations for selected deciduous fruit in 2017 is provided in Table 42. It is apparent that different fruit types are taken up in different ways in traditional export markets. Perhaps tastes, climatic conditions and local cultures influence the uptake of specific deciduous fruits into different export markets. As noted, the apple export market is one of SA's largest fresh fruit export commodities. In 2017, 33.4 million 12.5kg apple cartons was exported from South Africa. This was almost double the export size of pears in cartons of an equivalent size exported from SA. However, in terms of rank, the major export destination for fresh apple exports from SA was the Far East and Asia, followed by Africa and the UK. In terms of rank, fresh pear exports in 2017 were destined for Europe, followed by the Middle East and Africa. However, for a number of deciduous fruits, the principal exports were mainly the UK, the Middle East and Europe, with each commodity fruit type having a different ranking for these three export destinations. It is only with fruit types such as cherries and dried grapes that the sequence in export destinations changed. Aggregate exports of dried grapes from SA in 2017 amounted to 48 888 tons, with the bulk of exports going to Europe, including Russia (57%), the U.S. and Canada (19%) and Africa (12%).

7.1.3.2. Table grapes

Table 43: Five-year export market split: 2013/14 to 2017/18 measured by 4.5kg-equivalent cartons				
Market	2013/14	2017/18	% change	% of SA exports in 2017/18
Africa	588 221	984 380	67.3%	1.7%
Canada	325 181	2 210 817	579.9%	3.7%
EU	28 517 908	31 038 686	8.8%	52.5%
Far East	2 267 068	3 241 460	43.0%	5.5%
Indian Ocean Islands	340 638	332 085	-2.5%	0.6%
Middle East	2 584 810	2 593 922	0.4%	4.4%
Russian Federation	1 311 821	1 484 694	13.2%	2.5%
UK	11 517 003	14 150 556	22.9%	23.9%
South East Asia	2 829 491	2 638 802	6.7%	4.5%
U.S.	29 177	214 815	636.2%	0.4%
Other		242 729	–	0.4%
Total	50 311 308	59 132 945	17.5%	100%

(source: SATI, *2018 Statistics*, p. 16-17. Further calculations made based on SATI statistics)

Table 43 outlines SA's table grape export markets by size (as a percentage of equivalent cartons exported) as well as on the basis of the change rate in these markets' growth between 2013/14 and 2017/18. In ranking and size, SA's largest table grape export markets are the EU (52.5%), the UK (23.9%), the Far East (5.5%), South East Asia (4.5%) and the Middle East (4.4%); these collectively account for 90.8% of SA's table grape exports. The EU and the UK account for 76.4% or more than three-quarters of SA's table grape exports.

However, by examining the percentage change over a given period, one can gauge the growth patterns and possible trajectories of these markets into the future. We used 2013/14 to 2017/18 as a general proxy, since this is the timescale that SATI's statistics allows for. Over this period, table grape exports increased by 17.5%. But in three of

SA's traditionally large export markets for table grapes, as examined above (the EU, South East Asia and the Middle East), export growth over this period was lower than the aggregate total of 17.5%, at 8.8%, 6.7% and 0.4%, respectively. Only in two of SA's traditionally large export markets for table grapes did the growth exceed 17.5%: the UK (22.9%) and the Far East (43%). However, in three relatively expanding growth markets for SA table grapes, the percentage growth rate over this five-year period was higher than the average aggregate of 17.5%. Although these markets are calculated from a lower export base, their future growth prospects appear to be potentially positive. These non-traditional growth markets for table grapes that showed an upward trajectory over the five-year period included Canada (579.9%), Africa (67.3%) and the U.S. (636.2%). Thus, the data give express the nuanced market differentiation in GVCs, particularly in the fruit value chain.

7.1.3.3. Citrus

South Africa occupies a unique place in the world's fresh citrus production rankings. While it is only ranked 13th in terms of world fresh citrus production and in Africa significantly behind Egypt (ranked 7th in the world as a fresh citrus producing country, it is also behind Turkey, Argentina, Iran, Italy and Pakistan in the world rankings of fresh citrus producing countries. However, in terms of world fresh citrus exports, SA is ranked third and was only surpassed by Spain (1st) and Turkey (2nd). In terms of fresh citrus exports, SA is ahead of countries such as the U.S., China, Egypt, Mexico, Morocco, Greece and Argentina. In terms of specific citrus fruits, SA is the second largest exporter of fresh oranges, the fifth largest exporter of lemon and limes, the leading exporter of grapefruit, and it is ranked sixth as an international exporter of fresh soft citrus.

The breakdown of the destinations of the aggregate citrus harvested in SA showed that 76% was exported, 18% was processed and only 6% was assigned to local fresh fruit consumption.

The breakdown of citrus exported from SA in 2017 according to fruit and variety types were: Valencia oranges 43%, followed by Navels (17%), lemons (16%), grapefruit (13%) and soft citrus (11%).

Export destinations

Citrus exports from South Africa in 2017 enjoyed wide global penetration. As a percentage, 33% of SA's citrus was exported to Europe, 18% to the Middle East, 16% to South East Asia, 9% to the UK, 9% to Russia, 8% to the rest of Asia and 6% to North America. In terms of rank, the major foreign ports for the destinations of SA citrus in 2017, included Rotterdam, London Gateway Port, Jebel Ali, St Petersburg, Hong Kong, Shanghai, Sines, Chittagong, Philadelphia, Jeddah, Dammam, Toronto, Tokyo, Port Kelang, Shenzhen and Livorno/Leghorn, with each port destination of export receiving 25 000 or more pallets (weighting 15kg) of citrus from South Africa.

In 2017, SA's total crop of harvested oranges amounted to 1 362 651 tons. Of this amount, 79.7% (1 085 491 tons) was exported, 13.9% (189 417 tons) was processed, while 6.4% (87 743 tons) was sold on the local market. Considering the combined export sales of Valencia and Navel oranges, 45 varieties of both types of were exported. SA's top export varieties of oranges in terms of rank included Valencias, Midknights, Navels, Delta and Cambria Navels.

In 2017, 261 046 tons of soft citrus was produced in South Africa. The distribution between exports, processed soft citrus and sales through local markets was: exports 77.2% (201 554 tons), processed soft citrus 11.3% (29 488 tons) and sales through local markets 11.5% (30 005 tons). If one only considers soft citrus varieties that were prominent in export markets, notably, at least 47 varieties were presented in sales from SA. The most prominent varieties of soft citrus exported in 2017 consisted of Nadorcott, Nova, Nules Clementines, Clementines, Satsuma, Miho Wase Satsuma and Orri.

The distribution of the 288 796 tons of grapefruit harvested in 2017 was distributed between exports, processed fruit and through local markets in the following ratios: 69.9% (201 804 tons) was exported, 27.2% (78 639 tons) was processed and 2.9% (8 353 tons) was distributed through local markets. In terms of the number of cartons sold by rank, the most popular varieties of grapefruit exported were Star Ruby (86% of grapefruit exported), Marsh (12.1%) and Rose (1%).

In 2017, the citrus sector produced 430 305 tons of lemons and limes. This was almost double the harvest of 2008, when 217 938 tons of lemons and limes were produced. The crop distribution of the 2017 harvest can be disaggregated as follows: 66.5% (286 087 tons) was exported, 29.5% (126 929 tons) was processed and 4% (17 287 tons) was distributed through local markets. The most popular export varieties were lemons (57.1%), Eureka (40.8%), Eureka Seedless (0.7%), Lisbon (0.6%) and Genoa (0.5%). Limes only constituted 0.1% of exports.

The quality of South Africa's exported citrus fruit

While data that benchmarks the quality of citrus fruit produced in SA as well as the quality of fruit exported, processed and distributed through local markets is not reflected in the CGSA's *2018 Key industry statistics*, there are some insights on the quality of SA fruits channelled through special export programmes. Partial data is contained for special export programmes to Korea, Japan and the U.S., but the data only covers 2015 to 2018. The data for the Special Export Programme to Korea mainly covers four cultivars for this three-year period. It shows that 89% of four aggregate cultivars exported to Korea were approved in terms of quality for 2015. This total number of cartons of fruit presented for export to Korea in 2015 was 1 078 095 cartons. Higher rejection rates were experienced for grapefruit (85% approval) and Midknights (92% approval). A significant improvement was experienced for exports to Korea in 2016 and 2017; for both years, an approval rate of 98% was recorded. The approval rates for grapefruit improved dramatically, from 85% in 2015 to 98% in both 2016 and 2017. However, in both years, the number of cartons exported was lower than recorded previously for 2015. In 2016, 870 825 cartons of the above four citrus cultivars was exported to Korea, increasing marginally to 954 135 cartons in 2017.

Data on the special export programme to Japan lists three cultivars that were presented for exports; these included: grapefruit, lemons and oranges. In 2015, the total number of cartons of the above fruit listed for export from SA to Japan amounted to 3 251 851 cartons, resulting in a 98% approval rating. However, this approval rating of citrus exports from SA to Japan declined marginally from 98% in 2015 to 96% in 2016 and 95% in 2017. The main contributors to this decline was a lower approval rating received for grapefruit exports (96% for both years) as well as a marginal decline in the approval rating of oranges, which fell to 97% for both years. This decline in the

approval rating to Japan for 2016 and 2017 was also associated with a marginal decline in the number of cartons exported. In 2016 and 2017, the number of cartons of grapefruit, lemons and oranges that were exported from SA to Japan declined to 2 386 277 in 2016, improving marginally to 2 893 504 cartons in 2017.

It appears that the approval rating of citrus exports from South Africa to the U.S. was more strenuous than those recorded for citrus exports to Korea and Japan. The data for the special export programme between SA and the U.S. lists four cultivars that were included in the analysis and covered 2015 to 2017. The five cultivars against which the approval rating is measured included Navels, Clementines, Midknights, Cara-cara and grapefruit. In 2015, the number of cartons of the above fruit presented in the special export programme to the U.S. numbered 3 495 050 cartons. The approval rate in 2015 was 96%. High on the list of cartons rejected were Clementines, of which 7% of the cartons were rejected, and grapefruit, which recorded 6% of cartons being rejected. While there was a marginal increase in the number of cartons presented as part of the special export programme to the U.S. in 2016, the rejection rate increased. Thus, in 2016, only 94% of cartons were approved, a 6% rejection rate. Clementines fared even worse than in 2015, with 13% of cartons being rejected. Surprisingly, grapefruit exported from SA to the U.S. in 2016 recorded the highest approval rating, 99%. This means that only 1% of grapefruit cartons were rejected. In relation to the number of cartons exported in 2015, there was a modest decline for cartons of citrus fruit presented for export to the U.S. in 2017. Nonetheless, the aggregate approval rating of cartons in 2017 was better than that recorded in both 2015 and 2016. Thus, in 2017, the approval rating of citrus exports to the U.S. by cartons was 97%. This means that only 3% of citrus exports from SA linked to the special export programme to the U.S. was rejected. In 2017, high approval rates were recorded for Navels, Midknights and grapefruit. In contrast, Clementines recorded a rejection rate of 5%, and Cara-Cara 4%. However, compared to 2015 and 2016, the approval rating for 2017 was higher (meaning that the rejection rate for citrus exports to the U.S. was lower).

7.1.3.4. Subtropical fruit

Avocados are one of the most significant export subtropical commodities. Approximately more than 50% (86 000 ton) of an estimated total production of 170 000 ton was exported, mainly to Europe and the UK, in 2018. The remainder of the crop was consumed domestically, with approximately 10% processed as oil and puree.³⁴⁰ Local production is mainly concentrated in Mpumalanga and Limpopo, with expanded production in the Eastern Cape, Western Cape and KwaZulu-Natal resulting in harvesting between March to September each year. The all-year availability of avocados is made possible by the importation from other growing countries throughout the world.

7.1.4. Auxiliary services: Sustainable production and land, water, energy use and logistics

Access to land and water

Access to land and water remains a critical issue that informs the development of the value chain. The management of transformation programmes such as Government's Land Reform Programme, which encompasses restitution, land tenure reform and land redistribution, together with water rights issues in a water-scarce environment, are central to the fruit value chain's development. The regulatory environment for the ownership and use of land and water was largely in formed by the Constitution and attendant legislation such as the National Water Act No. 36 of 1998, the Restitution of Land Rights Act 22 of 1994 and the subsequent Amendment Act 48 of 2003, the Communal Land Rights Act 11 of 2004, Extension of Security of Tenure Act 62 of 1997, and subsequent amendments and the Spatial Planning and Land Use Management Act No. 16 of 2013.

Sustainable production

What is evident is an increased awareness of the need for the sustainable use of resources such as land and water among producers. The establishment of SIZA has led to environmental audits as an integral part of ethical trade accreditation of producers and packhouses.

³⁴⁰ See <https://www.avocado.co.za/overview-of-sa-avocado-industry/> 15 November 2019.

Energy

Energy is needed throughout the fruit value chain, ranging from agricultural inputs, production, processing/packaging, transportation and marketing. Energy use in the fruit industry value chain is distinctly higher during the later stages owing to extended cold storage and the cold chain requirements of transport, packaging/processing and distribution.³⁴¹ Hence the need to reduce reliance on fossil fuel through increasing the use of renewable energy sources as per FAO prescripts.³⁴²

Logistics

The use of dry and wet ports are critical to facilitating exports. Recently, strike action by the stevedores employed by Transnet, particularly at Port Elizabeth (Ngqura terminal) and Coega harbours, threatened to disrupt exports to major global markets. Hannes de Wall, the CEO of South Africa's biggest citrus packhouse, the Sundays River Citrus Company (SRCC), summed up the dilemma of citrus producers as follows:

*"Usually we process and sell 500 000 cartons of citrus weekly, which includes organically grown fruit. That's now dropped right down. The irony is that the citrus industry has expanded to the Eastern Cape because of access to two new container terminals. While we have these wonderful facilities we cannot use them because of the strike...If this strike action continues for another two weeks we will have to stop the packing (for export). That would see huge amounts of fruit being lost due to over maturity. Our potential losses, from that alone, would be R60 m a week... This strike has left our country's reputation in tatters, with our competitors in Argentina, Spain and Egypt capitalising on our crises."*³⁴³

Justine Chadwick, the CEO of the Citrus Growers Association, echoed this sentiment as the strike was spreading to Cape Town and Durban ports, where existing equipment failures (e.g. undercapacitated power supply to containers requiring cold storage), absenteeism and adverse weather affected performance at container terminals.³⁴⁴

³⁴¹ Mason-Jones, Kyle; Notten, Philippa and Rambaran, Natasha: Energy as an input in the food value chain- Understanding the Food Energy Water Nexus, World Wide Fund for Nature Report ,SA, 2014.

³⁴² Sims, R.; Flammini, A.; Puri, M. and Bracco, S.: Opportunities For Agri-Food Chains To Become Energy-Smart , Food and Agriculture Organization of the United Nations(FAO), November 2015

³⁴³ Hosken, Graeme and Mashego, Penelope: *Strike threatens to sour citrus exports*, Sunday Times, Business Times, 21 July 2019, p5.

³⁴⁴ Ibid and Telephonic interview conducted with Justin Chadwick, on 29 November 2018.

7.1.5. The governance of value chains

Fruit SA is the umbrella body that represents associations and relevant bodies such as SIZA in the fruit industry. It is tasked to engage Government, public institutions and other strategic stakeholders on policy-related and industry-related matters. It gathers and disseminates industry-related information, including the promotion and co-ordination of BBBEE, transformation and skills development. Its membership consists of associations that produce, process and market citrus, deciduous fruit subtropical fruit and table grapes.

Citrus

The CGASA facilitates industry access to global markets, optimises cost-effective production of quality citrus, and provides services such as research, skills development, technical capacity, environmental sustainability, community development and communication with all relevant stakeholders for its members in South Africa, Swaziland and Zimbabwe.³⁴⁵

Underpinning its activities were lead companies with integrated operations. Renowned among citrus growers is the SRCC, the largest packer and marketer of citrus in the Southern hemisphere; it is owned by 105 growers. The entire value chain is accredited by both local and international agencies such as SIZA and Control Union, including buyers such as Walmart.

Deciduous fruit

South Africa's deciduous fruit producers formed HORTGRO, an association to facilitate "production, research and technology, communication, markets, and transformation within the deciduous fruit industry".³⁴⁶ HORTGRO stone and pome producers, including black deciduous fruit growers represented by the DFDC, were serviced by the fruit plant material provider SAPO Trust, Plant SA, which provides management and administrative services in support of plant improvement and plant

³⁴⁵ Ibid.

³⁴⁶ see <https://www.hortgro.co.za/our-history/>, 17 October 2019.

certification, manages cultivar development through CULDEVCO and Fruit Fly Africa, which plans, co-ordinates and executes area-wide fruit fly control programmes.³⁴⁷

Central to the development of the industry has been large integrated companies such as the Du Toit Group. Headquartered in Ceres, it consists of a number of divisions that deal with the entire value chain. Under the auspices of Du Toit Agri, its Koue Bokkeveld and Langkloof farms in the Western Cape and Eastern Cape supply a significant part of its produce. It is augmented by Newtrend Farms, which forges joint ventures with independent farmers, and Libland, its empowerment initiatives, which involve the Crispy Group and Misgund Oos Boere Trust.³⁴⁸

Du Toit Invest houses key value chain activities concentrated around its secondary agricultural activities. It has made significant investments in companies such as Ceres Koelkamers (50%), Ceres Fruit Processor (24.3%), Cape Fruit Coolers (41.78%) and Koukamma Fruit Packers (65%) and related services provided by Du Toit Hout Nywerheid (100%), Lumbri Compost (38.9%), Rosenhof Nursery (30%), UPOT Seed Company (70%), Top Fruit (%). Market access is also facilitated by Link Supply Chain Management (30%), The Fruit Route (60%), DLX Logistics (50%) and FGX (4.4%). Du Toit International facilitated the development of a global footprint through investment in Du Toit Europe B.V. (50%), DSA Incorporated (45.5%) and Aussenkehr Table Grapes (50%).

