

An Assessment of the 2020 National Minimum Wage Increase: Preliminary Findings

Development Policy Research Unit (DPRU)

December 2021

DRAFT REPORT

Executive Summary

A minimum wage aims to mechanically increase the earnings of workers at the bottom of the wage distribution. But what effect does this have on the welfare of affected workers, and on the broader labour market? The various consequences of minimum wage policy remain a subject of intense debate, with empirical outcomes that are often context-specific. As such, detailed quantitative research remains at the heart of understanding the effects of minimum wages in any given labour market. Additionally, in a developing country context such as South Africa's, it is a stylized fact that non-compliance with minimum wage laws is high and this must be acknowledged as a fundamental determinant of policy impacts (Bhorat et al., 2021).

This report focuses on changes to the National Minimum Wage (NMW) that were introduced in 2020, specifically a 3.8% increase in the legislated wage. We use quantitative data that covers the period from the first quarter of 2020 to the first quarter of 2021, and examine changes to working hours, employment, wages, and non-compliance. However, the period under review is unique in that the COVID-19 pandemic hit South Africa at roughly the same time as the NMW was increased, and the country's first and most severe lockdown was introduced just a few weeks after the new wage floor came into force. These external events had immediate and severe economic consequences, and we measure some of the major labour market impacts. But both the timing and the magnitude of the COVID-19 effects make it extremely difficult to isolate the influence of the NMW increase, which itself was relatively small. The pandemic also forced Statistics South Africa (StatsSA) to change their data collection strategy for the Quarterly Labour Force Survey (QLFS) – the dataset upon which this analysis depends – and this introduces another layer of analytical complexity. Unfortunately at the time of writing some data concerns remain unresolved, requiring more information from StatsSA than has been made available, and these concerns are noted below. As a result, the ambitions of this report are relatively modest and largely limited to descriptive labour market changes over the period, paying specific attention to outcomes for workers covered by the NMW.

Despite the analytical challenges, it remains important to understand how the labour market has changed in the period after the NMW was increased, and in particular how covered workers have fared. In doing so, the report aims to provide a comprehensive overview upon which the National Minimum Wage Commission (NMWC) can make recommendations regarding future changes to the NMW. A short summary of key findings from the analysis is presented below, first noting the major impacts of COVID-19 on key labour market outcomes

experienced by all workers, and secondly focusing specifically on the same outcomes but specifically for workers covered by the NMW.

1. Aggregate Outcomes for All Workers

Workings Hours

For the employed, weekly working hours plummeted between 2020Q1 and 2020Q2, falling from an average of roughly 42 to 35 – a quarter-on-quarter decrease of 16%. Only the agricultural sector, and to a lesser extent the financial sector, appear to have been partially protected from this sharp decline. This is likely due to the agriculture sector being largely exempt from lockdown closures, and the work-from-home flexibility of many financial sector jobs. Notably, by the end of the year, in 2020Q4, weekly hours of work rebounded back to equilibrium levels. Importantly, though hours rebounded, this was only among those who remained employed.

Employment

The immediate employment impact of the pandemic was a loss of 2.2 million jobs, and the distribution of these losses were uneven. Job losses were greater among less-skilled workers, and those in the informal sector, while sectors including Construction, Manufacturing, Wholesale and Retail Trade, Private Households, and Mining were the sites of the most significant decreases. Notably, we observe higher job loss rates among workers who earned lower wages prior in the first quarter of 2020. Unlike hours of work, many of the jobs that were lost have not been regained, and by 2021Q1, total employment remained 1.4 million jobs lower than a year earlier.

Wages

Wage changes over the 2020 period are a more complicated trend to assess given the large working hours and employment shifts taking place, as well as limitations introduced by the new survey method in 2020Q2. Overall, the data shows that reported wages rose marginally over the period, with real hourly wages increasing 5% at the median. Notably, the substantial employment changes over the same period influence average wages, and given that job losses were disproportionately felt by lower wage workers, the rising average wage may be partially explained by lower wage workers losing their jobs. We observe considerable variation in wage trends across main industry groups, skill level and sector of work, but at this stage these should be treated with caution given the data limitations and the small sample size underpinning some estimates.

2. Aggregate Outcomes for Covered Workers

The aggregate trends described above are slightly different for workers that are covered by the NMW, that is, workers earning below the NMW and thus subject to the legislated increase.

Changes in working hours, employment, wages and non-compliance experienced by this group of workers over the period are summarised here.

Working hours

There are no significant differences in working hours trends between covered and uncovered workers – i.e. those earning below the NMW versus those earning above it. Our econometric results reinforce this finding. In general, hours of work for both groups fall rapidly between 2020Q1-2020Q2, and then begin to recover. However, it is clear that overall covered workers work more hours per week than their higher-earning counterparts – approximately 45 hours per week versus 42, on average.