Kromco, one of the largest deciduous fruit packing facilities in SA that specialises in the packing, grading, storage and marketing of quality apples and pears for both the local and international markets, has an ownership arrangement with a different structure to that of the Du Toit Group. It is 100% owned and supplied by producers from the Elgin, Grabouw and Villiersdorp areas in the Overberg region of the Western Cape and reflects a business model reminiscent of the old producer co-operatives.

Dole South Africa Pty Ltd is a subsidiary of one of the few foreign-owned companies known as Dole Food Company, headquartered in the U.S. It provides fresh fruit,

³⁴⁷ Interview conducted with Mariette Kotze, the Operations Manager of Hortgro, 18 October 2018.

³⁴⁸ <https://www.dutoit.com/>, 17 October 2019.

vegetables, and food products worldwide through its network of growers, packers, processors and shippers. While its SA company only owns one farm, a significant part of its produce is sourced from other local producers.³⁴⁹

Subtropical Fruit

The South African Subtropical Growers' Association (Subtrop) manages the affairs of three grower associations, namely SAAGA, SALGA and SAMGA.

SAAGA has a voluntary membership that collectively contribute 95% of SA's avocado exports. SAAGA's operations are funded principally through levies on export sales and local sales. It is also involved in providing technical and advisory services to its growers and it funds technical and market research as well as intervenes to appropriately support the industry. To this end, SAAGA provides liaison with government as well as other bodies, both locally and abroad.³⁵⁰

A leading company is Westfalia Fruit, an MNE headquartered in Johannesburg that has the largest avocado-growing footprint in the world, with estates in southern Africa, Mexico, Chile, Colombia, Peru and the U.S. It grows, sources, ripens, packs, processes and markets quality avocados year-round as a supplier of choice to both retailers and wholesalers, facilitated by offices in the UK, Europe, North America, Latin America and southern Africa. It also provides among others subtropical fruit such as mangos and litchis and a variety of citrus products.

Table grapes

SATI, a member of Fruit SA, provides services such as market access and development, information and knowledge management, transformation, training, research and technical transfer to its members in five major growing regions.³⁵¹ Cape Orchard Company, SA's largest exporter of table grapes, has a presence in three regions through its 13 farms in Hex River Valley (Duikerkloof, Medoc, Caingorm, Idlewinds, Môredou, Normandie, Somerslus, De Doorns House Estate and

³⁴⁹ Interview conducted with Riaan Swart, Director Deciduous on 5 December 2019.

³⁵⁰ Interview conducted with Derek Donkin, CEO of the South African Subtropical Growers' Association (Subtrop), 25 September 2018.

³⁵¹ Interview conducted with Clayton Swartz, Communications Manager of the South African Table Grape Industry (SATI), 5 October 2018.

Blinkwater), Olifant's River Valley (Arcadia and Sigma) and Orange River Valley (three farms in Aussenkehr, Namibia in partnership with the Du Toit Group). Between November and May, it is able to export products that involves 27 red, black and white grape varieties to markets in the UK, Europe, Asia, the Middle East, and Africa, packaged by its packhouses and facilitated by its in-house Grape Alliance Marketing company.

The Fresh Produce Exporters' Forum

More than 90% of SA's fresh produce exports is facilitated by FPEF.³⁵² It has around 130 members, including large companies such as the DuToit Group, Grape Alliance Marketing and KROMCO. Through its associate members such as Citrogold, Citricom, PPECB, Prophet Systems SA Energy Partners, Ethekwini Cold Stores, Goglobal Group, Maersk South Africa and Hellmann Worldwide Logistics, access is provided to varietal development and management, intellectual property creation and implementation, supply chain-focussed software solutions, export certification and core energy utilities such as cold storage and logistical services.

However, it is the local and foreign buyers such as Berry World, Co-op, Global Fruit Point, Greenyard Fresh, Marks and Spencer, Morrisons, Tesco, Vinmonopolet, Waitrose and Woolworths that determines the standards of the fresh produce to be bought and delivered and the requisite pricing. In this context, adherence to ethical trade standards became a critical instrument to informing trade relations between producers, agro-processors, wholesalers and retailers.

7.2. Employment, labour market issues and skills development

³⁵² Interview conducted with Anton Kruger, CEO of Fresh Produce Exporters' Forum (FPEF), 19 October 2018.

7.1.1. Employment trends

Employer associations in the fruit sector have maintained some records on employment trends in the sector. On farm employment, information provided by Fruit SA reflects the employment of a total of 241 676 permanent equivalent employees (includes the conversion of casual employees into permanent equivalent employees) as reflected in Table 45: On farm employment.

Table 44: On farm employment		
Fruit type	Employment	Estimated employment per ha
Apples	27 319	1.25
Pears	13 181	1.25
Apricots	3 257	1.25
Nectarines	2 394	1.25
Peaches	7 113	1.20
Plums	6 967	1.46
Cherries	737	3.00
Avocados	6 480	2.00
Mangos	13 845	1.40
Litchis	1 130	1.40
Citrus	100 000	1.00
Table grapes	59 253	1.60
Total	241 675	

(Source: *Fruit South Africa Associations*, 2018 and BFAP, 2011)

However, the number of people linked to inputs and downstream activities are unclear. This reflected an increase in employment from an estimated 179 948 on farm employment in 2015; 8 000 people provided input related services, while a further 109

0000 were employed in downstream linked activities such as packhouses and agro-processing manufacturing enterprises.³⁵³

SATI provides employee numbers by region differentiated according to permanent and seasonal employees.³⁵⁴. The SATI employment data for 2017 appears in Table 45.

Table 45: Total number of employees in SATI by region in 2017				Percentage split between permanent and seasonal workers by region in 2017	
Region	Permanent	Seasonal	Total	Permanent	Seasonal
Northern provinces	1 468	9 325	10 793	13.6%	86.4%
Orange River	1 975	16 926	18 901	10.4%	89.6%
Olifants River	723	3 994	4 717	15.3%	84.7%
Berg River	2 169	10 896	13 065	16.6%	83.4%
Hex River	3 417	8 360	11 777	29.0%	71%
Total	9 752	49 501	59 253	16.5%	83.5%

(Source: SATI, 2018 Statistics, p. 4)

According to SATI, total employment in the sector in 2017 was recorded as 59 253 employees. This includes both permanent and seasonal employees. In 2017, SATI employed 9 752 permanent and 49 501 seasonal workers. This means that in the industry, 16.5% of employees were permanent workers and 83.5% who were engaged as seasonal employees. This permanent seasonal split of 16.5% to 83.5% differs across different SATI regions. In the Orange River and northern provinces, a marginally smaller proportion of employees was engaged as permanent compared to seasonal employees, with split of 10.4%:89.6% and 13.6%:86.4%, respectively. In contrast, in the Hex River region, 29% of employees were engaged as permanent workers and 71% that were seasonal workers.

³⁵³ Chisoro-Dube, S and das Nair, R: Growing employment through increased access to markets, upgrading and participation in high value fruit & nuts, Industrial Development Think Tank, Centre for Competition, Regulation and Economic Development, University of Johannesburg, Undated

³⁵⁴ Interview conducted with Clayton Swartz, Communications Manager of SATI, 5 October 2018.

7.2.2. Labour market regulatory environment and wage determination

Conditions of employment and remuneration are essentially determined by the Basic Conditions of Employment Act and Sectoral Determination 13 for farm workers, and includes both permanent and seasonal workers. Demarcation issues have been raised in relation to the application of the National Minimum Wage in terms of the National Minimum Wage Act No. 9 of 2018. Producers, including the use of small packhouses on their farms, were exempted from the minimum wage of R20 per hour and pay 18 per hour, as determined by the Sectoral Determination, while larger packhouses handling a multitude of commodities were required to apply the Basic Conditions of Employment Act and the National Minimum Wage Act.

The conditions of workers employed in larger packhouses/processing plants and other downstream business units tend to differ from those core groups of farm workers owing to the prevalence of company-level bargaining as permitted by the LRA. This is because of the relatively high level of union membership. Trade unions were able to enter into collective bargaining agreements, particularly with large packhouses and fruit manufacturing companies, whether national and multinational.

Thus, various contributions to a social wage have been made. A core of farmworkers living on farms has been provided with accommodation that is currently being governed by regulations governing human settlement, including the Extension of Security of Tenure Act 62 of 1997 (ESTA). Services such as electricity and potable water reticulation systems are usually included in the accommodation provided. Access to farms is also critical to the provision of public services such as health. While accessibility to basic schooling is permitted and facilitated by prevailing transport arrangements where required, the conditions vary from farm to farm. Workers who are primarily accommodated in urban centres on sites away from farms are governed by a different regulatory environment that falls primarily under the auspices of municipalities. In those centres, basic services such as housing, schooling, health services and access to social grants can be accessed.

In this context, social challenges that impact on the development of the fruit industry value chain such as the prevailing levels of income poverty and access to social services and inequality, to which SIZA and a number of NGOs responded, should be understood. Established in 2008, SIZA is a self-regulatory not-for-profit, voluntary association of stakeholders such as organised labour, business, NGO and government operative in the fruit industry to promote ethical trade.³⁵⁵

SIZA facilitates the conduct of social, labour, health and safety audits to ensure compliance with a code of conduct that requires compliance with SA legislation that deals with the prohibition on child and forced labour, excessive working hours, the provision of a safe and healthy work environment and housing and tenure security. Provision has also been made for regular employment, a living wage, fair disciplinary measures, freedom of association and the right to bargain collectively, while prohibiting discrimination.

7.2.3. Grading and skills development

In this section, we analyse AgriSETA's overall involvement in the advancement of skills development in the fruit sector, with the specific objective of highlighting the importance of skills for the sector, especially in respect of overcoming shortages to the supply of skilled labour to the sector and to the fruit value chain. After sketching the context and application of AgriSETA's involvement with this process, we provide a more subsectoral perspective which highlights subsectoral initiatives to enhance the supply of skilled labour at different occupational levels. Because the analysis is conducted without access to credible agricultural statistics that reflects the various subsectors that make up the fruit sector (e.g. deciduous fruit, citrus fruit, subtropical fruit) and the farm holdings and enterprises that are active at the sectoral and subsectoral levels, we decided a strategy to provide a more in-depth analysis of the key training providers in each subsector of the fruit sector. This was undertaken on the understanding that such detailed qualitative analysis for each sector accurately mimics the general trend in training provision found within these subsectors of the fruit value chain concerning skills development.

³⁵⁵ Interview conducted with Ms. Retha Louw, CEO of SIZA, 15 November 2018.

However, AgriSETA's implementation reports do not provide a systematic breakdown of participants in learning, training and skills programmes by subsector. Thus, we relied on data that represents AgriSETA skills development initiatives in the entire agricultural sector. These data provide a context to overall training that will have relevance when it is contrasted within data for training undertaken at a subsectoral level by specific training institutions such as the Koue Bokkeveld Training Centre, Citrus Academy, Winetech and HORTGRO. Excluding data for unemployed workers, the profiles of employed workers who underwent some skills training in the 2018 to 2019 training year were:

Table 46: Training programmes under the auspices of AgriSETA executed during the training year 1 April 2018 to 30 April 2019		
Training programmes types for which training was provided	Recruitment and enrolment	Successful completions of specific programmes
Artisan training	187	112
Learnership training	2 372	868
Provision of bursaries	201	74
Skills programmes	3 419	3 419
Total	6 179	4 473

(source: Derived from *AgriSETA Quarterly training reports* for 1 April 2018 to 30 March 2019)

Excluding unemployed workers undergoing training programmes or external individuals acquiring placement opportunities in the overall fruit sector, only 6 179 workers were recruited and enrolled into AgriSETA-financed training programmes during the 2018/19 training year.³⁵⁶ Only four workers in the entire sector were successfully inducted into higher skills levels through an RPL process. These statistics refer to the entire agricultural sector. If more detailed breakdowns were available, the numbers that apply to the fruit sector would only be a fraction of that shown in the table. If these were further extrapolated to the different subsectors of the fruit sector such as deciduous, citrus, table grapes and subtropical fruit, these would make up

³⁵⁶ Nonetheless, a response to questions from Tridevworx suggests that AgriSETA actively attempts to cultivate partnerships with fruit producing entities in an effort to increase the skills development imprint on the sector. Interview with: Nokuthula Sibia, Manager: Research, Monitoring and Evaluation at AgriSETA.

even smaller fractions of the numbers of workers undergoing training, as shown in the table. Thus, to get a realistic picture of the skills and training needs of the different subsectors of the fruit industry, it was essential to analyse the training activities of training providers that have experienced an ongoing and credible relationship to different subsectors of the fruit industry. While potentially only providing a partial picture, such an analysis has the advantage of mimicking the more intricate skills and training challenges and achievements in these specific subsectors.

Finally, it is also important to examine AgriSETA's role in the provision of learning materials that shape the curriculum for the training of lower-level and intermediate-level workers.³⁵⁷ Again, the data refer to the overall agricultural sector. However, because these qualifications contain a mix of qualifications that are generally apply to the sector as a whole, as opposed to qualifications that have a specific horticultural focus for the fruit sector specifically, it is hard to isolate and identify qualifications that are specific to the fruit sector and the fruit value chain. Nonetheless, a list of the number of qualifications that have been developed and the NQF levels at which these occur provide a backdrop to the analysis in which specific learning and training material is examined as an example of value chain skills interventions spearheaded by AgriSETA. The list of registered qualifications which AgriSETA supports appear in Table 47.

Table 47: Number and levels of qualifications supported by AgriSETA in 2019	
NQF Level	Number of qualifications
1	9
2	23
3	20
4	22
5	11
6	1
Total	86

(source: AgriSETA, <https://www.agriseta.co.za/qualifications>)

³⁵⁷ Interview conducted with Nokuthula Sibia, AgriSETA, 22 November 2019

Since the qualifications offered through AgriSETA are all aligned to the NQF, a qualification is made up of a set number of modules, each of which hold specified credits. Typically qualifications at the NQF 1 to NQF 3 levels require a combination of modules that, in the aggregate, amount to a minimum of 120 credits. Qualifications above NQF 3 require a greater number of credits for the qualification to be fulfilled and, ultimately, awarded. NQF 4 qualifications range to >120 to 180 credits. Credits at NQF 5 typically require the successful completion of modules with an aggregate credit value of 240.

As a result of the SAQA process, much effort has gone into developing the curriculum content of NQF modules that spanned the fundamental, contextual and specialist requirements for the qualifications these were meant to constitute. In the AgriSETA, this work has been captured as learning material that can be accessed independently by training providers, enterprises, farms and learners. A wide spectrum of modules is available through this route. Nonetheless, a huge amount of learning material is most likely needed at various levels in agriculture as well as in its sectors and subsectors (fruit industry, specifically deciduous, citrus or subtropical fruit, etc.).

Examining a small sample of the learning material that has been written and is available through AgriSETA allows one to postulate the content of this material against the imperatives of generating growth in skilled labour that can be inserted into the global fruit value chain. We provide two examples from this material. The first covers modules of learning material on water quality. Example 2 covers modules of learning material that supports a food quality management system in the agricultural supply chain. In both instances, an assessor's guide, a facilitator's guide and a learner guide are provided as learning material to the respective modules.

In example 1, the learning material is assembled for an NQF 1-level and an NQF 2-level module on water quality: Water Quality and Irrigation Systems (NQF 1) and Monitor Water Quality (NQF 2). Both modules are fundamental (compulsory) modules to national certificate qualifications through learnerships in animal production, mixed farming systems or plant production. They can also be used as learning material for skills programmes (which can later be upgraded into learnership qualifications) or for non-accredited short courses that do not result in a qualification or certificate being

awarded to individuals being trained. In the latter instance, a certificate of attendance can be awarded, but this is entirely at the discretion of the training provider or employer delivering the training and the value that the recipients attach to it.

The NQF 1 module's content basically covers water quality, the management of agricultural inputs, irrigation systems, the maintenance of irrigation systems and crop growth under irrigation. The agricultural input types referred to in the discussion of water quality include pesticides, fertilisers and manures. Depending on the qualification, this module leads to one and sometime two credits being awarded.

The content of the NQF 2 module on water quality has various themes; these include understanding water quality management, the chemical water quality factor, the pH factor in soils, and the direct and indirect effects of water quality. The chemical water quality factor introduces learners to the design of formulas to measure water quality. The pH factor in soils requires learners to differentiate between acidity and alkalinity in soils. The latter module leads to the awarding of three credits to the qualification it is matched to.

Both modules were written in 2006, at the height of the NQF's popularity in South Africa's policy discussion, but have not been updated since then. Finally, both modules draw on material and research by the Department of Water Affairs and the Agricultural Research Council.

Example 2 covers the curriculum content of modules on food quality management at three levels: NQF 2, NQF 3 and NQF 4. We will now briefly outline the contents of the learner guides to these three NQF modules on food quality management.

The learner guide to the NQF 2 module is entitled Operate and Support a Food Safety and Food Quality Management System in the Agricultural Supply Chain. It accounts for two credits at an NQF 2 level. The prerequisite for an NQF 2 level qualification is 120 credits. Including summative assessments, this module amounts to roughly 20 hours of teaching and learning time. It is further divided into five sessions. At the start of the programme, learners are introduced to food safety and quality management. Hazards such as viruses, parasites, fungi and bacteria are identified. Learners are also

introduced to the overall market requirements of food safety. The module also illustrates enterprises' roles and contexts in food safety. Attention is also given to the risk factors associated with food safety and quality. These include chemical hazards such as pesticides, physical hazards such as workplace safety and microbiological hazards. The module also examines risk monitoring and contamination avoidance. Further, learners are introduced to the principles of Hazard Analysis Critical Control Point (HACCP). The final session addresses the subject of record-keeping activities on farms.

The second module on food quality management is pegged at the NQF level 3 and is entitled Monitor and Supervise a Food Safety and Quality Management System. It amounts to three of the 120 credits required for an NQF 3 learnership qualification. Including the summative assessment, this three-credit module requires 30 hours of learning and teaching time, spread across six sessions, each of which roughly amount to four hours. Compared to the successful completion of the prerequisite NQF 2 module on food quality management, this NQF 3 module provides greater detail into the basic health, social and environmental issues in the agricultural environment. One session addresses the reporting of non-conformances in safety protocols toward food. Learners are also exposed to basic principles of reporting and auditing of food qualities as well as techniques to respond to deviations and non-conformances. All these dimensions relate to controlling, maintaining and managing quality in food outputs. Another dimension of this quality system is to ensure traceability in the agricultural supply chain in order to remedy and eliminate quality shortcomings. Traceability is referred to as "the completeness of information about every step in a process chain".³⁵⁸ There is an emphasis on the importance of international quality systems such as Eurepgap, ISO and HACCP on export produce to which growers must comply. The Learner Guide to this module states:

"ISO (International Organization for Standardization), which develops voluntary international standards for products and services, defines traceability as the 'ability to trace the history, application, or location of that which is under consideration'. This definition is quite broad. It does not specify a standard measure for 'that which is under consideration' (a single orange or a shipment of packed Citrus), a standard location size (orchard, farm or country), a list of processes that must be identified

³⁵⁸ Learner Guide, Monitor and Supervise a Food Safety and Quality Management System, NQF 3, 2006, p 37.

(pesticide applications or animal welfare), or a standard identification technology (pen and paper or computer). It does not specify that a drop of orange juice be traceable to the original tree where the orange grew or that the wheat in a loaf of bread be traceable to the field. It does concern itself with controlling the quality and of Citrus used in a particular juice extraction plant, or guaranteeing general consumer safety in batches of packed or processed Citrus products from different farmers for different grades of Citrus. The definition of traceability is necessarily broad because food is a complex product and traceability is a tool for achieving a number of different objectives. As a result, no traceability system is complete, and it is up to each grower to adapt an integrated GAP system for his own operation. It is important to remember that International standards system such as Eurepgap require traceability of all products. This means that any product must be traceable back to its original source, and the processes that the product was subjected to at any point during its production, harvesting, packing and transport must be documented".³⁵⁹

The Learner Guide also discusses additional topics such as record-keeping, quality management and quality management systems in agriculture. It also introduces learners to basic internal auditing as well as food safety and quality management principles.

The NQF 3 Learner Guides leads to the NQF 4 Learner Guide entitled System for Food Safety and Quality Management, which consists of three credits to a 120 NQF 4 qualification. The three credits require roughly 30 hours of teaching and learning time, including the time assigned to the summative assessment that measures learning outcomes. The introduction to the module makes provision for a revision of the overall content to the preceding NQF 3 module on food safety and quality management. The NQF 4 Learner Guide for this module generally covers the same themes tackled in preceding modules, but it is undertaken with significantly greater conceptual awareness and more detailed content. Thus, the five teaching and learning sessions in the module assign almost 50% of the learning time to practical compared to theoretical activities. The five sessions in the module address:

- Managing a traceability system
- Good agricultural practice in the agricultural food chain
- Non-conformances and their effects on product quality
- Conducting internal audits

³⁵⁹ *ibid.*, p.38

- Maintaining standard operating procedures.

In relation to traceability in the fresh produce supply chain, differentiation is made between roughly eight process activities. These entail processes involving:

- Suppliers and service providers
- The orchard/field
- The packhouse
- Export agent
- Transport and shipment service providers
- Importers
- Retailers
- Consumers.

In instances where control over these supply chain processes is under the organisation of more integrated entities (e.g. greater buyer control), process controls become more standardised and manageable, But the procedure for ensuring traceability is not eliminated; elements of traceability include:

- Product traceability
- Process traceability
- Genetic traceability
- Input traceability
- Disease and pest traceability
- Measurement traceability.

Thus, good practices and record-keeping procedures become important dimensions of the skills repertoire that must ensure that traceability is effective. The course emphasises principles and guidelines for good agricultural practices. Traceability and record-keeping are essential risk-averting practices to contain non-conformance and its effects on product quality. Further, undertaking internal audits such as pre-harvest audits are also important to ensure quality in the agricultural food value chain. Adherence to standard operating procedures supported by intermittent quality checklists make it easier but is also essential to upholding quality. Concerning checklists, the Learner Guide for this module advises learners:

*“Many activities use checklists to ensure that steps are followed in order. Checklists are used to document completed actions. Any checklists or forms that is included as part of an activity should be referenced at the points in the procedure where they are to be used and then attached to the SOP (Standard Operating Procedure). Remember that the checklist is not the SOP, but a part of the SOP. In some cases, detailed checklists are prepared specifically for a given activity. In those cases, the SOP should describe, at least generally, how the checklist is to be prepared, or on what it is to be based. Copies of specific checklists should be kept in the file with the activity results or with the SOP”.*³⁶⁰

The Learner Guides for the respective NQF modules on Food Quality and Safety Management represent useful resources to enhance skills in the agricultural sector. However, these modules were specifically designed to form part of a year-long learnership qualification. While these present a useful resource for short-course delivery (courses of one to two days), such courses will have to be specifically redesigned by the training provider and tailor-made to the requirements of the specific workforce. The modules, which are accessible for downloading from AgriSETA’s website, were produced in 2006 and, from a perusal of the content, required significant material development resources to produce (e.g. content specialists, writers, editors, graphic designers), a point that is noticeable in the fact that the material has not been updated or revised since 2006, when it was first produced.

The Koue Bokkeveld Training Centre³⁶¹

The KBTC is situated in a small town north of Ceres known as Oppie Berg. It is a workforce training centre that is mainly responsive to the farmers and ancillary agricultural industries in the Witzenberg municipality and falls in the Cape Winelands District Municipality.³⁶² The KBTC is deeply embedded in the locality and prides itself on being overtly responsive to the training demand needs of the agricultural community it serves. If it contradicted its responsiveness to the training need demands of farmers and their employees in the agricultural sector as a whole in the region, it would cease to exist, according to interviews with respondents. Thus, because of the

³⁶⁰ NQF 4, Learner Guide, System for Food Safety and Quality Management, AgriSETA, 2006, p70.

³⁶¹ The narrative of the Koue Bokkeveld Training Centre was constructed entirely on the basis of a site visit and an interview.

³⁶² Interview conducted with Joy van Biljon, Centre Manager and founder member and Luyolo (Tshoks) Tshokotsha, skills development facilitator and training at Koue Bokkeveld Training Centre, 17 April 2019

sheer difficulty obtaining responses to a firm-level Tridevworx survey directed to farmers in the deciduous producing region that the Witzenberg district forms part, further insights through engagements with the KBTC mimics the experiences of farmers in relation to the skills development and training challenges they confront.

It was found in the interview that the Ceres or Witzenberg region is a complicated place to judge skills formation, because the overlap between migration into the region and skills is perceived to be quite strong. It was suggested in the interview that almost half of workplace skills are derived from “outside”, principally the Eastern Cape and Gauteng. In other words, the holders of agricultural skills who live in the Eastern Cape and Gauteng still find it extremely attractive to come and work in the Witzenberg district.

This overlap between migration to the region and labour requirements and skills held by these migrant workers has been cultivated over a long period. It is perhaps also important to factor the perennial occurrence of seasonal and casual work into the process. Historical patterns of labour recruitment patterns to the region have merely reinforced current labour migratory trends. It is commonly claimed that historical labour recruitment patterns that extend back at least 50 to 60 years (i.e. the 1950s) coincided with labour outside the district being recruited mainly from two districts in the Eastern Cape: Sterkstroom and Queenstown. From the interview conducted with respondents at the KBTC, contract workers destined for Ceres and the farms in the surrounding area were apparently recruited in Queenstown, while workers recruited in Sterkstroom were employed in the western and northern parts of the Kouebokkeveld. Most of the labour drawn through this recruitment process was employed as fruit pickers during the harvesting season.

These recruitment practices are no longer in operation in the contemporary period. This is mainly because outside workers who may have historically migrated to the region for seasonal employment opportunities no longer follow this migratory pattern. Many have instead settled permanently in the region and established an initial abode through informal housing settlements. As a result, farms no longer recruit from outside as they previously did, especially in Queenstown and Sterkstroom.

Thus, at the lower skills levels of the occupational ladder, sourcing basic fruit picking skills do not present a problem as before for farmers in the region. Further, because of accumulated and embodied routine skills, there is a pool of personnel that can be elevated to supervisory and lower-level management positions. This can be put into practice by selecting and recruiting new managers from existing worker ranks. The advantage of this route is that such recruits possess good product knowledge and can also communicate effectively with subordinates. Most of these incumbents are hard-working and are people-orientated. However, the missing pieces in their skills portfolios relate to quality and managerial techniques, which are harder to cultivate. Thus, many persons tasked with more complex supervisory and managerial functions miss the big picture.

Because the market context of deciduous fruit production requires a host of compliance prerequisites and standards, it is important that these be rapidly and effectively conveyed to managers and supervisors. Particularly, managers often do not fully grasp the importance and complexity of market standards and the place of quality as a criterion for access to participate profitably in the export of deciduous fruit. Although the issue of the application of skills in the sector is important, so too is the importance of water, which respondents said must not be under-estimated.

The discussion with respondents³⁶³ from the KBTC also addressed the impact of enterprise size in the uptake of skills development initiatives in the region. It is generally harder for small and medium-sized farmers to invest in skills development programmes at the same tempo as the owners of large and more profitable farms. A rough tabulation of different farmers in the surrounding region suggested that the same geographical space was currently occupied by six different farmers. If a comparison was made between the current period and the 1980s, eyewitness accounts suggest that roughly 16 farmers operated in the same geographical space then. It was suggested that the phase in which the individual farm owner was the farm's sole proprietor has long ended. This has been replaced by the phase in which farms have become corporatised and are run and operated by larger corporations. The geographical location of Oppie Berg reflects this new phenomenon, which is

³⁶³ In the interview conducted with Joy van Biljon and Luyolo (Tshoks) Tshokotsha listed above.

characterised by greater capital and technological applications to farming operations as well as the concentration and centralisation of farm holdings into larger operating entities.

The KBTC conducts training courses in a large lecture hall located at the Centre. It claims to have a good relationship with AgriSETA. It is estimated that over the years, close to 1 000 learnerships have been completed through the KBTC. These range from NQF1 to NQF 4. Concerning the NQF 4 learnerships, 60% of participants are usually managers involved with the cultivation, harvesting and packaging of deciduous fruit in the region. The KBTC attributes its longevity and success in the field mainly to a sensitivity and high responsiveness to farmers' needs. Training courses are designed on the basis of employer needs assessments. Training is carried out by KBTC staff members and is further complemented by drawing on outside experts when required. At the time of the interview, 85 farmers in the Witzenberg District paid an annual subscription fee to the KBTC. This gives farmers access to the Centre's training expertise, but it is also a way to secure a training provider to undertake skills-related training when required. These membership fees represent an income source of the KBTC.

Typically, mandatory and discretionary funded training that farmers in the district were required to undertake was usually assigned to the KBTC. Thus, a large portion of SETA funding for workplace training (i.e. mandatory training) and training through learnerships (i.e. discretionary training) that would have typically been transferred to farmers subsequently flow back to the KBTC once the training they have initiated has been successfully concluded. Thus, the KBTC appears to be a major intermediary in undertaking skills training and executing it on behalf of farmers in the Witzenberg region. Because the KBTC is largely the only significant training provider in the region, one can infer that it also fulfils the obligations of the agricultural sector in the region in terms of the National Skills Development Strategy. However, farmers still contributed out-of-pocket expenses for training requirements that go beyond their obligations under the Skills Development Levies Act of 1999. These allocations were channelled directly to the KBTC. Thus, the income sources of the KBTC to a significant extent mirrors the overall training expenditure incurred by farmers in the region. The

accountant at the KBTC supplied more accurate data to substantiate this picture. These data showed that income flows to the KBTC generally consisted of:

Course fees	51%
Membership fees	12%
AgriSETA	37%
Total	100%

While the bulk of course fees are borne by farmers, a small proportion can potentially arise from individuals supported through own finances or finances derived from family members or other sponsors enrolling for specific training courses or programmes.

The Citrus Academy

On 8 April 2019, we conducted a telephonic interview with Jacomien de Klerk, the CEO of the Citrus Academy.³⁶⁴ Further, an electronic questionnaire was completed and returned to Tridevworx. A number of pertinent points were raised. A significant portion of the training that the Citrus Academy undertakes is aimed at the new black farmers in the sector.

Because the sector also contains regional variations, skills shortages also have a regional component. Thus the incidence of seasonal labour requirements imposes more severe constraints on citrus farming operations in regions such as the Eastern Cape and the Western Cape. This is less pronounced in Limpopo province and Mpumalanga. In Limpopo in particular, farmers generally benefit from a skills premium by being able to source Zimbabwean workers in the citrus sector who have a relatively high repertoire of agricultural skills, which are essential for the sector.

In responding to a Tridevworx questionnaire, the Citrus Academy noted that the following skills were in high demand across the citrus value chain in 2017.

³⁶⁴ Interview conducted on 8 April 2019 and written responses received subsequently from Jacomien De Klerk (CEO), Citrus Academy.

Table 48: Skills in high demand across the citrus value chain in 2017	
Skills level	Skills type
High skills	Managerial skills
	Engineering skills
	Technical skills
Intermediate skills	Operational skills
Low skills	Irrigation management
	Pest scouting
	Sustainable production practices

(source: Returned Tridevworx questionnaire received from the Citrus Academy, 2019)

High-level skills that were in high demand in 2017 included managerial, engineering and technical skills. At the intermediate level, the skills that were identified as being in high demand included operational ones. Such operational skills correspond more or less to the skills required by operational level workers in an agricultural or manufacturing environment.

Low-level skills are typically the skills required by agricultural labourers to effectively undertake the tasks assigned to them on a day-to-day basis. Here, the Citrus Academy listed these skills in the following order: irrigation management, pest scouting and sustainable production practices.

The Citrus Academy further listed skills that are in short supply and therefore hamper value chain activity by enterprise size. The skills in short supply that hampered small enterprises' ability to participate more vigorously in value chain activities differs to those of large enterprises. A similar qualification can be made in relation to small vs. medium-sized enterprises and medium-sized vs. large enterprises. The Citrus Academy's response to this question appears in Table 49.

Table 49: Skills in short supply that hamper value chain activity by enterprise size in 2017		
Enterprise size	Skills level	Skills type
Small enterprises	High	Managerial skills
	Intermediate	Operational skills Manual skills
Medium-sized enterprises	High	Technical skills
	Intermediate	Artisanal/Craft
Large enterprises	High	Engineering skills

(source: Returned Tridevworx questionnaire received from the Citrus Academy, 2019)

In small enterprises in the citrus subsector of the fruit sector, the high-level skills seen to hamper enterprise participation in value chain activity in 2017 was the absence or shortage of managerial skills, followed by operational and manual skills that can generally be classified as intermediate-level skills.

A different skills set that was in short supply was seen as hampering the effective participation of medium-sized enterprises in more extensive value chain activities in the citrus subsector. At a high skills level, this was thought to be technical skills and, at the intermediate level among medium-sized enterprises in the citrus subsector, this was seen to be artisanal or craft skills.

Finally, the single most important skill that was in short supply and that was to hamper the participation of large enterprises in the citrus subsector in more expanded value chain activities, was a specific high-level skills set. These were identified principally as engineering skills.

Like the KBTC, the Citrus Academy operates an extensive training programme for farm workers that it executes mainly as the principal training provider to farmers in the sector. Training is delivered through a number of formats; these include:

- Learning programmes.
- Short courses
- Capacity-building workshops.

Further, the Citrus Academy operates a bursary scheme for full-time students enrolled in educational institutions. Full-time enrolment appears to be mainly directed to those undergoing post-school level training at a TVET, agricultural college or university. We will now outline the training options offered by the Citrus Academy.

The Citrus Academy runs four learning programmes. The first is known as the Citrus Nursery Workers Programme and was developed in collaboration with SACNA and the CRI. It consists of seven modules and covers introduction to propagation; rootstock propagation; budding; nursery practices; plant nutrition; plant protection; and irrigation water quality.

The second learning programme is called the Institutional Orientation Programme. It consists of three modules at the NQF 3 level and generally covers the institutional and statutory information required by new citrus growers.

The third learning programme is the Citrus Secondary Programme. It was designed to assist learners at agricultural high schools, particularly in rural areas, who do not have the opportunity to study at tertiary level. The course is aligned to NQF 2. A learner would typically participate in the programme for three years, starting in Grade 9 and finishing off at Grade 11. This will entitle a learner to be awarded a National Certificate in Plant Production. It consists of 10 modules and roughly covers citrus production; enterprise planning; marketing; agri-tourism; food safety; harvesting; plant structure functions; plant manipulation; and soil fertility and plant nutrition.