Employment

Employment for both covered and uncovered workers drops precipitously in 2020Q2, but the decline is larger for covered workers, where employment of covered workers falls by 17% and employment of those earning above the NMW falls by 11%. The immediate job losses experienced among covered workers in the second quarter of 2020 were largely absorbed in four main industries – Construction, Wholesale and Retail Trade, CSP services, and Domestic Work. Together job losses in these four sectors account for 84% of the immediate employment decreases. Importantly, the marginal disproportionate employment impact on low-wage workers cannot be attributed to the NMW increase, but is more likely tied to the various labour market impacts of COVID-19. In addition, because the two groups are identified based on individual earnings relative to the NMW, wage changes also shift the number of workers in each group.

Wages and Non-Compliance

Average hourly wages for both covered and uncovered workers appear to rise over the period, but we note that readers should be cautious of extrapolating too much from these results for reasons that are expanded on in the report. These wage increases appear to be marginally larger at the mean for workers in the sub-NMW cohort, but slightly smaller at the median. In any case, the measured differences are a matter of less than 4% at the median and 2% at the mean, and are thus not suggestive of significantly different wage trends for workers covered by the NMW law. Indeed, our econometric analysis supports this observation and we find no differential wage gains for covered workers after 2020Q1, relative to uncovered workers, when controlling for demographic and labour market characteristics. Rates of non-compliance remain above 35% and relatively stable. That is, the proportion of workers earning sub-minimum wages does not change much on average over the period, even with the new NMW level. However, across industries there is considerable variation, with levels of non-compliance increasing by between 2-12% in the Financial Services, Agriculture, Transport, Construction, and Manufacturing sectors.

1. Introduction

The South African National Minimum Wage (NMW) became effective on the 1st of January 2019, setting a national wage floor of R20/hour, with lower rates for those employed through the government's public works programme (R11), for domestic workers (R15), and for farmworkers (R18). The country has a long history of minimum wages set at the national level in specific sectors, alongside a variety of bargained wage agreements, but a universal wage floor was new, and two particular details of the policy mark it out as a major policy intervention. Firstly, at the time of introduction it was set at close to the country's median wage, meaning that for many low-paying sub-sectors and occupation groups the wage increase required by the new law was high. Secondly, the level of the NMW translated into vast coverage, theoretically affecting almost half of all workers. Together, the fact that the NMW affected such a large proportion of the labour force, and that the magnitude of the required increase for particular cohorts was substantial, placed the policy in uncharted territory relative to previous minimum wage interventions.

Noting these two features of the NMW there were legitimate concerns around the negative impact the law might have, where the possibility of employment losses or large reductions in working hours was raised. Early evidence suggests that contrary to expectations these were not widely observed outcomes. For example, employment of NMW-covered workers in 2019 appears not to have changed much after the introduction of the law relative to similar workers earning just above the NMW (Bhorat et al., 2020). Qualitative evidence obtained via firm interviews and focus groups appears to confirm this finding (Patel et al., 2020). However, a fundamental issue that underpins these findings relates to non-compliance with the law, which remained high and relatively stable over the post-law period. Put simply, the average wages of workers covered by the new law did not rise significantly after the NMW came into force. The absence of the large upwards adjustments in wages that were required after the introduction of the law necessarily mutes any other knock-on effects in the labour market.

Taking a range of evidence into account after the introduction of the NMW, the National Minimum Wage Commission (NMWC) recommended limited annual increases for 2020. As shown in Table 1, below, the promulgated increase after the first year was only 3.8% for all wage categories, effective from March 2020. To put this into some comparative perspective, it was below the previous year's inflation rate of 4.13%. Following this, in 2021, the NMW was increased again, and in this case the increase was marginally higher for general workers (4.5%), but significantly higher for farmworkers and domestic workers – 16.1 and 22.6%, respectively. These 2021 increases, also effective from March, were thus notable in their attempt to bring farm and domestic worker wages up toward the general NMW, and it remains to be seen what the response has been. The focus of this report, however, is to examine the possible impact of the smaller 2020 NMW increase, and whether it had any immediate impact on covered workers.