The fourth learning programme is Citrus Business Management. It is accredited through the Services SETA and draws on material developed by an outside service provider with an established record and reputation in the field.

Short-courses on a number of different topics are also offered. The short-courses typically extend over three days. Existing short courses cover production and business administration. It is envisaged that the Citrus Academy will soon offer a packhouse short-course and an export supply chain short-course. Short-courses target specific audiences and are convenient in that they can be delivered over a relatively short

period, usually over two or three days of continuous learning. The Citrus Academy describes its production short course as follows:

*“In 2017 the Citrus Academy initiated the development of the Citrus Production Short Course, based on a citrus production course that was developed by Villa Academy. The Citrus Production Short Course is aimed at those who are already involved in citrus production, and those who are qualified in production management and looking to get involved in citrus production. It has been designed to provide these learners with the opportunity to obtain a high-level understanding of all aspects of citrus production in a short period of time”.*³⁶⁵

Although the Citrus Academy does not provide training for those outside the citrus subsector, it does undertake workshops on a cost recovery basis for specific clients.

Examples of workshops conducted in the past include:

- Citrus safety, for extension officers of the Limpopo Department of Agriculture
- Finance for non-financial managers, for emerging citrus growers in the Eastern Cape
- Spring pest complex, for extension officers of the Limpopo Department of Agriculture
- Production management, for technical citrus staff
- Irrigation and water quality, for technical citrus staff.

With funding from the Citrus Industry Trust, the AgriSETA and other donors, the Citrus Academy operates the largest private bursary scheme in the primary agricultural sector. It is designed to support students engaged in post-school education at registered training institutions in SA. Awards are made to students who are ideally studying in fields related to citrus production and research, such as plant production, crop production, plant pathology, horticulture, soil science, entomology, agricultural economics, agricultural management, industrial engineering and mechanical engineering. The costs of administering the Bursary Fund is borne by a service fee derived from the Citrus Growers Association. The Citrus Academy claims that the completion rates of students awarded a bursary exceeds 95%. All students who receive bursary funding from the Citrus Academy are required, upon completion of

³⁶⁵ Citrus Academy website at www.citrusacademy.org.za

their studies, to work time back into the citrus industry. The ballpark ratio that applies to ensure that this obligation is met is that the work duration students in the industry must be at least equal to the duration of their support from the Citrus Academy Bursary Fund.

It is also claimed that many students are productively integrated in the citrus industry at multiple levels. These include students who participate as production personnel, technical managers and quality control auditors.

7.2.4. Companies' access to information and support

Companies' access to information and support were provided by employer associations and NPOs that provide specialist services. Producers and packhouses are members of business associations such as HORTGRO, CGA, SATI, and SASGA; the provision of labour market support services falls outside its mandate. Labour market support services are mainly provided by the LWO, KAW or CAEO.

The LWO, established in 1990 with a strong heritage in agriculture, is an NPO registered with the Department of Employment and Labour as an employer organisation. It is a membership organisation governed by a board of members and academics, and purports to have a national footprint focussed on providing labour law related services to its members.³⁶⁶ It has also forged co-operative relations with the TLU SA, Agri Northwest and Sakeliga that accorded it the status as a specialist labour law service provider to their members. The KAW or CAEO, an NPO registered as an employer organisation after its establishment in 1998, is also a membership-based organisation that provides a broader range of labour market services to its members; these include health and safety, UIF, ethical trade audits and farmworker development.³⁶⁷ Advisory and consultancy services covers the entire spectrum of human resources, concluding with collective bargaining. It has forged co-operative relations with Agri SA, Agri Weskaap commodity groups such as Vinpro and HORTGRO. Both organisations provided some services in relation to labour audits that formed an integral part of ethical trade requirements as championed by SIZA.

³⁶⁶ Interview with Pieter Breytenbach, CEO of LWO, 2018.

³⁶⁷ Interview with KAW/CAEO CEO, Johan Hopkins and his assistant, attorney Ciske Oosthuizen, Paarl, 15h00, 11th April, 2019.

The limited penetration of trade unions, particularly among the workers of primary producers, has curtailed the extent to which workers at the company level are informed about labour market issues. It has certainly impaired the resolution of disputes and other labour-related matters at the company level;³⁶⁸ hence, increasing referrals to independent dispute resolution bodies such as the CCMA, a situation that differs from that in the packhouses, where there is a higher level of trade union penetration, which resulted in the proliferation of company recognition and procedural agreements. William Thomson, Acting Commissioner for Dispute Prevention and Training at the CCMA, recently intimated that, among others:

*“the high number of referrals reflects ‘a very low level of trust in our workplaces. The level of labour relations in terms of the World Bank competitiveness report is incredibly low in SA’... There’s also a low level of compliance with the Labour Relations Act, which he blames on the fact that employers and workers ‘are often not understanding the legislation or the processes’ ”.*³⁶⁹

7.2.5. The relationships between employer associations, trade unions and bargaining arrangements

Relations between unions and employer organisation along the value chain are rather complex. The BCEA covers conditions of employment in the value chain, since there are no centralised collective bargaining arrangements. Company-level bargaining to determine wages are prevalent among the agro-processing plants, while producers are regulated by Sectoral Determination No. 13: Farmworker Sector. No threshold of representation has been reached that requires the establishment of centralised bargaining. Trade union membership data for the Western Cape demonstrate that less than 10.2% of the permanent and seasonal workers are organised by 12 unions.

“The farm workers’ strikes / protest actions that took place in the Western Cape towards the end of 2012 and the beginning of 2013... represented a remarkably widespread rejection of a minimum wage that decision makers thought, only a few months earlier, to be reasonable. The Minister of Labour’s decision to respond by increasing the minimum wage Sectoral

³⁶⁸ ibid

³⁶⁹ Barron, C: *Minimum wage begins to eat jobs-CCMA works to claw them back as referrals are set to grow by 25%*, Business Times, 20 October, 2019, p9.

Determination No 13 for the farm worker sector with effect from 1 March 2013 was unprecedented".³⁷⁰

To date, relations between the commodity producers, employer organisations and trade unions such as FAWU have primarily been forged in the areas of education and training and ethical trade. AgriSETA and SIZA include representation by both commodity organisations and trade unions. While the former tends to deal with education and training, as required by the Skills Development Act, the latter deals with issues ranging from sustainable development to compliance with prevailing labour legislation. The requirement by buyers that producers and agro-processing enterprises along the entire value chain adhere to ethical trading conditions by being subject to social/ethical audits has become more widespread since 2008, when the idea to develop a single SA-based ethical standard and programme that would meet all retailer requirements was mooted by the fruit industry. By the end of September 2019, it had a membership of 2 043, with 1 511 social/ethical audits concluded since November 2015.

An initiative that affects the value chain has involved the establishment of a Fruit Industry Value Chain Round Table in February 2014:

"The FIVCRT will, amongst others, influence policy and strategy development, contribute to the development of joint solutions to respond to industry crisis, provide a platform to jointly address food safety, employment and labour issues, jointly advocate for market access and improved trade conditions, guide and direct scientific research, etc."

Five Working Groups were established based on six work streams:

- Employment and worker welfare;
- Trade;
- Transformation;
- Resources; and
- R&D.

³⁷⁰ The Future of Agriculture and The Rural Economy in the Western Cape (Fare): Fare Panel Report, October 2013,p1.

Each Working Group was required to identify five priorities and to develop its terms of reference (ToRs) and action plans.³⁷¹ It was informed by a concept document on Value Chain Round Tables (VCRTs)³⁷² that outlined guidelines for the establishment of round tables for various commodity groups modelled on the Canadian concept of VCRTs for agriculture. FIVCRT, after numerous sessions, has yet to reach agreement on a social compact for the industry, despite the existence of a social compact report compiled in 2013.³⁷³

The protests in fruit growing areas such as De Doorns and Grabouw in the Western Cape led to the establishment of the Laborie Dialogue Initiative for fruit and wine in 2015 when a MoU was signed between HORTGRO, Vinpro and FAWU. The intention was to deal with sensitive labour and rural issues and to improve labour relations:

“The MoU confirmed the parties’ commitment to six focus areas of development identified in the Fruit Industry Social Compact (FISC) and Wine 2020 Vision:

- *Economic development*
- *Social development and upliftment*
- *Human resource development*
- *Market access, development and trade promotion*
- *Knowledge management and information systems*
- *Technical research, transfer and intelligence”.*³⁷⁴

Representation was later extended to involve AWETUC and the CCMA, which piloted a workplace mediation procedure for the agricultural sector 2015-16 in the fruit sector in the Western Cape. What is evident is that a number of initiatives exist; these requires some form of co-ordination so as to eliminate duplication and the efficient and effective use of limited resources.

³⁷¹ Department of Agriculture, Forestry and Fisheries and Fruit South Africa: Fruit Industry Value Chain Round Table Records of Decisions, Bulletin No. 1 of 2014 March 2014.

³⁷² Department of Agriculture, Forestry and Fisheries: Concept document on Value Chain Round Tables (VCRTs), Republic of South Africa, Pretoria, 2012.

³⁷³ Department of Agriculture, Forestry and Fisheries and Fruit South Africa: Fruit Industry Social Compact Report, April 2013.

³⁷⁴ Steenkamp, Elise-Marie: Laborie Dialogue Initiative seeks new deal for farmworker housing, *News Room Industry News*, <https://www.hortgro.co.za/news-room-industry-news/laborie-dialogue-initiative-seeks-new-deal-for-farm-worker-housing/>, 13 April, 2017.

7.3. Key challenges and recommendations

7.3.1. Employment creation prospects

The employment creation prospects for the fruit industry are considerable, as illustrated by recent growth trends. SA-headquartered companies involved in citrus, table grapes, deciduous and subtropical fruit have developed a significant global footprint. A number of critical issues require resolution for it to continue on its current growth trajectory:

- Central is the ethical trade requirements, as specified by buyers that tend to dominate the value chain. While it is imperative for trade agreements to be entered into with various trading partners, compliance to buyers' requirements by producers and agro-processors is critical.
- Local producers' production capacity must be increased to meet buyers' demands. This involves the equitable resolution of issues such as land, water, and energy supply and use. Similarly, the existing innovative capacity, including R&D, must be enhanced.
- The logistical requirements to minimise disruptions in the value chain requires attention. This involves resolving a range of issues in both wet and dry ports, given the perishable nature of the goods being transported.

7.3.2. Compliance with South Africa's labour market legislation

Compliance with SA's labour market legislation in the value chain revolves around the implementation of the provisions of Chapter 3 of SA's Constitution, the National Minimum Wage Act and the Basic Conditions of Employment Act, of which the Sectoral Determination No. 9 and 13 were critical components. The UIF Act and the Occupational Health and Safety Act were also significant in providing protection to both seasonal and permanently employed workers.

In its ethical trade auditing arrangements, SIZA has signalled the need for companies to comply with labour market legislation. Currently, audits are based on monitoring only the applicable legislation such as the Basic Conditions of Employment Act, the

UIF Act and the Occupational Health and Safety Act. SA's labour market is much more dynamic, in that the LRA provides for increased self-regulation levels subject to representation levels and the mandates of worker and employer organisations. Further, the modernisation of workplaces involve the establishment of new occupations and the discontinuation of others, which requires the development of new grading systems and training regimes. These are critical issues that have been raised in engagements about a social compact for the industry.³⁷⁵

The resolution of disputes concerning the implementation of the legislation and other regulatory provisions hinged on company-level relations between workers and management. Despite the support that companies could access through employer service providers, trade unions and advice offices, there is a high incidence of referrals to the CCMA. Some of the proposed interventions entail the development of more effective dispute resolution mechanisms that are supported by local-level training and capacity development support so as to temper unnecessary adversarial labour relations. A senior CCMA Commissioner recently indicated that the CCMA is attempting to be proactive in this regard.

“ In 2011 it was found that negotiation styles had become completely adversarial and that in addition to dispute resolution, mediation and arbitration we should focus more on dispute prevention in the workplace.’ He says. In spite of this, the situation hasn’t improved. ‘What we’re looking at is a very adversarial style of collective bargaining. If we could teach effective negotiation skills, if the parties could engage more constructively, it could go a long to reduce the number of referrals’. There is a need for more constructive dialogue in workplaces, he says. ‘We’re facilitating workplace mediation processes and relationship-building processes, so employers and workers are engaging each other much more constructively... The answer is not about changing the legislation at all, it’s about changing the behaviour between the parties.’ ”³⁷⁶

³⁷⁵ Interview with Johan Hopkins, CEO of the KAW on 11 April and 25 October 2019 in Somerset West and Abraham Daniels, National Researcher for FAWU on 5 February 2019

³⁷⁶ Barron, C: Minimum wage begins to eat jobs-CCMA works to claw them back as referrals are set to grow by 25%, Business Times, 20 October, 2019, p9.

7.3.3. The pursuit of decent work

Any pursuit of decent work objectives must consider that primary producers are price-takers owing to the dominance of buyers in the value chain. Johan Hopkins, CEO of CAEO/KAW, alluded to the consideration that this should shape how the wage determination of farmworkers could be determined with reference to the example of the tomato value chain in the U.S., where a three-way agreement was entered into between the workers, farmers and the Campbell Soup Company.³⁷⁷ Baldemar Velásquez, a U.S. labour activist and the president of the Farm Labor Organising Committee (FLOC), explained the deal and its implications:

“The deal increased hourly wages and provided workers with much-needed health and safety benefits. He said that an academic study showed that if as little as a penny were to be added to each soup can or other products, it could double what farm workers earned. He said strike action was often not enough to leverage significant changes.”³⁷⁸

However, there are difficulties concerning replicating this approach in the South African environment. First, the larger producers and packhouses are integrated to the extent that the central company either own the commercial farms and packhouses, as limited joint ventures as the case of Du Toit Group and Cape Orchard Company illustrate, or the producers own the packhouses through a shareholding system, as in the case of KROMCO and the SRCC. The critical price determinants are the retailers and wholesalers, such as Woolworths and Tesco. They therefore must be factored into the application of such a model. Further, this could be facilitated by the ethical trade bodies such as SIZA, which has embarked on joint initiatives through the partnership programme Stronger Together, where relationships were forged with local and global MNE buyers. How such arrangements are incorporated into collective bargaining arrangements at the company and the value chain levels must also be clarified.

³⁷⁷ Interview with Johan Hopkins, CEO of the KAW on 11 April and 25 October 2019

³⁷⁸ Baldemar Velásquez at a conference on the Future of Farm Workers in South Africa, hosted by SA/UK Bilateral Research Chair in Social Protection for Food Security; the DST-NRF Centre of Excellence in Food Security and the Institute for Poverty, Land and Agrarian Studies (PLAAS), in association with Women on Farms Project and the Institute for Social Development at UWC, Western Cape in *Low wages are not just the farmers' fault, says US activist* by Barbara Maregele and Tariro Washinyira, 22 October 2019.

7.3.3. Recommendations

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of labour legislation, it is imperative that the malaise in the value chain be resolved. Hence the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, for the envisaged Fruit Industry Value Chain Social Compact.
- Establish a process to resolve the wage determination issues such as wages linked to occupational, grading and skills issues.
- Develop a clear implementation plan with timeframes of the consensus attained among the parties contained in the Social Compact.

8

THE WINE VALUE CHAIN

This chapter deals with the dimensions of the wine industry value chain and its specific labour market dynamics. Further, we will provide insights into the dominant companies and their value chains as well as the prevailing labour relations. We will critically appraise the labour market challenges and possible future scenarios to facilitate the growth of the industry and employment.³⁷⁹

8.1. The dimensions of the wine industry value chain

It is important to demarcate distinctions that exist at a number of levels in which the wine industry is directly or less directly integrated or connected. This allows one to establish the circuit of value chains between the wine industry and sectors to which it is connected or in which it is integrated. Examples of these connecting sectors outside the wine industry include the automotive and engineering industries, the chemical industry and the transport sector. The wine industry is highly dependent on the services and inputs provided by these industries outside the formal wine chain in order to operate successfully.

It is equally important to clearly demarcate subcomponents which constitute the wine industry as an aggregate whole. These subcomponents can be viewed as industrial subdivisions or organisational process/production activities that are specific to the wine sector. Here, interdependencies that have backward and forward links are clearly visible in the wine industry. The most obvious is the distinction between grape growing, wine making (agro-industrial processing), marketing and export. Unique topographical, geographical and micro-climatic variations, and the botanical diversity within which the wine industry is located contributes to a strong wine tourism component.

³⁷⁹Between January 2017 and March 2019 Tridevworx engaged a number of stakeholders in the Wine Industry Value Chain Round Table as part of a process of facilitating the development of a social compact for the value chain.

Thus, the core chain of value-producing dependent activities that are unique to the wine industry include:

- Agricultural production and cultivation of vines (farming).
- Crushing of harvested grapes to produce wine (cellars). The crushing of wine and related products involves the making and maturation of wine and spirits as well as the making and processing of non-alcoholic beverages.
- The wholesale and retail trade in wine, spirits and non-alcoholic beverages that takes place in an internal market within SA's borders as well as through exports to international markets.
- Catering and accommodation services, in which the wine industry is an important beneficiary and in many instances a primary actor.
- Tourism, of which wine tourism is again a principal component.