Table 1. NMW Levels and Annual Increases: 2020 and 2021

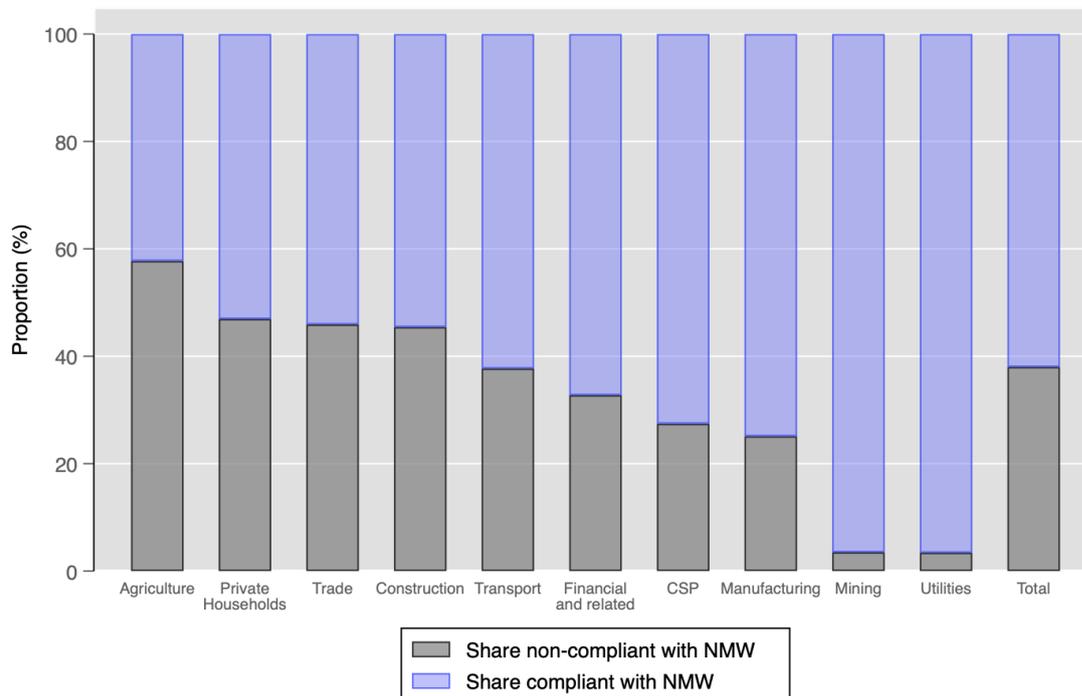
Minimum Wage Category	2020 (R/hr)	Annual Increase	2021 (R/hr)	Annual Increase
General	R20,76	3,8%	R21,69	4,5%
Farm Workers	R18,68	3,8%	R21,69	16,1%
Domestic Workers	R15,57	3,8%	R19,09	22,6%

Source: Department of Labour and Employment (2021). Authors' own calculations.

Notes: We exclude workers on government employment programs as they do not form part of this analysis.

To provide some initial context, Figure 1 presents a basic overview of aggregate wage levels in the labour market relative to the NMW, prior to the 2020 increase. The figure shows, for the first quarter of 2020, the proportion of all employees who earn less than the applicable NMW. Sectors with the largest percentage of sub-minimum wage workers include Agriculture, Domestic Work, Construction, and Wholesale and Retail Trade. The national average suggests that close to 40% of all workers in South Africa still earned less than the legislated NMW in 2020. This estimate includes those working in the formal and informal sector, as well as all part-time and full-time employees.¹

Figure 1. Proportion of Workers Earning \leq NMW, by Main Industry: 2020Q1



Source: QLFS (2020Q1). Authors' own calculations.

Notes: Private Households is almost exclusively Domestic Work, Trade – Wholesale and Retail Trade, CSP – Consumer, Social and Personal services.

¹ We account for the lower NMW levels set for Agriculture and Domestic Work but are unable to identify workers on government employment programs in the data. As such, the average share of non-compliant workers should be seen as an upper bound.