One can impose onto this broader configuration that constitutes the wine industry, organisational and enterprise types that have evolved in SA over a long time. Thus, just as grape growing is undertaken by independent farmers as well as wider collective groups of farmers organised through cooperatives (which themselves have evolved from what they were before), the wine making process consists of independent cellars and cooperative cellars. Into this amalgam of organisational types, wholesale producers have also emerged. The more strategically ambitious wholesale producers have a clear strategy of controlling the entire value chain – from grape growing, to wine making, to marketing, to distribution, to exporting. Nonetheless, there are business enterprises that clearly specialise in the marketing and distribution of wine. The same applies to the retail process, which is separate. Thus, the broad contours of the value chain give rise to organisational process activities that can be segregated into grape growing, wine making, marketing and distribution and retail as well as tourism, which is an added complement.

Before elaborating on the analytical dimension of the value chain process in the wine industry, it is useful to first elaborate the broader statistical picture of the wine industry as a whole. We constructed this mainly on the basis of statistics derived from SAWIS. The SAWIS data for 2016 provides a broad overview of the wine industry's structure.

While the features illustrated in Table 50 provide useful insights into the industry's structure, what remains unsaid is equally compelling.

8.1.1. Suppliers/Inputs: Primary grape producers (vineyards)

Table 51 provides an overall picture of SA's primary grape producers, cellars types that operate in the industry, and the type of bulk buyers operating in the industry.

Primary grape producers are essentially the cultivators and farmers of grapes. In 2016, there were 3 145 cultivators and farmers or primary grape producers. Because the SAWIS data we have used for this analysis do not specify the spatial size in ha of the grape producing farms nor their ownership patterns (i.e. single owner, dual owners, multiple owners or a consortium of owners), we are unable to determine the establishment or enterprise size of grape producing farms by spatial size in ha or employee class size by the numbers and types of workers (e.g. permanent, casual, seasonal, etc.). Yet the SAWIS data contain a measure of grape production output (in tons), which roughly serves as a proxy of establishment size. But this is only accurate as a proxy to establishment size where a farm grows and harvests grapes exclusively. On farms where grapes and olives are grown, the grape production output as a proxy to farm establishment size is wholly inadequate, because it will exclude the area of cultivation under olive growth and production. On farms where grapes are grown simultaneously with two or more Mediterranean climate-compatible fruits (e.g. grapes plus olives, figs, apples and pears), grape output tonnage only as a rough proxy for establishment size is even more inaccurate. Also, we don't know how many primary grape producers are livestock farmers or the type(s) of livestock that they keep.

Table 50: South Africa's wine industry's structure in 2016

Table 50: South Africa's wine industry's structure in 2016			
	Number of primary grape producers	%	Production output in tons
	1 226	38.98	1 to 100
	1 143	36.34	100 to 500
	381	12.11	500 to 1 000
	382	12.15	1 000 to 5 000
	12	0.38	5 000 to 10 000
	1	0.03	>10 000
Total	3 145	100	
Cellar types	Number of wine cellars that crush grapes	%	
Production cellars	48	8.45	
Private wine cellars	493	86.80	
Production wholesalers	27	4.75	
Total	568	100.00	
Bulk buyer type	Number of bulk wine buyers	%	
Wholesalers (including producing wholesalers)	118	100	

(source: SAWIS, 2016)

Having established this qualification on the limitation of grape output as a classifier and differentiator of grape farm establishment size, the SAWIS data still show a trend that illustrates an informative pattern. The data in Table 51 show 38.98% grape producers (1 226 of 3 145 farming units or establishments), each produced less than 100 tons of grapes per year. A further 36.34% (1 143 of 3 145) primary grape producers produced between 100 and 500 tons per year. Similarly, a smaller group of primary grape producers (12.11%, or 381 of 3 145 farms) generated between 500 and 1 000 tons of output per year. Tabulating this statistic further indicates that 87.44% of SA's primary grape producers (2 750 of 3 145 farms or primary producers) each produced less than 1 000 tons of grapes per year.

On the other hand, there is a clear differentiation between farming establishments that produced more than 1 000 tons of grapes per year and establishments that produced less than 1 000 tons for the 2016 statistical year. We described the data for establishments producing less than 1 000 tons of grapes per year in 2016 in the previous paragraph. When we refer to establishments that produced more than 1 000 tons of grapes per year, there is some segmentation between these producers, but the output interval is gigantic compared to the producers generating an annual harvest below 1 000 tons. Thus, 382 grape producers (12.15% of all SA's primary grape producers) registered a production output in 2016 ranging from 1 000 to 5 000 tons. Only 12 producers (a meagre 0.38% of all SA's primary grape producers) harvested between 5 000 and 10 000 tons of grapes in 2016. At the extreme end of the grape output spectrum, only one grape producer in South Africa generated an output for 2016 that exceeded 10 000 tons.

(a) An illustration of the economics of grape farm mechanisation

Considering the limitation we have drawn concerning production output in tons as a broad proxy of establishment or farm size, it can still be argued that the generally large number of small grape producing agricultural establishments/farms has a significant bearing on the employment of a permanent labour force as well as an extensive and effective utilisation of farm machinery, especially tractors and harvesters. Using Vinpro data on the cost of mechanisation, specifically mechanisation in the utilisation and deployment of a self-propelled harvester with a purchase value of R3.5 million, considering a number of cost variables (e.g. depreciation, licence and insurance,

interest, total fixed cost, fuel and variable cost), the total hourly cost of operating such a machine incrementally decreased for every incremental increase in the tonnage of grapes harvested. Table 51 contains a synopsis of this data derived from cost information generated by Vinpro.

Table 51: The relationship between tonnage of grapes harvested and hourly operating costs of a self-propelled harvester		
Self-propelled harvester: Purchase price: R3.5 million		
Tons harvested	Annual usage in hours	Total cost per hour
1 000	91	R3 466
1 250	114	R2 979
1 500	136	R2 654
1 750	159	R2 423
2 000	182	R2 249
2 250	205	R2 113
2 500	227	R2 005
2 750	250	R1 917
3 500	318	R1 727
4 000	364	R1 640

(source: *Vinpro, Cost guide 2017/18*, p. 58)

The data conclusively demonstrate that farms which have a grape production harvest that is lower than 1 000 tons per year (a proxy for small farms) experience higher farm mechanisation costs (self-propelled harvesters are used as an illustration) than farms with a grape harvest of 1 000 to 5 000 tons (a proxy for medium-sized farms). The cost differential for mechanisation will be even more severe when it is compared to farms with a grape production harvest above 5000 tons per year (a proxy for large farms). As the data in Table 51 shows, only 13 farms in South Africa generated a production output of grapes that exceed 5000 tons per year in 2016. From this number, only one farm in the combined grape producing regions of South Africa had an annual output in 2016 exceeding 10 000 tons. Such a farmer has a massive mechanisation cost advantage over the remaining 2 750 agricultural establishments (87.44% of grape farmers fell into this small farm category) that generated annual grape production outputs below 1 000 tons in 2016.

8.1.2. Production capacity, technology and innovation: Wine cellars

Just as we presented a profile of primary grape producers in Table 50, we can also present a profile of wine cellars by type. This is shown in Table 50. However, it is more enlightening if a profile of cellars is illustrated for 1996 to 2016 because it allows for a demonstration of shifts that have occurred in the number of cellars in the wine industry as well as the changes to size classification among cellars during this period.

According to the data generated by SAWIS (see Table 50), in 2016, there were 568 cellars operating in the wine industry. For the 20-year period since 1996, the total number of cellars in the industry increased by 92.5% from 295 in 1996 to 568 in 2016. But just as wine producers can be classified by size of the tonnage harvested (a rough proxy for the size of wine farms), cellars can be given a more accurate size classification according to the tonnage of grapes crushed annually. Small cellars can be defined as those that crush up to 1 000 tons of grapes per year. Following this definition, medium-sized cellars can be defined as cellars that typically crush between 1 000 and 5 000 tons of grapes per year, and large cellars as those that crush >5 000 tons of grapes per year.

Notably, cellars can also be differentiated and classified by type. Typically, three cellar types are associated with SA's wine industry: private wine cellars, producer cellars and producing wholesalers.

Table 52: The evolution of wine cellars between 1996 and 2016

Year	Wine cellar type	Tons of grapes crushed						Total cellars
		1 to 100	100 to 500	500 to 1 000	1 000 to 5 000	5 000 to 10 000	>10 000	
1996	Private wine cellars	76	74	30	30	0	0	218
2005		285	118	50	40	2	0	495
2016		238	152	48	48	5	2	493
	% change in number, 1996 to 2016	213.2	105.4	60	60			126.1
1996	Producer cellars (previously co-ops)	0	1	1	13	19	35	69
2005		0	1	0	17	17	30	65
2016		0	2	0	4	8	34	48
	% change in numbers, 1996 to 2016		100	-100	-69.2	-57.9	-2.9	-30.4
1996	Producing wholesalers	1	1	1	1	0	4	8
2005		11	4	0	2	1	3	21
2016		10	9	0	5	1	2	27
	% change in number, 1996 to 2016	900	800	-100	400		-50	237.5
1996	Total cellars	77	76	32	52	19	39	295
2005		296	123	50	59	20	33	581
2016		248	163	48	57	14	38	568
	% change in number, 1996 to 2016	222.1	114.5	50.0	9.6	-26.3	-2.6	92.5

(sources: SAWIS data, reproduced from SAWIS, 2016 and Ponte and Ewert, 2007)

(a) Private wine cellars

In 2016, there were 493 private wine cellars in South Africa's wine industry, constituting 87% of wine cellars. The largest numerical growth in cellars since 1996 occurred among private wine cellars, which increased from 218 in 1996 to 493 in 2016 (an increase of 126.1%). However, the growth and expansion of private cellars occurred mainly among small and medium-sized cellars. The number of cellars that crushed <100 tons of grapes increased by 213.2% from 76 in 1996 to 238 in 2016. Cellars that crushed between 100 and 500 tons of grapes per year increased by 105.4% from 74 in 1996 to 152 in 2016. Even small cellars that crushed between 500 and 1 000 tons of grapes per year recorded a 60% increase in numbers from 30 in 1996 to 48 in 2016. Similarly, medium-sized private wine cellars that crushed between 1 000 and 5 000 tons per year increased numerically by 60% from 30 in 1996 to 48 in 2016. The data indicate that private wine cellars can be classified as mainly small and medium-sized. In 1996, not one private cellar crushed 5 000 tons of grapes annually, and 20 years later, only seven private wine cellars crushed 5 000 or more tons of grapes per year.

(b) Producer cellars

In contrast to private wine cellars, producer cellars, many of which existed earlier as co-operative wine producers under the designation in SA of co-ops were quite dominant among medium-sized to large cellars. Producer cellars were responsible for crushing the grapes produced by farmers in a specific region, whose produce was collectively crushed by a co-operative producer to which these farmers were affiliated or held a co-operative shareholding in the cellar responsible for crushing the grapes produced and maturing or distilling the final wine or alcohol, which was also distributed in the market by the co-operative producer or its marketing agents. In 1996, only two producer cellars could be classified as small (cellars at which less than 1 000 tons of grapes were crushed per year) and this remained virtually the same in 2016. Thus, unlike private wine cellars that fall into the small and medium-sized cellar categories, producer wine cellars are predominantly medium-sized to large in terms of tons of grapes crushed per year. In 2016, two producers (.4.2%) crushed <1 000 tons, and can therefore be classified as small wine cellars; four producers (8.3%) crushed between 1 000 and 5 000 tons, and could therefore be classified as medium-sized;

while eight producers (16.7% of producer cellars) crushed between 5 000 and 10 000 year and 34 producers (70.8% of all producer cellars) >10 000 tons per year.

The latter two categories of producer cellars can be classified as large producer cellars. However, in contrast to the overall segment of private wine cellars, which experienced significant growth and expansion in the number of cellars over the 20-year period between 1996 and 2016, a reverse process is shown for producer cellars for the same period. There was a significant decline (69.2%) in the number of producer cellars, with an annual output of grapes crushed in the medium-sized segment over this period from 13 to only 4 producer wine cellars. A similar process is recorded for producer cellars with an annual output in the 5 000 to 10 000 per year category: here, there was a 57.9% decline in the number of producer cellars in the industry between 1996 and 2016, from 19 to eight. A marginal decline in the number and percentage of producer cellars was observed even among large cellars. Unlike the experience among private wine cellars, these data suggest a degree of rationalisation and consolidation of producer cellars in the sector over the 20-year period for which data is available.

8.1.3. End-markets and local and global trade

The wine distributors can be categorised into various types. Producer wholesalers such as DGB, DISTEL and KWV are renowned MNEs that account for a significant portion of SA's exports based on a company value chain that incorporates vineyards, cellars and distributors. They, together with wholesalers and retailers and the hospitality and entertainment sector, which includes restaurants, B&Bs and hotels, facilitate the distribution of wine to consumers.

(a) Producer wholesalers

The final wine cellar type that warrants some commentary is producing wholesalers, a subcomponent of wholesalers in the wine industry. Wholesalers will generally buy wine in bulk from private wine cellars and producer wine cellars and will market, distribute or export the wine in package or bulk form. Producer wholesalers differ from non-producing wholesalers by having their own vineyards as well as buying wine in bulk from private wine producers and producer cellars. Producer wholesalers are

responsible for the bulk of SA's wine exports from. Thus, producer wholesalers have a more intimate involvement with different components of the wine industry value chain: as primary grape producers (farming); as crushers (through cellars), which involves extraction, maturation and distillation; and as buyers, marketers and distributors.

Numerically, in 2016, there were 118 wholesalers operating in SA's wine industry, 27 of which can be classified as production wholesalers. In the 20 years between 1996 and 2016, the number of producer wholesalers increased more than threefold, from eight to 27, a 237.5% increase.

In 1996, half (4 of 8) producing wholesalers in SA's wine industry were responsible for crushing >10 000 tons of grapes per year – large cellars. The remaining producing wholesalers' cellars ranged from small to medium-sized. However, since these cellars were also involved in bulk buying, the overall enterprises these formed part of would have been larger.

If we contrast the shift in the number of producing wholesalers between 1996 and 2016, we see that an influx of producing wholesalers with a small grape crushing tonnage (i.e. <500 tons per year) was recorded for the industry, as Table 52 illustrates. There was also an expansion in the number of producer wholesalers with a medium annual cellar crushing output (1 000 to 5 000 tons). Similarly, over this 20-year period, there was also a decline in the number of producing wholesalers crushing >1 000 tons per year. The evidence clearly signals a diversification, with large producing wholesalers scaling back on their grape crushing operations. It may also suggest that these large producing wholesalers also reduced the size in ha of the vineyards under their ownership and control. On the other hand, the new producing wholesalers that entered the industry after 1996 acquired their own vineyards but still tailored their annual crushing outputs to levels to a small to medium scale.

This does not mean that producer wholesalers downsized their operations. It is more likely that producer wholesalers with large vineyards scaled back the size of their vineyard operations but increased their involvement in the bulk-buying of wine from private wine cellars. New producer wholesalers entering the industry since 1996 would

have become moderately involved in vineyard cultivation; in terms of the tonnage of grapes crushed per year, one could classify them as medium to small. However, one cannot tell the enterprise size of these new producer wholesalers to the industry because their modest vineyard involvement may have coincided with more aggressive bulk-buying, marketing, distribution and exporting of wine produced from other cellar types (i.e. private wine cellars or producer cellars). The evidence strongly suggests a more strategic participation in exploiting the opportunities and gains presented by the wine industry value chain in South Africa and internationally.

(b) Wholesalers and retailers

Retailers are a final link in the wine distribution chain. The retail chain consists of marketing/distribution agents and retail outlets through which consumers purchase wine. Supermarkets (Checkers, Pick n Pay, Spar, etc.), discounters (e.g. Makro through Mass Mart), liquor stores (e.g. Liquor City, Rebel, etc.) facilitate direct sales to the public. This extends to the hospitality and entertainment sector, which includes restaurants, B&Bs, hotels and the hospitality sector generally.

South Africa's tourist and entertainment sectors provide an important market and outlet through which wine, spirits, alcoholic beverages (e.g. ciders) and non-alcoholic beverages (e.g. fruit juices) produced from vineyard and grape production in SA are consumed. This consumption of the finished product is the final destination in a process where the beneficiation of the raw material to its final finished form as wine is fully realised.

8.1.4. Auxiliary services: Sustainable production and land, water and energy use

The auxiliary services provided along the value chain varies and can be categorised in a number of ways. First, they are the various inputs required by producers, ranging from fertilisers to plant such as tractors, crushers and storage and packaging equipment. Logistics that facilitate the quantification and transportation of produce from vineyards to cellars to local and international markets provide the links that require co-ordination between various components of the value chain. R&D is critical to ensure that competitive advantages are derived from value chain activities. This can

range from the cultivars being developed, availability of appropriate seedlings, crop preservation to the most appropriate technologies being applied to cultivate, harvest and ferment the produce. Central to this process are the requisite skills development and financial support institutions.

Land and water

Access to land and water remains a critical issue that inform the value chain's development. The social partners in the WIVCRT acknowledged that access to land can be facilitated by the identification of all available land and ownership as well as the achievement of land reform targets. While access to water could be increased through the development of the full capacity of the existing water infrastructure, the development of a water-wise industry, and the construction of new dams with acceptable approval periods and licensing. Water security in regions such as the Northern Cape and the provision of clean safe water to farm workers are also considered to be priorities.

The management of transformation programmes such as Government's Land Reform Programme, which encompasses restitution, land tenure reform and land redistribution, together with water rights issues in a water-scarce environment, are central to the development of the wine value chain. The regulatory environment for the ownership and use of land and water were largely informed by the Constitution and attendant legislation such as the National Water Act No. 36 of 1998, the Restitution of Land Rights Act 22 of 1994 and the subsequent Amendment Act 48 of 2003, the Communal Land Rights Act 11 of 2004, the Extension of Security of Tenure Act 62 of 1997 and subsequent amendments, and the Spatial Planning and Land Use Management Act No. 16 of 2013.