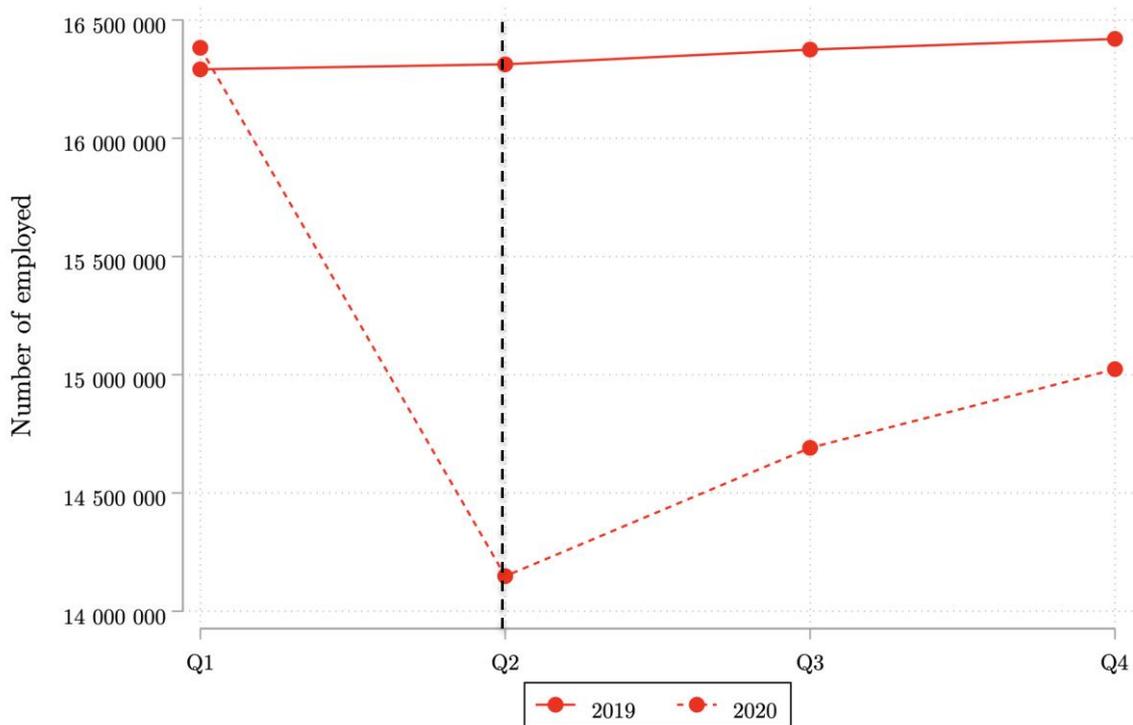
1.1. Research Limitations

Before proceeding to outline the structure of this report, it is crucial to pause here and highlight four key points that affect any examination of the NMW over the 2020 period.

- Firstly, it is important to emphasize at the outset that the 2020 NMW increase was small in both absolute and relative terms, set at just 3.8% for all worker categories. We do not expect that this below inflationary increase would have a significant labour market impact. This expectation is based on the findings of previous minimum wage research, and also considers that in 2019, when very large wage increases were required by the NMW, early research suggests that the labour market impact was small (Bhorat et al., 2020; 2021). There is thus no *a priori* reason to anticipate finding large aggregate effects from the 2020 NMW increase.²
- Secondly, the impact of COVID-19 completely overshadows any minimum wage interventions made during the 2020 period. The effect of the pandemic, and the extremely strict lockdown regulations introduced during March 2020, resulted in an immediate loss of over 2 million jobs in South Africa between quarter 1 and quarter 2 (see Figure 2, below). Crucially, the introduction of the lockdown overlapped with the timing of the NMW increase, which also came into effect just before the beginning of the second quarter. The immense and persistent labour market impacts of the lockdown, coupled with the concurrent timing of the small NMW increase, makes isolating the effect of the NMW much more difficult than in more normal economic circumstances.

² We note here that the 2021 increase is a different matter, where the NMW increased by 4.5% for general workers, but by 16.1% and 22.6% for farmworkers and domestic workers, respectively.

Figure 2. Aggregate Employment, by Quarter and Year: 2019 and 2020



Source: QLFS 2019Q1 – 2020Q4 (StatsSA). Authors' own calculations.

Notes: [1] Sample restricted to working-age population (15-64 years). [2] The vertical dotted black line marks the timing of three key events at the start of Q2, namely: the introduction of South Africa's COVID-19 lockdown, the increase in the NMW, and the change in the QLFS survey from in-person to telephonic data collection.

- Thirdly, at the same time as the 2020 NMW increase, and as a result of the COVID-19 lockdown, StatsSA paused all in-person data collection for the Quarterly Labour Force Survey (QLFS) – the survey upon which this research relies. The QLFS has now been conducted telephonically from 2020Q2 onwards. This has resulted in a smaller sample of households, and some potentially biased sampling, which is not easy to account for in our analysis. The timing of the change in the survey method further complicates our efforts to accurately identify the possible impact of the 2020 NMW increase.³
- Finally, changes in reported working hours between 2020Q1-2020Q2 create an additional analytical challenge. The initial COVID-19 lockdown had a significant short-term impact on working hours. Indeed, the total number of reported working hours in the economy fell drastically in 2020Q2, with approximately 15% of respondents reporting that they worked zero hours in the week prior to being interviewed. Almost all quantitative assessments of minimum wages rely on hourly wage estimates, in order to take account of employer responses that may involve reducing employees' hours of work to keep their total wage bill constant.

³ In addition, large changes in household composition occurred prior to South Africa's first lockdown in March 2020, making it difficult for us to accurately follow individuals over time using the available data.

However, calculating hourly wages becomes complicated when working hours are so radically affected by an external event, especially when this does not impact on all workers equally.⁴

Taken together these four points serve to highlight that the 2020 NMW increase occurred in highly abnormal circumstances, with COVID-19 causing large fluctuations in employment and working hours, as well as forcing changes to StatsSA's data collection procedures. These factors impact directly on the analytical tools available to undertake a quantitative analysis of the NMW increase and limit the extent to which standard techniques can be applied. As a result, we are unable to assess the effect of the NMW on the labour market in the usual manner, instead focusing our attention on simple descriptive and comparative trends to provide some account of what happened over the period. We do make use of both the cross-sectional and panel dimensions of the QLFS data (described in more detail below), and where appropriate apply econometric techniques to examine wage and hours of work adjustments.