Energy

The FAO advocates the reduction of reliance on the use fossil fuel through increasing the use of renewable energy sources as it is needed throughout the wine value chain, ranging from agricultural inputs, production, bottling, transportation and marketing. Energy use in the wine industry value chain is much higher during the later stages owing to extended cold storage and the cold chain requirements of transport,

packaging/processing and distribution. This makes the need to reduce reliance on fossil fuel as per the FAO prescripts³⁸⁰ even more crucial.

The WIVCRT set itself the objective to improve the reliability of electricity supply to the wine industry, including worker houses as well as to improve efficient electricity use in wine cellars, to identify all alternative energy solutions available to the industry, and to develop opportunities for farm workers to be skilled in renewable energy production and application.

Value chain finance

Funding has been sourced from multiple sources pending the nature of every project. The Landbank and the Jobs Fund have become major sources of transformation funding. In 2018, they supported the establishment of Hortfin as the first ring-fenced loan facility to the fruit and wine industry value chain. It focussed on funding orchard establishment, production finance/working capital, equipment and movable assets, infrastructure and equity investment to increase black ownership linked to expansion. The funded entity must be a company, trust or cooperative that is able to create sustainable permanent and permanent seasonal jobs in the three-year implementation period at an approximate cost of R300 000 per job and at least 51% black-owned or reach at least 51% black ownership within three years. The entity “must consent to appropriate post investment support which includes mentoring, capacity building, reporting, implementation of financial and admin systems and regular monitoring and evaluation audits”.³⁸¹ Funding for infrastructure projects such as the Clanwilliam, Voëlvlei and Brandvlei dams were sourced from the Department of Water and Sanitation and the Land Bank, while additional funds were also sourced from commercial banks and foreign donor agencies such as the EU-funded National Development Support Programme.

³⁸⁰ See Sims, R.; Flammini, A.; Puri, M. and Bracco, S.: Opportunities For Agri-Food Chains To Become Energy-Smart , Food and Agriculture Organization of the United Nations(FAO), November 2015 and Mason-Jones, Kyle; Notten, Philippa and Rambaran, Natasha: Energy as an input in the food value chain- Understanding the Food Energy Water Nexus, World Wide Fund for Nature Report ,SA, 2014.

³⁸¹ See <https://www.hortgro.co.za/inclusive-growth/hortfin/>

8.1.5. Governance of value chains

Ownership patterns

The ownership patterns of vineyards, which have evolved since the introduction of land reform, vary. A stake in some vineyards has been bought by empowerment consortia, for instance, Boschendal. In other instances, farmworkers have attained shareholding consistent with the land reform and empowerment programmes as the Solms-Delta case demonstrate. However, it is not clear what impacts these changing ownership patterns have had on general proportional ownership of vineyards by the previously disadvantaged.

Producer associations

AgriSA and its provincial affiliates such as AgriWeskaap have a long history of organising among a number of the producers of various agricultural commodities, including the wine industry, extending back to 1904. Vinpro is one of 24 commodity groups affiliated to AgriSA. The other national association is the more recently established NAFU; it was established to organise historically disadvantaged farmers across most of the commodity groups.

Vinpro

Vinpro has been one of the central organisations established to provide support services to the wine industry value chain:³⁸²

- **“Producer:** *Improve productivity & profitability through tailor-made services, products, information & training.*
- **Processing/value-chain:** *Help create an enabling environment through innovative wine-related business solutions and advocacy on regulatory issues.*
- **Efficiency:** *Improve efficiency within the company through training, development of personnel and an innovation drive.*
- **Industry:** *Give a voice to industry in the public domain and address them through close collaboration with industry stakeholders.*
- **Social compact:** *Form partnerships and align goals between Government, Industry and Labour through round table discussions.*
- **Transformation:** *Take sustainable transformation forward through involvement in career development programmes, land reform initiatives and support to BEE businesses”.*³⁸³

³⁸² Interview with Rico Basson, CEO of Vinpro , 5 October 2018 and Kurt Moore, CEO of SALBA, 19 October 2018

³⁸³ VinPro Overview, <http://vinpro.co.za/wp-content/uploads/2016/08/VinPro-Overview.pdf>.

The South African Liquor and Brand Association

Established in 2005, SALBA provides support and services to 22 members in the liquor industry, i.e. manufacturers, distributors and trademark owners of liquor, including DISTELL and DGB. Its focus areas include excise duties, illicit trade and trading license retention. To this end, it engages the Departments of Trade and Industry, Agriculture, Forestry and Fisheries, Finance and National Treasury, SARS, Customs and Excise and Health. It is involved in non-statutory multistakeholder bodies such as WIETA and ARA and statutory bodies such as the Wine and Spirit Board and the National Regulator of Compulsory Specifications. Together with VINPRO, it is involved in the Transformation Unit, which co-ordinates the application of Statutory Levies for Transformation of the National Agricultural Marketing Council.

Emerging farmer associations

The land reform process in agriculture has contributed to the growing need for existing and aspirant farmers from previous disadvantaged groups to organise themselves into some form of associational life. This has led to the establishment of NAFU, which has a presence in most provinces. Smaller associations not affiliated to NAFU have also been also established.

Black-owned brands

In addition to producers such as Boschendal and producer wholesalers such as Distell increasing its empowerment shareholding through deals with empowerment consortiums, a number of black-owned brands (BOBs) have been established. BOBs essentially engaged cellars to develop relationships that have enabled the bottling and branding of wine by a number of black-owned wine companies for sale in the local and international markets. Although these companies were not organised into an association, they were supported by forums such as WOSA.

Distribution: Marketers, wholesalers and retailers

Wine is distributed through various agencies that have particular relations with a producer. While wholesalers can be subdivided into export-only, general wholesalers and producer wholesalers, retailers constitute the final level that consists of distributing/marketing agents and retail outlets which enables consumers to make

direct purchases. Producer wholesalers such as Distell and DGB, totalling 24 by 2015, have a presence along the entire value chain in that they own vineyards and cellars and account for the majority of SA's exports. They are affiliated with business associations such as VINPRO and SALBA. Only some retailers, namely restaurants, B&Bs, hotels and the hospitality trade generally belong to associations such as FEDHASA. It is not clear how retailers such as supermarkets, larger discounters such as Massmart and Metcash and bottle stores are organised.

Wines of South Africa

WOSA is an inclusive not-for-profit industry organisation of SA wine producers established in 1999 to promote the export of all SA wines in key international markets. It is independent of any producer, wholesaling company or government department and is recognised by government as an Export Council funded by a statutory levy per litre on all natural and sparkling wines exported.

Federated Hospitality Association of South Africa

Established in 1949 and recognised as the official representative of SA's hospitality industry, FEDHASA is an umbrella association of hotels, restaurants, conference centres, caterers, self-catering accommodation, home hosting establishments (B&Bs and guesthouses), clubs, taverns, shebeens, suppliers, trainers, consultants and service providers to SA's hospitality industry. It provides a platform to enhance and promote the development and growth of a sustainable hospitality trading environment.

Producer wholesalers such as Distell and DGB, totalling 24 by 2015, have a presence along the entire value chain in that they own vineyards and cellars and account for the majority of SA's exports.

Inputs/Supplies

Larger corporations such as DGB³⁸⁴ and DISTELL tend to source their inputs in various ways. First and foremost is the tendency for primary producers to be directly owned by a corporation or for suppliers to forge a relationship where they own a shareholding in the corporation, or through the formation of partnership between the

³⁸⁴ Madeleine Adams, HR Executive, DGB (Pty) Ltd.

corporation and supplier. In some cases it is a mix of the available options to secure continuous and reliable supplies and inputs.

Similar arrangements are in place in the supply of auxiliary services such as chemicals and fertilisers, plant and equipment.

8.2. Employment, labour market issues and skills development

8.2.1. Employment trends

It is estimated that the wine industry in 2013 supported 289 151 employees in various capacities. This ranges from unskilled (55.6%), to semi-skilled (29.3%), to skilled (15%) employees. Approximately 58% (167 494) of those employed were located in the Western Cape.³⁸⁵ The distribution of those employed along the value chain is not evident from the information at our disposal.

Wage earners in the value chain provide the central form of household income:

“Household income worth R23 579 million was generated by the wine industry in 2013, of which R3 994 million is destined for the lower income groups of which a large portion is spent in the Western Cape region. Coupled with the annual expenditure by farmers on production inputs, one can understand why the wine industry forms the backbone of the economy of many districts in the Western Cape”.³⁸⁶

Different minimum conditions of employment prevail pending the component of the value chain being considered. The conditions are determined by statute pending the level of organisation among employers and employees.

³⁸⁵ Conningarth Economists: Macro-economic Impact of the Wine Industry on the South African Economy (also with reference to the Impacts on the Western Cape), Final Report – produced for the South African Wine Industry Information and Systems (SAWIS), Version 3, 30 January 2015, pviii.

³⁸⁶ Ibid, p ix

8.2.2. The labour market regulatory environment and wage determination

Historically, various contributions to a social wage have been made. A core of farmworkers living on farms have been provided with accommodation that is currently being governed by regulations governing human settlement, including the Extension of Security of Tenure Act no. 62 of 1997 (ESTA). Services such as electricity and potable water reticulation systems are usually included in the provided accommodation. Access to farms is also critical to the provision of public services such as health. Access to basic schooling is permitted and facilitated by prevailing transport arrangements where required, however, the conditions vary from farm to farm.

The conditions of seasonal farm workers and workers employed in cellars and other downstream business units tend to differ from the core group of farm workers. Workers were primarily accommodated in urban centers on sites not on farms governed by a different regulatory environment primarily under the auspices of municipalities. In these centres, basic services such as housing, schooling, health services and access to social grants can be accessed. It is in this context that social challenges that impact on the development of the wine industry, such as the prevailing levels of income poverty and access to social services and inequality, should be understood.

Wine Industry Ethical Trade Association

Established in November 2002, WIETA is a not-for-profit, voluntary association of stakeholders such as organised labour, business, non-governmental organisation and government operative in the wine industry to promote ethical trade. It facilitates the conduct of social, labour, health and safety audits to ensure compliance with a code of conduct that deals with the prohibition on child and forced labour, excessive working hours, the provision of a safe and healthy work environment, and housing and tenure security. Provision has also been made for regular employment, a living wage, fair disciplinary measures, freedom of association and the right to bargain collectively while prohibiting discrimination.³⁸⁷

³⁸⁷ Interview with Ms. Linda Lipparoni, CEO of WIETA, December 2018.

8.2.3. Grading and skills development

The Wine Industry Network for Expertise and Technology

WineTech is a network of participating institutions and individuals with a strong interest in improving the competitive position of SA's wine industry. Its three focus areas are research, knowledge transfer, and learning and development. Our discussion focusses on the learning and development dimension of the work WineTech undertakes, although we also reflect on the skills implications of research, knowledge transfer and technological innovation.

Although WineTech has access to a wide network from which it is able to draw technical expertise as well as facilitate knowledge transfer, the learning and development dimension of its work is still in an early phase, particularly in relation to its ultimate aims.³⁸⁸ Its learning and development focus is closely aligned to SAQA standards and commitments, which AgriSETA has made for the overall agricultural sector, and particularly for the fruit industry. Thus, while WineTech supports AgriSETA's BBB scorecard commitments, because its work is severely constrained by limited funding, its learning and development intervention has been tailored to leave a more strategic imprint on the sector rather than to merely follow compliance obligations routines.

Concerning the wine sector's contributions to the overall skills development levy, out of 3 250 producers, only 1 400 pay the levy. The 1 850 producers that don't make skills levy contributions are small entities that are exempt from skills levy obligations. But even among producers that do pay the levy, the average return received by producers from AgriSETA amounts to only R1 500 per year. Large producers would receive a much higher amount to undertake skills development training; thus, enterprise size plays a key role in the business operations of firms (and farms) in the wine sector.

This means that many fewer enterprises engage in skills development funded through AgriSETA in relation to the number of producers in the grape and wine subsector as

³⁸⁸ The substance of WineTech's skills development initiatives was informed through an interview with Kachne Ross, (Learning and Development Manager) Winetech, 24 May 2019.

a component of the overall fruit sector. Thus, WineTech has emphasised two dimensions of its learning and development strategy on which it has attempted to get greater buy-in from employers in the subsector.³⁸⁹ The first is that it has placed much more emphasis on building and expanding the cohort of skills development facilitators that serve the wine and grape industry. The idea is that the skills development facilitators will promote the uptake of training and skills development interventions among producers in the wine and grape industry. The second is the emphasis on promoting skills training that can lead to the professionalisation of the grape and wine industry. Thus, training received by individuals and workers in the sector is designed to contribute to recognised accreditation which contributes to opening but also protecting the employment of individuals with requisite credentials. In practice, this means that individuals in intermediate occupational levels will be earmarked for short programme courses; in contrast, lower-level individuals will be targeted for occupational development. Thus, the cohorts at a lower level would include farm workers. In terms of the professionalisation of the occupational position, the aim would for instance be to train such a worker so that they can hold the occupational position of for instance a viticulture supervisor.

While formulating a skills development strategy that differs from one that is responsive to employers' immediate and direct needs and thereby adopting an approach that is "more strategic", emphasising the development of skills development facilitators and the support of occupational training through professionalisation does not immediately overcome the huge gaps that still deeply plague the wine subsector. It is claimed that these gaps still exist in the spheres of marketing, sales, product branding, technical skills, negotiation skills and leadership skills. The subsector mostly lacks a culture of learning. The need for transformation is also an ongoing challenge. Overall, the compliance culture could also be dramatically strengthened for ongoing progress. This challenge becomes even more tougher when the seasonality aspect is discussed. Typically, very little training takes place during the harvesting season, which stretches from roughly October to April. Thus, the available time for training in the sector is usually April to September. Thereafter, training – especially on the vineyards and in the cellars – ceases.

³⁸⁹ Interview with Kachne Ross, Winetech, 24 May 2019.

In relation to learning material in the overall agricultural sector and the AgriSETA in particular, which should be noted as something positive, the learning material that is available through the AgriSETA, which we discussed for the fruit sector, is quite generic and does not fundamentally address the needs of the wine industry. WineTech has access to a host of more relevant material that is tailor-made for its specific needs, covering viticulture (the science of grape cultivation), oenology (the scientific study of wines), vineyard organisation, cellar organisation and the context to the overall value chain in which the sector fits. Because much of this material has not been formally accredited through the QCTO, funds cannot be effectively allocated for training that uses this material. It is not accredited and does not necessarily contribute directly to unit standards for a qualification. But it is the best knowledge that is available in SA for learning, teaching and training in the sector. A glimpse of this scientific and technical knowledge foundation is showcased in the *Annual technical yearbooks for WineTech*.³⁹⁰

The sector's network organisation suggests that there is concentration of high-level skills and technical abilities that can be harnessed and mobilised swiftly and efficiently. This pertains particularly to the practice of viticulture and oenology. Continuous research takes place in the sector. This is grounded mainly through Stellenbosch University and the ARC experimental stations based in the Stellenbosch area.

Further, a host of vendors domestic and international vendors constantly promote the capabilities offered by their companies and firms. This means that technological, innovation or technical deficiencies that cannot immediately be addressed by expertise in the sector is contracted to outsiders. These are either domestic or international entities or enterprises. One example is the company Aerobotics which recently received attention on Cape Talk about the use of drone technology and satellite imagery to improve orchard management, problem tree identification, pest disease management and yield management. The company promotes its capabilities on its website with the phrase "Early pest and disease detection enabled by drone imagery

³⁹⁰ See the four volumes of WineTech Technical Yearbooks for 2015 to 2018.

and artificial intelligence”.³⁹¹ Further, as part of its commercial offering, the company mentions five leading SA agricultural enterprises that are associated with its product: Bester, Crookes Brothers, Mouton Citrus, Mayo Macs and Idea Fruit. A host of similar companies likely operate in the sector by showcasing or advertising specific technologies as the ultimate panacea for specific challenges in the agricultural sector and its subsectors, such as the wine industry.

8.2.4. Company access to information and support

Company access to information and support were provided by employer associations, NPOs providing specialist services, NGOs and trade unions. Producers and cellars were members of VINPRO and SALBA, which were not mandated to provide labour market support services.³⁹² Such support services were primarily provided by KAW or CAEO, an NPO registered as an employer organisation after its establishment in 1998. It is a membership-based organisation and provides an array of labour market services to its members that involve health and safety, UIF, ethical trade audits and farmworker development.³⁹³ Advisory and consultancy services cover the entire spectrum from HR to concluding collective bargaining. It also provides some form of service in relation to labour audits, which formed an integral part of ethical trade requirements as championed by WIETA. It has also forged co-operative relations with Agri SA, Agri Weskaap and commodity groups such as Vinpro and HORTGRO. Both organisations.

The limited penetration of trade unions, particularly among the workers of primary producers, has limited the extent to which workers are informed about labour market issues at company level. It has certainly impaired the resolution of disputes and other labour-related matters at company level.³⁹⁴ Thus, there have been increasing referrals to independent dispute resolution bodies such as the CCMA, a situation that differs from those in the cellar, retail, wholesale and hospitality establishments, where there is higher trade union penetration, which has resulted in the proliferation of company recognition and procedural agreements.

³⁹¹ See: www.aerobotics.com

³⁹² Interview with Rico Basson, CEO of VINPRO, 5 October 2018 and Kurt Moore, CEO of SALBA, 19 October 2018

³⁹³ Interview with KAW/CAEO CEO, Johan Hopkins and his assistant, attorney Ciske Oosthuizen, Paarl, 15h00, 11th April, 2019.