The rest of the report is structured as follows: In Section 2, we begin by describing the data used in our analysis, which is particularly important given the change in StatsSA's data collection procedures. We provide some indication of how this change affects the QLFS sample. In Section 3 we introduce our approach and methodology, outlining how the panel component of the data can provide some useful insights beyond the aggregate descriptive trends. Section 4 provides a detailed account of the effects of COVID-19 on the labour market as a whole, focusing on hours of work, employment and wages. Section 5 builds on this but focuses on the outcomes for workers covered by the NMW relative to uncovered workers. This includes findings that make use of the QLFS panel. Section 6 concludes and summarises the main observations and findings.

2. Data

2.1. The Quarterly Labour Force Survey

The analysis in this report relies on individual-level survey data from Statistics South Africa's (StatsSA) QLFS. The QLFS is a cross-sectional, nationally representative, household survey, that has been conducted every quarter since 2008, and contains detailed information on labour market activities for individuals aged 15 years and older. The QLFS includes a wide array of demographic and socioeconomic characteristics for each respondent, and although it is a cross-sectional dataset, it does contain a longitudinal component, which we discuss shortly. Our major period of interest is the five quarters that run from 2020Q1-2021Q1. This includes one quarter prior to the 2020 NMW increase, and four quarters after the increase.⁵ Importantly, the QLFS data collected after the beginning of the COVID-19 pandemic (from

⁴ A separate question in the QLFS asks respondents about their 'usual working hours', which changed less drastically, but these changes were more pronounced for lower wage workers, so the analytical problem persists.

⁵ The NMW increase officially took effect on the 1st of March 2020.

2020Q2 onwards) differs in several important ways from the standard survey, and these differences are worth discussing in some detail.

Prior to the COVID-19 pandemic and the country's first lockdown, the QLFS sample consisted of nearly 70 000 individuals, living in approximately 30 000 dwelling units, with data collected by enumerators via face-to-face interviews. However, during March 2020, StatsSA suspended all face-to-face data collection as a result of COVID-19. Because of this, 621 dwelling units in the sample (2% of the total sample) were not interviewed in quarter 1. StatsSA made imputations to account for these missing households based on data from the previous quarter (2019Q4). However, to continue providing labour market statistics for the second quarter of 2020, it was necessary to collect data during the strict national lockdown. StatsSA responded by changing its data collection model from face-to-face interviews to 'computer-assisted telephone interviewing' (CATI), where respondents answered survey questions over the phone.

To facilitate this change to the CATI survey, and unlike in previous quarters, the sample of households that were surveyed in 2020Q1 was re-surveyed in 2020Q2. This marks a significant change from the previous QLFS methodology where 25% of the sample were rotated out in each quarter. However, given the nature of the approach, households could only be included in the CATI survey if StatsSA had usable contact numbers for them. The result was that the 2020Q2 data re-surveyed about 71% of the 2020Q1 sample. The missing 29% was largely made up of dwelling units that had no contact numbers.⁶ The reduction in the size of the QLFS sample is shown in

Table 2, below. This process of telephonic interviewing has now been followed for all quarters since 2020Q2, and presents some challenges for those using the data, particularly when trying to examine trends over time that require the use of both pre-CATI and CATI data.

A primary concern is that the new sample of contactable households will produce estimates that suffer from selection bias, because the underlying characteristics of 'telephone' and 'non-telephone' households are likely to be different. That is, the individuals included in the CATI QLFS sample may be fundamentally different from those in the standard QLFS data. For example, we know from the 2020Q1 data that individuals in 'non-telephone households' were significantly more likely to be unemployed relative to those in 'telephone households'. StatsSA has adjusted the survey weights to try and address this source of bias, using information from the 2020Q1 data and several bias-adjustment factors (StatsSA, 2021). At the time of writing, an explicit external review of the construction of these weights has yet to be conducted, and would require more information than is available in the public QLFS documentation.

⁶ Additionally, amongst those who did have contact numbers, some contact numbers were found to be invalid or were not answered during data collection, and some households indicated that they were no longer residing at the dwelling units they had occupied during 2020Q1.

In order to examine the differences introduced by the CATI survey, and the subsequent reweighting by StatsSA,

Table 2 presents an overview of the sample sizes and weighted estimates across several standard labour market variables in 2020Q1 and 2020Q2. For the weighted estimates we use the relevant bias-adjusted sampling weights provided by StatsSA, and when calculating labour market estimates we restrict the sample to the working-age population (those aged 15-64). The total unweighted QLFS sample falls from 66,657 in Q1 to 47,103 in Q2, a reduction of roughly 30%, due primarily to the CATI survey. From the unweighted sample of 66 657 individuals, the weighted estimate of the South African population in 2020Q1 is 57.8 million. The weighted population estimate for 2020Q2 is similar, at just under 58 million, despite the underlying sample consisting of nearly 20 000 fewer individuals. Trends in the working-age population reflect similarly comparable estimates across the two waves. Based on the aggregated data then, the 2020Q2 weights provided by StatsSA appear to make sense.

Table 2. Sample sizes and weighted population estimates, by quarter

	Unweighted Sample		Weighted Sample	
	Q1	Q2	Q1	Q2
Total	66 657	47 103	57 792 395	57 973 917
Working-age population	41 827	29 495	38 873 945	39 021 017
Labour force	24 549	13 023	23 452 204	18 443 066 *
Employed	17 044	10 001	16 382 555	14 148 215 *
Unemployed	7 505	3 022	7 069 649	4 294 851 *
Discouraged	3 149	1 865	2 918 028	2 470 782 *
Not economically active (NEA)	14 129	14 607	12 503 712	18 107 168 *

Source: QLFS 2020Q1 and 2020Q2 (StatsSA 2020a, 2020b). Authors' own calculations.

Notes: [1] Relevant estimates weighted using sampling weights. [2] Labour market groups restricted to the working age (15 to 64 years). [3] Official (narrow) definitions of unemployment used. [4] * denotes statistical significance of a different 2020Q2 estimate relative to the relevant 2020Q1 estimate at the 95% confidence level.

Much larger changes are observed in various labour market categories, where these changes capture the labour market effects of COVID-19. Unfortunately, these vast differences between 2020Q1 and 2020Q2 make it very difficult to assess how well the various labour market categories identified in the 2020Q2 CATI data approximate the QLFS in the previous quarter. The categories of total labour force, employed, unemployed, discouraged and not-economically-active, all reveal huge differences in size between quarters. This applies to both the unweighted sample and the weighted estimates, and is driven primarily by the impact of the COVID-19 pandemic and associated lockdown during quarter 2. These unprecedented changes to the structure of the labour market, occurring at the same time as the CATI survey, mask the effect of the new CATI sample and reweighting, making it difficult to accurately assess the comparability of the pre-CATI and CATI surveys.⁷

⁷ We note that while the weighting adjustments made by StatsSA do take account of observable characteristics such as age, gender, and race, in order to adjust for changes in the underlying sample, respondents may still be unobservably different from non-respondents, and thus potentially different from

2.2. Sample Selection

In our analysis we restrict the QLFS sample to individuals of working age, and our primary focus is on wage earners – those who report working for someone else for pay. For most of the work we therefore exclude employers, and individuals who are self-employed, as the NMW legislation and 2020 wage increase does not apply to them. The wage data we present is converted to hourly values unless otherwise specified, using reported ‘usual weekly hours of work’ at the individual level, although there are concerns raised about the reliability of this measure in 2020Q2 given the impact of the lockdown. We adjust for inflation using the quarterly CPI from StatsSA, benchmarking our estimates to the first quarter of 2020, and presenting wages in real terms. Outliers in the wage data are detected using the studentised regression residual technique, and removed. For respondents who report wage data within an income bracket, rather than giving an actual Rand amount, we impute Rand estimates using a random sample from a uniform distribution within each bracket category (this accounts for between 20-27% of the sample over the period). Respondents who are employed but do not report their wages are excluded (i.e. we do not impute for missing wage values). All estimates presented below are weighted using the relevant sampling weights provided by StatsSA.

2.2.1. QLFS Total Employment and Wage-Earners Sample

In

the broader population. At present there is no way to satisfactorily validate the comparability of the 2020Q1 QLFS labour market data with the waves that follow.

Table 3, below, we provide a basic overview of total employment and the number of wage earners in the QLFS sample over our period of interest, both weighted and unweighted. The table also separates quarter 1 – the period prior to the introduction of the CATI survey, the impact of COVID-19, and the increase in the NMW – from the quarters that follow. As already noted above, total (weighted) employment falls substantially in 2020Q2, dropping by over 2 million, driven by the impact of COVID-19. But the introduction of the CATI survey also impacts on the sample, and the unweighted number of those employed in the sample almost halves between Q1 and Q2 – falling by 41%. We are most interested in the sample of wage-earning employees in the QLFS. The unweighted sample of wage earners varies between 14,361 (2020Q1) and 8,248 (2020Q2) and this is the baseline sample we use to conduct our analysis on wages. Notably, when disaggregating across specific labour market groups, this sample can become small, leading to larger standard errors in our wage estimates. The total weighted number of wage earners follows a similar trend to total employment over the period, and the proportion of wage earners to employed individuals remains relatively stable.