³⁹⁴ Ibid and KAW: Blitsopname- Vakunie Lidmaatskap, Junie 2015.

8.2.5. Relations between employer associations, trade unions and wage determination

The Basic Conditions of Employment Act covers conditions of employment in the value chain, where no form of centralised collective bargaining arrangements exists. The determining of wages paid by producers are regulated by the Sectoral Determination No. 13: Farmworker Sector, while company-level bargaining determine wages among the cellar, retail and hospitality establishments. No threshold of representation has been reached that required the establishment of some form of centralised bargaining. Trade union membership data for the Western Cape demonstrate that less than 10.2% of the permanent and seasonal workers are organised by 12 unions.

To date, relations between the commodity producers, employer organisations and trade unions have primarily been forged in the areas of education, training and ethical trade. AgriSETA and WIETA include representation by both commodity organisations such as VINPRO, WOSA and SALBA as well as trade unions in the form of AFRIWU, BAWSI, BAWUSA, NPSWU and FAWU.³⁹⁵ While the former tend to deal with education and training as required by the Skills Development Act, the latter deal with issues ranging from sustainable development to compliance with prevailing labour legislation. The buyer requirement that producers and agro-processing enterprises along the entire value chain adhere to ethical trading conditions by being subject to social/ethical audits has become more widespread since the establishment of WIETA in November 2002 after a two-year Ethical Trading Initiative (ETI) pilot project in the wine industry.³⁹⁶ WIETA's ethical trading code is based on the ETI code and SA legislation and is informed by these principles:

- *“Child labour shall not be utilised*
- *Employment shall be freely chosen*
- *The right to a healthy and safe working environment*
- *The right to freedom of association*
- *The right to a living wage*
- *Working hours shall not be excessive*
- *Harsh or inhumane treatment is prohibited*
- *Unfair discrimination is prohibited*
- *Regular employment shall be provided*

³⁹⁵ Interview with Benjamin Gafiieldien, General Secretary of Agricultural, Food, Fishing and Retail Industry Workers Union (AFRIWU) on 3 October 2018 and Abraham Daniels, National Researcher for FAWU on 5 February 2019.

³⁹⁶ Interview with Ms. Linda Lipparoni, CEO of WIETA, December 2018.

- *Worker's housing and tenure security rights will be respected*".³⁹⁷

An initiative that affects the value chain has involved the establishment on 2 September 2015 of WIVCRT, which consists of six working groups:

- Transformation
- Global trade
- Local markets and wine tourism
- Research, development and innovation
- Employment and worker welfare
- Resources
- Social compact.

Each Working Group was required to identify its priorities and develop its terms of reference (ToRs) and action plans.³⁹⁸ Like FIVCRT, WIVCRT was informed by a concept document on VCRTs³⁹⁹ that outlined guidelines for the establishment of round tables for various commodity groups modelled on the Canadian concept of VCRTs for agriculture. WIVCRT, after numerous sessions, has developed a draft social compact for the industry. It is envisaged that the social compact will be finalised after a series of public engagements with a broad spectrum of representatives in early 2020.⁴⁰⁰ This draft social compact outlines far-reaching labour market reforms such as the establishment of centralised bargaining arrangements for both the fruit and wine industries as well as a literate, appropriately skilled, technologically competent workforce linked to the Organising Framework for Occupations recognised by QCTO, the accreditation of labour brokers, and decent work provisions.

The farm worker strikes and protests in 2012 and 2013 in areas such as De Doorns and Grabouw in the Western Cape led to the promulgation of a new minimum wage in

³⁹⁷ <https://wine.co.za/page/page.aspx?PAGEID=2667>

³⁹⁸ Department of Agriculture, Forestry and Fisheries and Fruit South Africa: Fruit Industry Value Chain Round Table Records of Decisions, Bulletin No. 1 of 2014 March 2014.

³⁹⁹ Department of Agriculture, Forestry and Fisheries: Concept document on Value Chain Round Tables (VCRTs), Republic of South Africa, Pretoria, 2012.

⁴⁰⁰ Wine industry Value Chain Round Table (WIVCRT): A Social Compact for the Wine Industry Value Chain Round Table, March 2019. Tridevworx has facilitated the development of the Social Compact and has interacted with all the stakeholders on a regular basis since 2017.

Sectoral Determination 13 with effect from March 2013.⁴⁰¹ It also led to the establishment of the Laborie Dialogue Initiative for fruit and wine in 2015 when an MoU was signed between HORTGRO, Vinpro and FAWU. The intention was to deal with sensitive labour and rural issues and to improve labour relations. Representation was later extended to involve AWETUC and the CCMA that piloted a workplace mediation procedure for the agricultural sector 2015-16 in the fruit sector in the Western Cape.

8.3. Key challenges and recommendations

What is evident is that there are critical challenges to the creation of decent work in the wine industry value chain. This revolves around the social compact that is currently under discussion, which addresses substantive issues that align plans for the value chain with the need to modernise prevailing labour markets. Owing to the nature of value chain and its geospatial location in the South Africa, it contains specific measures that involve a range of stakeholders from national, provincial and local government, public entities, commercial farmers, subsistence farmers, cellars, bottlers, retailers and wholesalers, trade unions, NGOs, NPOs and faith-based organisations to bring it to fruition. What is evident is that a number of initiatives exist that require some form of co-ordination so as to eliminate duplication and the efficient and effective use of limited resources.

8.3.1. Employment creation prospects

The employment creation prospects for the fruit industry are considerable, as illustrated by recent growth trends. SA-headquartered companies involved in citrus, table grapes, deciduous and subtropical fruit have developed a significant global footprint. A number of critical issues require resolution if it is to continue on its current growth trajectory:

- While it is imperative for global trade agreements to be entered into with various trading partners, compliance with the requirements of buyers by producers, cellars, retailers and wholesalers is critical. Also central is the ethical trade

⁴⁰¹ The Future of Agriculture and the Rural Economy in the Western Cape (Fare): Fare Panel Report, October 2013,p1.

requirements as specified by buyers globally; these tend to dominate the value chain.

- The production capacity of local producers must be increased to meet buyer demands. This involves the equitable resolution of issues such as access to land, water and energy supply and usage. Similarly, the existing innovative capacity, including R&D, must be enhanced. A number of initiatives to increase the amount of land under irrigation and to transform ownership patterns are under way. The draft social compact details the resources required to grow the industry. There is also an increased attempt to make these enterprises more reliant on clean and renewable energy sources.
- The logistical requirements to minimise disruptions in the value chain requires attention. This involves resolving a range of issues in the ports that are essential for the efficient and effective transportation of goods.

8.3.2. Compliance with South Africa's labour market legislation

Compliance with SA's labour market legislation in the value chain revolves around the implementation of the provisions of Chapter 3 of SA's Constitution and the Basic Conditions of Employment Act, of which the Sectoral Determination No. 9 and No. 13 were critical components. The UIF Act and Occupational Health and Safety Act were also significant in providing protection to both seasonal and permanently employed workers.

In its ethical trade auditing arrangements, WIETA has signalled the need for companies to comply with labour market legislation. Currently, audits are based on monitoring only the applicable legislation such as the Basic Conditions of Employment Act, the UIF Act and the Occupational Health and Safety Act. South Africa's labour market is dynamic in that the LRA provides for increased self-regulation levels subject to representation levels and the mandates of worker and employer organisations. Further, the modernisation of workplaces involves the establishment of new occupations and the discontinuation of others, and require the development of new

grading systems and training regimes. These critical issues have been raised in engagements about the development of a social compact for the industry.⁴⁰²

The resolution of disputes concerning the implementation of the legislation and other regulatory provisions hinged on relations between workers and management at company level. Despite the support that companies could access through employer service providers and trade unions, and advice offices a high incidence of referrals to the CCMA are being experienced. Some of the proposed interventions entail the development of more effective dispute resolution mechanisms supported by training and capacity development support at local level to temper unnecessary adversarial labour relations.⁴⁰³ The draft social compact aspires to have an industry where disputes are proactively addressed by trained facilitators on an agreed effective and efficient dispute mechanism through the development of, among other:

- *“Effective and proactive Agricultural Dispute Management (ADM) Referral Network*
- *Skilled workplace mediators at multi-leadership levels.*
- *Farm/cellar managers/ supervisors/ team leaders and worker leadership knowledgeable about basic employment rights and dispute mechanisms”.*⁴⁰⁴

8.3.3. The pursuit of decent work

The challenges involved in pursuing decent work in this value chain are daunting. The industry landscape is diversifying in that it often involves legal and illegal evictions, and the upgrading of farm worker housing into guest accommodation to supplement the income of vineyards and cellars. The number of permanent workers has increasingly been reduced to constitute 40% of the workforce. The remaining 60% is employed as seasonal workers for a limited time of the year. In areas where the vineyards and cellars are located close to towns, security of tenure in relation to the provision of housing on farms, particularly for permanently employed workers, has been reduced. Thus, there has been increased pressures on municipalities to provide social housing to augment the social wage.

⁴⁰² Interview with Johan Hopkins, CEO of the KAW on 11 April and 25 October 2019 in Paarl and Somerset West and Abraham Daniels, National Researcher for FAWU on 5 February 2019.

⁴⁰³ Barron, C: Minimum wage begins to eat jobs-CCMA works to claw them back as referrals are set to grow by 25%, Business Times, 20 October, 2019, p9.

⁴⁰⁴ Wine industry Value Chain Round Table (WIVCRT): A Social Compact for the Wine Industry Value Chain Round Table, March 2019.

Any pursuit of decent work objectives should consider that primary producers are price-takers owing to the dominance of buyers in the value chain. Johan Hopkins, the CEO of CAEO/KAW, alluded that this should shape how the wage determination of farmworkers could be determined with reference to the example of the tomato value chain in the U.S., where a three-way agreement was entered into between the workers, farmers and the Campbell Soup Company. Baldemar Velásquez, a U.S labour activist and president of FLOC, explained that the deal increased hourly wages and provided workers with much-needed health and safety benefits. Altering the pricing system to each soup can or other products could double what farm workers earned as strike action was often not enough to leverage significant changes⁴⁰⁵.

However, there are difficulties with replicating this approach in the SA environment. The critical price determinants are the retailers and wholesalers such as Woolworths and Tesco, and not the producers and cellars. They therefore must be factored into the application of such a model. Further, this could be facilitated by ethical trade bodies such as WIETA, which has embarked on joint initiatives through the partnership programme Stronger Together, where relationships were forged with local and global MNE buyers. How such arrangements are incorporated into collective bargaining arrangements at the company and value chain levels must also be clarified.

However, the WIVCRT has incorporated a number of decent work considerations into its draft social compact. Foremost is the need to strive for sound industrial relations that observe freedom of association, the right to engage in collective bargaining and dispute resolution, the need for a living wage, social protection and an employee wellness programme, the rights to family and community life, tenure, access to housing, and safe and appropriate farm worker transport. The use of labour brokers and consultants should be accredited, it is argued. While these provisions bode well for the workers employed in the value chain, their implementation could prove very

⁴⁰⁵ Baldemar Velásquez at a conference on the Future of Farm Workers in South Africa, hosted by SA/UK Bilateral Research Chair in Social Protection for Food Security; the DST-NRF Centre of Excellence in Food Security and the Institute for Poverty, Land and Agrarian Studies (PLAAS), in association with Women on Farms Project and the Institute for Social Development at UWC, Western Cape in *Low wages are not just the farmers' fault, says US activist* by Barbara Maregele and Tariro Washinyira, 22 October 2019.

challenging, for two reasons. First, all the stakeholders have yet to agree on such provisions and thus sign the draft compact. Second, the implementation of the social compact will involve the development of a business plan to facilitate resource mobilisation among all the responsible stakeholders. Potentially, it is a situation that will significantly enhance conditions for ethical trade globally.

It is also envisaged that the contents of the draft social compact, together with the substantive issues being developed in the Working Groups of the WIVCRT, be translated into a comprehensive multi-year business plan or masterplan. Whether the same will occur in FIVCRT must be established. However, what is clear is the pursuit of a decent work agenda and its links to ethical trade have become more important across the world, and strategic in relations between producers, cellars, packhouses, processors, retailers, wholesalers and their employees. Buyers and their employees are increasingly demanding compliance with the decent work agenda along the value chain.⁴⁰⁶ SA-located companies are therefore required to heed these developments if we intend to retain and increase our share of the market. Further, Uni Global Union is also in the process of concluding Framework Agreements with retailers and wholesalers such as Shoprite and Pick n Pay that are increasing its African footprint.⁴⁰⁷

8.3.4. Recommendations

While the Minister of Employment and Labour provides oversight over the effective and efficient implementation of the LRA, it is imperative that the malaise within the value chain be resolved. Hence the need to, among others:

- Ensure broad support of the relevant labour market institutions, including the training regime, in the envisaged WIVCSC.
- Develop an effective and efficient co-ordinating mechanism that will accommodate a range of current initiatives that have a bearing on a business or master plan for the value chain, including the modernisation of labour market institutions.
- Establish a process to resolve the wage determination issues such as wages linked to occupational, grading and skills issues. This should involve the

⁴⁰⁶ Interview with Keith Jacobs, Regional Secretary for Africa-Uni Global Union, 3 December 2019.

⁴⁰⁷ Ibid.

demarcation of the scopes of certain activities that fall within agricultural production on vineyards, cellars, retailers, wholesalers and hospitality establishments as well as applicable wages, grading structure and training regime.

- Develop a clear implementation plan with timeframes of the consensus attained among the parties in relation to labour market issues contained in the Social Compact and a potential business plan or masterplan for the value chain.

CONCLUDING REMARKS

It is evident that GVCs have a significant presence in industries such as automotive; metal fabrication; capital and rail transport equipment; and agro-processing-wine and fruit. Central to this is the presence of locally-owned and foreign-owned MNEs that facilitate cross-border operations in these sectors. Some sectors are either emerging and thus aspire to have such a presence, or have been in distress and thus require support to prevent or reduce job losses, or can be considered as a dimension of another value chain being examined. The metal fabrication sector has been in decline for some time, despite being a supplier to industries such as the automotive value chain. Capital and rail transport equipment industries are emerging as critical components of GVCs through the provision of critical supplies/inputs and services. They are essentially producer-dominated, while the growing agriculture and agro-processing-wine and fruit value chains are buyer-dominated.

1. The dimensions of global value chains

It is evident that automotive; metal fabrication; capital and rail transport equipment; and agro-processing have strong value chain relations with primary minerals beneficiation and agriculture, as reflected in the supplier/input dimensions. The development and involvement of companies, particularly SMMEs and their relationships with MNEs, in the facilitation of localisation is considered integral to the process of cultivating suppliers as well as end-market arrangements. These value chains also underscore the importance of auxiliary services such as logistics and ICTs.

Notably, it is only in automotive and agro-processing (fruit and wine) that formal value chain initiatives have been developed. These involve all the relevant social partners. Strategies have been developed to augment the competitive advantages at the industry and the company levels. Opportunities for moving up the value chain to augment growth in South Africa form an integral part of these initiatives. This involves considering opportunities for innovation, skills development, and SMMEs' positions in localisation processes with the support of local R&D and relevant public institutions. It is imperative that the producer types and buyer types of value chains were selected to ascertain the different value chain governance dynamics and their implications for SA's labour market.

2. Moving up the value chain via localisation

Localisation has been regarded as a critical vehicle to moving up the value chain, particularly to facilitate participation in globalisation processes by developing countries. South Africa has adopted localisation and black industrialist development programmes to facilitate such participation, as evidenced by the adoption of SAAM and its envisaged replication in other value chains involved in the metal and engineering sector. Agriculture and agro-processing have adopted a different approach, with the development of social compacts, as facilitated by value chain round tables. The former is dominated by producer-led value chains and the latter by buyer-dominated value chains.

Critical challenges are how such programmes will be expedited in specific sectors in relation to how SMMEs are defined. Various sectors have defined SMMEs based on employee class size and value add in various ways. The internationally accepted definition and that shared by the DTI for employee class size is not consistent with those used by a number of bargaining councils, which have adopted different definitions.

3. Implications for labour market arrangements

GVCs have critical implications for local labour market institutions. Changes in the labour market have been the subject of contestation and deliberation between organised business and labour unions for some time in an environment in which labour market regulation has tended to encourage various forms of self-regulation. Central has been the model of wage determination, its scope, occupational structures, grading, skills development and the movement toward accommodating non-standard employment.

3.1. Wage determination and value chains

Various models of wage determination have prevailed in South Africa's labour market. A high level of self-regulated collective bargaining has been affected centrally in an identified sector and/or at enterprise levels, pending the level of self-regulation involving organised business and labour. Alternately, low self-regulation occurs when a statutory body such as the ECC determines minimum conditions of employment and

wages through sectoral determination based on representations made by organised business and labour in an environment in which there is limited company-level bargaining. The GVCs selected for examination have been subject to these various forms of wage determination. The metal fabrication, capital and rail transport equipment and the automotive value chains involve processes of centralised collective bargaining, albeit statutory under the auspices of MEIBC and MIBCO or non-statutory as facilitated by the NBF. The fruit and wine value chains were governed by Sectoral Determination No. 9 (Wholesale and Retail Sector), No. 13 (Farm Workers) and No. 14 (Hospitality Sector), with the prevalence of smaller regional bargaining councils such as the Bargaining Council for the Food Retail, Restaurant, Catering and Allied Trades and the Bargaining Council for the Restaurant, Catering and Allied Trades being exceptions.