Table 3. QLFS Data Overview: 2020Q1-2021Q1

Labour Market Cohort	Pre-Period	Post-NMW Increase Post COVID-19 CATI				Total Change (%)
	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	
Total Employment (weighted)	16 382 555	14 148 215	14 678 896	15 014 606	14 981 413	-8.6
Total Employment (unweighted)	17 036	10 001	10 459	11 005	10 195	-40.1
Total Wage Earners (weighted)	13 778 191	11 696 298	12 311 169	12 606 065	12 635 008	-8.3
Total Wage Earners (unweighted)	12 068	7 122	7 008	7 331	6 610	-45.2
Wage Earners as a Share of Employed (%)	84,3	82,6	83,3	83,3	84,1	-0.2

Source: StatsSA (QLFS, 2020-2021). Authors' own calculations.

2.2.2. QLFS Panel Sample

In addition to the total number of observations in each wave, shown above, we are also interested in the panel component of the QLFS, where the same households are surveyed each quarter. Here again, however, there are data challenges that impair accurate identification of the same individuals over time, given the fact that many people moved around the country in March 2020 ahead of the first COVID-19 lockdown. Without having access to more detailed individual identification in the QLFS, this presents a problem. The in-person QLFS samples dwelling units and return to the same dwelling for the panel component of the survey. With telephonic interviews it is not clear how StatsSA follows a household, or whose contact number they use. Without going into more detail, it is important to say that the changes made by StatsSA introduce challenges for analysis and may have conflicting impacts on estimation, which are at this stage difficult to identify.

In

Table 4, below, we provide a basic overview of the panel construction for the QLFS, where we are interested in the number of individuals in the sample that can be observed over the period. Beginning in 2020Q1 (Wave 1), we have the full sample of working-age individuals that are surveyed (41,817). In the next quarter (Wave 2), the first wave of the CATI survey, approximately 62% of the sample is made up of the same individuals (26,161). From then on, in waves 3-5, the QLFS re-surveyed the majority of individuals from Wave 2, with some leakages where people drop out of the survey or are included only for a single wave as they leave or re-enter a household. The result is that approximately 19,020 working-age individuals are present and observable in every wave.

Table 4. Panel Data Overview, Working Age Sample: 2020Q1-2021Q1

2020Q1	2020Q2	2020Q3	2020Q4	2021Q1
Observations in Wave 1	Still Present in Wave 2	Still Present in Wave 3	Still Present in Wave 4	Still Present in Wave 5
41 817	26 161	23 522	21 355	19 020
	Entered in Wave 2	Still Present in Wave 3	Still Present in Wave 4	Still Present in Wave 5
	3 308	2 402	1 964	1 635
		Entered in Wave 3	Still Present in Wave 4	Still Present in Wave 5
		940	576	437
			Entered in Wave 4	Still Present in Wave 5
			715	523
				Entered in Wave 5
				529

Source: StatsSA (QLFS, 2020-2021). Authors' own calculations.

Restricting our analysis to focus on this stable cohort is useful in certain respects. For example, we can then track what happened to specific labour market groups over the period after identifying them in Wave 1, without compositional changes influencing our results. But using the panel data does have limitations. The first is the smaller sample size, where there are concerns about how representative the individuals in the panel are; in particular in sub-sample analysis. As noted above, household composition changed significantly between Waves 1 and 2. As a result, the identifying characteristics of respondents, which is usually based on a household and individual level identifier in the QLFS, are not totally reliable. This requires further reductions in the sample size of the panel to ensure that individuals are accurately matched across the period. To improve the reliability of the matching of individuals across waves we use race, gender and age (within a 1-year radius), but without more detailed individuals identifiers we are unable to create a clean panel.

Importantly, our sample of interest for most of the analysis is not only those who are employed, but those individuals for whom we have wage data. Of the 19,020 individuals in the balanced panel, only a limited number are employed, and only a proportion of those provide data on their earnings. In

Table 5, we identify this smaller cohort of employees with wage data, and it is clear that this restriction results in a substantially smaller group of individuals that can be followed across the period. We note here that while on aggregate a sample of several thousand is sufficient for reliable estimates, when the panel is analysed across sub-samples defined by combinations of certain demographic and labour market variables, this smaller sample size does become a concern for precision and reliability.

Table 5. Panel Data Overview, Sample of Wage Earners: 2020Q1-2021Q1

2020Q1	2020Q2	2020Q3	2020Q4	2021Q1
Observations in Wave 1	Still Present in Wave 2	Still Present in Wave 3	Still Present in Wave 4	Still Present in Wave 5
14 361	6 910	5 841	5 186	4 548
	Entered in Wave 2	Still Present in Wave 3	Still Present in Wave 4	Still Present in Wave 5
	1 338	727	539	413
		Entered in Wave 3	Still Present in Wave 4	Still Present in Wave 5
		673	312	217
			Entered in Wave 4	Still Present in Wave 5
			567	294
				Entered in Wave 5
				472

Source: StatsSA (QLFS, 2020-2021). Authors' own calculations.