3.2. Demarcation/Scope of collective bargaining institutions and sectoral determinations

The demarcations or scopes of the collective bargaining institutions have become a critical area of dispute, with a number of companies seeking to move to other bargaining arrangements. The MEIBC has been affected by multiple applications and litigation, particularly in relation to companies aspiring to move to MIBCO. While lower wage minima and different conditions of employment such as work hours were evidently an attraction, extensive participation in the automotive value chain was cited as a primary reason. While multiple value chains existed in the MEIBC, its scope was still defined in relation to subsectors, commonly referred to as 34 divisions and six schedules (see *Table 7: A summary of industry divisions/schedules and applicable rates*). Some companies also sought to move to other bargaining councils.

Despite the criteria specified by the 1996 Commission to Investigate the Development of a Comprehensive Labour Market Policy, a company's participation in value chains became an important criterion, as recent court judgements and NEDLAC insights show. The need to ensure vertical and horizontal equity in compensation for the performance of similar work between and among enterprises remained a key consideration when determining bargaining councils' scopes.

3.3. Occupational structure and grading

The MEIBC's Main Agreement of 2014-17 reflected the need to modernise collective bargaining by adopting processes to develop a more flexible job grading structure by reducing the number of grades from 13 to five. It also involved negotiating productivity agreements and responses to the adoption of new technologies. However, the MIBCO Main Agreement of 2017-19 retained a 13-grade job structure, while the NBF Agreement of 2017-19 reflects a five-grade job structure.

The occupational and job grading structures in the Sectoral Determination were not as comprehensive as the aforementioned agreements. While Sectoral Determination for the Wholesale and Retail Sector resembled some type of occupational and grading structure, the general thrust was to determine minima for the sectors. The Draft Social Compact for the Wine Industry Value Chain Round Table aspires to develop such an occupational structure

3.4. Skills development

Perhaps three among several skills development challenges are key in the research findings in this report. SETAs (on the basis of the research findings derived from AgriSETA and merSETA) have generally responded fairly overtly to the skills and training demand imperatives that have been registered by firms and enterprises generally. However, in tailoring their responses to these skills and training demand imperatives, GVC-related issues have tended to be only implicitly addressed or at least only as a routine package of business. This means that an emphatic approach to the issues is minimised and perhaps even lost by being transmitted through significant policy recommendations. There appears to be surprise, as witnessed in our initial investigation, when questions raised about GVC challenges are posed to SETAs.⁴⁰⁸

The first of three crucial issues that must be addressed is the relationship between skills and job gradings in the workplace and the ways in which SETAs intervene to address anomalies within their own skills and qualification offering in order to

⁴⁰⁸ This is evident in engagements with Nokuthula Sibia (Manager: Research, Monitoring and Evaluation) at AgriSETA who provided written responses on 22nd November 2019 and in the interview with Hosea Morapedi, the Auto and Tyre Chamber Coordinator at merSETA, conducted on 15 November 2019 as well as further communication with Laura Harris (nee Crosby), the research and skills training manager at merSETA on 27 November 2019.

ameliorate and ensure that skills-based gradings within enterprises and firms are successful. From the evidence at our disposal, neither of the two SETAs have addressed these anomalies. It was suggested instead that within the auto sector, OEMs bypass the existing SAQA qualification and prefer a standardised international qualification for general operative workers that apparently is positioned at a lower SAQA level than the local equivalent. But even within MEIBC and MIBCO, where a skills-based job grading system is in operation, merSETA in does not appear firmly situated to explicitly shape the discussion or tailor its skills provision interventions (via providers) to ameliorate matters so that job grading informs skills requirements and certification.

The second critical issue that requires an overt stance from both merSETA and AgriSETA is the way in which curriculum revision and upgrading is conveyed. Since SETAs in general are at the interface between demand-driven skills and training imperatives (conveyed through firms), supply-driven and skills training responses (conveyed through public and private universities, universities of technology, TVETs and private training providers), the scenario where SETAs provide credible statements about curriculum planning and provision that are taken up further within institutions of education, skills and training supply does not appear to be prominent. If it is there, it is muted and invisible. For instance, specific modules that were perused for quality dimensions, which are highly sought in a more overt GVC skills demand perspective (e.g. water quality management as well as quality standards, inspections and measurements for other product types) suggest that, when first introduced by AgriSETA in 2006, the specific quality management modules were shown to be up-to-date and perhaps even cutting-edge for the level at which they were offered. These water quality management modules offered under the auspices of AgriSETA have not been revised or upgraded since 2006. Surely, such cutting-edge material should be revised and updated at least every 10 years. Thus, there seems to be no impetus in the SETAs to make such curriculum interventions. There is certainly a danger when such important curriculum content changes bypass demand-driven institutions (such as firms and enterprises) as well as regulatory demand/supply interface institutions (such as SETAs) and are only channelled exclusively through education provision bodies (universities, universities of technology, TVETs and other skills training providers) or the Department of Higher Education and Training. Perhaps it is also

crucial for the QCTO to overcome the capacity constraints under which it operates, to also begin to play a more prominent role in vetting the quality standards of skills and training curricula that fall within the domain of trades and occupations and in charting the development of qualifications that enhance GVCs generally, but also GVCs that are gaining a prominent footprint through selected firms and sectors in South Africa's labour market.

Finally, it is obvious from the research in this report that the relationships between individual SETAs and perhaps a wider spectrum of SETAs and statutory bargaining and non-statutory bargaining bodies must be strengthened. Weaknesses in these relationships could inhibit the flow of information, which is crucial to continually making strategic adjustments to the skills provisioning system. While it is commendable that, as is the case for merSETA, which has an active set of chambers representing different parts of the sector (e.g. auto, metal, motor, new tyre and plastics), the representation from employers is fairly narrow and circumscribed more toward large employers who may already have the recommended systems in place that align the specific company skills initiatives to active participation within GVCs. Our perusal of the inter-chamber SETA minutes suggest that more definitive arguments of persuasion and cutting-edge perspectives appear to be more strongly entrenched among members of the Auto Chamber, particularly those that are representatives of OEMs. This may give the skills planners in the relevant SETA (in this instance, merSETA) an understanding of the employment and skills imperatives that this industry segment articulates but a rather trickle of information about the same issues from employers that are based in the engineering or motor industries to the sector. Without having to invent a new structure, it will be extremely useful for the skills planning within specific SETAs to have some participation, perhaps as observers in related statutory and non-statutory bargaining forums that are demarcated to operate in the sector in which specific SETAs are themselves mandated to operate. This is because rich information will be conveyed to the skills planner from the designated SETAs without this information being diluted from confident personalities from other bargaining forums such as the non-statutory NBF that have powerful voices that are capable of drowning out others. The SETA planners will then be in a good position to ascertain problems that a less dominant bargaining council for instance is grappling with around skills and grading and, from its side, adjust its offering so that there is some amelioration to the challenges faced

at a company level around skills and grading. Ultimately, this will help strengthen skills development initiatives, which will have a stronger impact on the GVC.

3.5. Labour market flexibility

Whether South Africa's labour market is flexible in relation to labour's willingness and ability to respond to changes in market conditions (including employment protection), changes in the demand for labour and wage rates, given the high unemployment rate and SMMEs' requirements, remain contentious.⁴⁰⁹

(a) Exemption systems

Attempts to improve labour market flexibility through the development of a system of exemptions was considered as a way to accommodate the challenges of SMMEs. However, the exemption provisions were not uniform across collective bargaining platforms. The responses of companies to provisions in MEIBC and MIBCO differed markedly, as a 2014 Tridevworx study demonstrated.⁴¹⁰ Some MEIBC-affiliated companies also subsequently considered moving to MIBCO.

The LRA was amended in 2015 to improve the efficiency of the systems by establishing turnaround times for applications. Sectoral determinations as well as the provisions for a national minimum wage also included exemption provisions.

(b) Changes in business model: The move from standardised employment to casualisation and tasking

The evolution of organisations has led to the adoption of business models that have altered employment relations. Outsourcing and subcontracting has led to the shedding of employment by lead businesses to employment by subordinate businesses with a growing diversion of earnings among firms. The outsourcing or offshoring of the provision of such services by independent operators in an enterprise's value chain has impacted on conditions of employment and processes of wage determination. David Weil referred to these processes as the establishment of a "fissured workplace", while

⁴⁰⁹ Rodgers, Gerry: Labour Market Flexibility and Decent Work, DESA Working Paper No. 47, UN Department of Economic and Social Affairs (UN DESA), July 2007.

⁴¹⁰ Tridevworx: Analysis of the Effectiveness of the Bargaining Council Exemption System, A Tridevworx Report for the Department of Labour, November 2014.

Guy Standing has developed a typology of the tasker phenomenon. They can be classified as taskers that belong to the on-demand concierge economy, taskers in cloud labour, and on-call employees. This has resulted in the reduction of permanently employed persons, with accompanying benefits in established enterprises and the generation of employment practices that are casual and therefore non-standardised.

The use of TESs or labour brokers to facilitate recruitment and tasking in accordance with clients' outsourcing requirements is prevalent across value chains and has been accommodated in collective bargaining arrangements, as detailed in the MEIBC's Main Agreement.

The agro-processing value chains (fruit and wine) have a very different labour market dynamic. The seasonal engagement of farmworkers has been modernised for the purposes of harvesting and packaging in the fruit and wine industry value chains. The seasonal employment of labour, in conjunction with permanent employees on farms in cellars and packing establishments, is governed by a combination of a sectoral determination and company-level bargaining. The increased engagement of labour on short-term contracts to perform certain tasks has increased significantly. These taskers are called upon when required and paid accordingly. They are often "on zero hours, 'on-call' or 'if-and-when' contracts, or subject to flexible schedules (and) are only remunerated for hours they work on the contracted tasks".

Auxiliary services in the form of suppliers/inputs are governed by different arrangements. Some of the changes to labour markets in the value chain have been affected with the use of ICT platforms to facilitate insourcing or outsourcing. The BPO industry has been critical in the outsourcing or insourcing practices of enterprises across various industries. The establishment of insourced or captured BPO facilities to provide certain services as an integral part of a company's value chain has essentially meant the integration of staff as part of the company's employment practices.

While settlement has been attained in the NBF, the aforementioned developments have nonetheless contributed to the current problems being experienced by

bargaining councils such as MIBCO and the MEIBC and among some companies in the wine and fruit value chains.

3.6. *Some critical institutional challenges*

South Africa's labour market institutions that are central to the regulation of the labour market, ranging from high to low self-regulation levels, face serious challenges in relation to some of the aforementioned substantive issues, including the pursuit of the decent work agenda, which involves employment promotion and protection, security, income support, the promotion of equal opportunities, and access and rights at work

The NBF is seeking to establish a new bargaining council for the automotive value chain based on the incorporation of component and tyre manufacturers, vehicle body builders and bus builders. This will have serious implications for MIBCO, despite the move of some automotive-related manufacturers from the MEIBC to MIBCO. The existence of companies linked to multiple value chains in the MEIBC compounds demarcation issues.

The MEIBC is also beset with disputes concerning the bargaining model it should pursue. There are currently only party agreements between SEIFSA and trade unions such as MEWUSA, NUMSA, SAEWA, Solidarity and UASA. In contrast, NEASA, CEOSA and SAEFA have tabled demands such as the blanket exemption of SMMEs and the reduction in wage rates, which have not been acceded to by the trade unions. It has recommended that its members pay wage rates below those agreed to by the aforementioned parties, developments that have negatively impacted on the vertical and horizontal equity in compensation for work performed among enterprises.

Despite the existence of a sectoral determination for farmworkers and the establishment of ethical trade associations that have included the monitoring of labour-related protocols in its remit, the relationships between producers and buyers are tenuous in certain areas. Non-compliance, farmworker evictions and the increased use of seasonal work has led to large concentrations of workers in rural towns as new business models are being adopted, a situation that is compounded by organised labour being highly fragmented and municipalities being required to deal with social wage issues such as the provision of social housing and related services. This

sensitive situation could negatively impact on the fruit and wine industry value chains if producers, cellars, packhouses and agro-processing establishments do not heed changing conditionalities required by buyers for the conduct of local and global trade. Mere compliance with existing labour market conditions may not be enough to retain the local and global market share. Innovative wage determination methods and processes may yield improved results in the pursuit of a decent work agenda.⁴¹¹ South Africa's legislative environment is flexible enough to accommodate new ways of self-regulation in this regard.

⁴¹¹ Interview with Keith Jacobs, Regional Secretary for Africa-Uni Global Union, 3 December 2019. See also Baldemar Velásquez at a conference on the Future of Farm Workers in South Africa, hosted by SA/UK Bilateral Research Chair in Social Protection for Food Security; the DST-NRF Centre of Excellence in Food Security and the Institute for Poverty, Land and Agrarian Studies (PLAAS), in association with Women on Farms Project and the Institute for Social Development at UWC, Western Cape in Low wages are not just the farmers' fault, says US activist by Barbara Maregele and Tariro Washinyira, 22 October 2019.

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5. List of referenced interviewees

Organisation	Individual	Position
General		
Department of Trade and Industry	Lionel October	Director General
Statistics South Africa	Mr. Risenga Maluleke	Statistician General
	J De Beer	DDG: Economic Statistics
	N. Makhatha	DDG: Methodology & Standards
UNI Global Union	Keith Jacobs	Regional Secretary for Africa and Chairperson of African forum for global union federations
Producer-dominated GVCs		
Aveng Trident Steel A Div of Aveng (Africa) Pty Ltd	Lesetja Rabalao	Employee Relations Manager
BMW (South Africa (Pty) Ltd	Mr Nthato Khukhama	Manager: Human Resources
	Mr. Peter Dantjie	Manager: Industrial Relations
Chemical, Energy, Paper, Printing, Wood and Allied Workers Union (CEPPWAWU)	Mr Welile Nolugo	General Secretary
FACTOCODE (PTY) LTD T/A MICROFINISH	Deshan Naidoo	Managing Director
HellermannTyton (Pty) Ltd	Rod Dewing	Managing Director
Hulamin Operations (Pty) Ltd	Clayton Fisher	Group Supply Chain Executive

Hulamin Extrusions	Sydney Khoza	Senior HRBP
MA Automotive Pty Ltd	Philip Sapto	HR Executive
MA Automotive Tool and Die (Pty)Ltd	Cornè Kotze	Senior HR Manager Rosslyn
merSETA	Hosea Morapedi	Auto and Tyre Chamber Co-ordinator
	Laura Harris (nee Crosby)	Research and skills training manager
Metal and Engineering Industries Bargaining Council (MEIBC)	Vice Ngonyama and Kgaogelo Nchaupe	Managers
Motor Industry Bargaining Council (MIBCO)	Tom Mkhwanazi	CEO
	Gordon Edwards	Acting CEO
Motor Industry Staff Association (MISA)	Martlé Keyter	CEO Operations
National Association of Automotive Component and Allied Manufacturers (NAACAM)	Renai Moothilal	Executive Director
National Union of Metalworkers of South Africa (NUMSA)	Karl Cloete	Deputy General Secretary
	Melanie Roy	Research Officer
New Concept Mining (Pty) Ltd	Lysan James	HR Executive
Nissan South Africa (Pty) Ltd		
Steel and Engineering Industries Federation of Southern Africa (SEIFSA)	Lucio Trentini	Operations Director
	Dr Michael Ade	Chief Economist
Sulzer Pumps (SA) (Pty) Ltd	Ronelle Colyn	Company Secretary
Toyota Boshoku SA Pty Ltd	Emanuel Kilian	Senior Manager - HR and Labour
UASA – The Union	Mr Jacques Hugo	Acting CEO

	Mr Shadrack Motloung	Chief Operations Officer
	Adv. Nick van Rooyen	Acting Chief Operations Officer
	Frederick Jakobus van Straten	Sector Manager
Ussher Inventions (Pty) Ltd t/a Lasher Tools	Ian Kendal	Managing Director
Buyer-dominated GVCs		
Agricultural, Food, Fishing and Retail Industry Workers Union (AFRIWU)	Benjamin Gafieldien	General Secretary
AgriSeta	Nokuthula Sibia	Manager: Research, Monitoring and Evaluation
Citrus Academy	Jacomien de Klerk	CEO
Citrus Growers Association of South Africa	Justin Chadwick	CEO
Delecta Fruit	Johan Basson	Financial Director
Dole South Africa Pty Ltd	Riaan Swart	Director: Deciduous
DGB (Pty) Ltd	Madeleine Adams	HR Executive
Food and Allied Workers Union (FAWU)	Abraham Daniels	National Researcher
Fresh Produce Exporters' Forum (FPEF)	Anton Kruger	CEO
Fruit SA	Dr Konanani Liphadzi	CEO
HORTGRO	Mariette Kotze	Operations Manager
Kaapse Agri Werkgewersorganisasie (KAW)	Johan Hopkins	CEO
	Ciske Oosthuizen	CEO assistant and Attorney

Koue Bokkeveld	Joy van Biljon	Centre manager and founder member
	Luyolo (Tshoks) Tshokotsha	Skills development facilitator and trainer
LWO Werkgewersorganisasie/Employers Organisation	Mr Pieter Breytenbach	CEO
South African Liquor Brand owners Association (SALBA)	Kurt Moore	CEO
South African Subtropical Growers' Association (Subtrop)	Derek Donkin	CEO
South African Table Grape Industry (SATI)	Clayton Swartz	Communications Manager
Sustainability Initiative of South Africa (SIZA)	Retha Louw	CEO
Vinpro	Rico Basson	CEO
Wine and Agricultural Ethical Trading Association (WIETA)	Linda Lipparoni	CEO
Winetech	Kachne Ross	Learning and Development Manager