3. Approach and Methodology

Despite the data and analytical challenges described above, an empirical study of NMW impacts in South Africa remains critical in order to make informed labour market policy decisions. In general this cannot be done by simply tracking wage and employment trends over the period of interest, and the existing academic literature shows that accurately isolating minimum wage effects relies on a well-constructed quantitative analysis using reliable labour market data. Additionally, policy research requires a reasonable period of time to have elapsed after a given intervention.

Taking seriously the limitations discussed above means that a standard, comprehensive study on the short-term impacts of the 2020 NMW increase is not feasible at this stage. Given the small percentage increase in the NMW, and high non-compliance in many sectors, a null result may have been found even under cleaner conditions of analysis. COVID-19 has had wide-ranging and varied effects on jobs, wages, and hours of work, which make it difficult to isolate any specific effects that changes to the minimum wage law may have had. This is especially problematic if the effects of COVID-19 have been more pronounced for those workers subject to the NMW increase (i.e. low-wage workers), and indeed we provide some evidence to suggest that this was the case. Low-wage workers faced higher rates of job loss, and those who remained employed were more likely to report reductions in working hours in 2020Q2. Moreover, because the NMW applies to all workers it is difficult to identify a reliably similar group of employees who are not affected by the law and can serve as a comparison group for covered workers. Previous research that using a wage cut-off to separate covered and uncovered workers is no longer as helpful if the contemporaneous impacts of COVID-19 also vary by wage level. Finally, the introduction of the CATI survey and its consequences for the QLFS sample further complicate this picture. Our attempt to examine the impact of the NMW,

being hamstrung as it is by this confluence of factors, is therefore more modest than would otherwise be the case. And as such, the results should be treated with some caution.

The analysis below makes use of both the cross-sectional nature of the QLFS (treating each wave of the survey as a representative snapshot of the labour market at a point in time) as well as the panel component of the data (which follows the same individuals over time). The outcomes of interest are hours of work, employment, and wages, and each of these is the focus of a particular sub-section. In our examination of wages and hours of work we make use of the panel nature of the data to introduce econometric analysis which attempts to accurately measure changes experienced by covered workers after the NMW increase.

Using the cross-sectional nature of the QLFS allows for a relatively detailed analysis of labour market trends where the impact that COVID-19 has had can be measured. We examine changes to weekly hours of work, employment, and wages across various demographic and labour market sub-groups over the period.⁸ For wages in particular, we measure changes in the overall wage distribution, and plot aggregate wage trends for workers at different points in the earnings distribution. The goal of this descriptive work is to establish a comprehensive picture of the labour market, and reveal the significant impact of COVID-19.

The second element of our analysis aims to provide a more comprehensive account of working hours, employment, and wage shifts over the period, focused more directly on workers earning below the NMW. This relies on both the cross-sectional and panel components of the data. Making use of the panel to track employment and wage shifts provides the opportunity to identify sub-minimum wage workers prior to the change in the NMW, and track their labour market outcomes into the post-increase period. In this way we are able to control for any changes in the composition of the sample that distort the cross-sectional results. Here we also include estimates of non-compliance across the main industry categories.

As noted above, there is some limited scope to conduct some basic econometric analysis on adjustments in wages and working hours. Here we follow the basic approach of Stewart (2004) and run a Difference-in-Differences (D-in-D) model to compare changes in the period before and after the NMW increase. These changes are measured for two separate groups of workers – those subject to the NMW increase, and a ‘comparison’ group of similar workers not affected by the NMW. The use of ‘over-time’ and ‘across-groups’ analysis allows one, in theory, to estimate the impact of the NMW increase by removing the effects of other external changes that may have taken place. Because the NMW applies to all workers, we identify a treatment and comparison group based on a wage cut-off that separates covered and uncovered workers, while excluding higher wage workers that have very different characteristics to covered workers.

⁸ In most results we omit the Utilities industry due to its extremely small sample size in the QLFS. This has only minor implications for our average estimates.

Formally, our specification is as follows: Let a binary indicator Y_{it} denote the outcome status of individual i in period t , where in this case the outcome is either hourly wages, or weekly hours of work. Define two groups of workers indexed by g : those in group $g = 1$ are affected by the minimum wage because their wages in the pre-NMW-increase period are below the new minimum wage, while those in group $g=2$ are not directly affected because their wages are already at least 10% above the new NMW, but not more than 50% above the minimum wage.⁹ In addition, suppose that the new NMW is introduced at t^* . The simplest form of this estimation approach uses just two time periods: t_1 and t_2 , the pre- and post-periods respectively, where $t_1 < t^* < t_2$. Comparing outcomes across g and t aims to estimate the impact of the NMW. The regression is then of the form:

$$Y_{it} = \alpha_1 + \alpha_2 g_i + \alpha_3 POST_t + \alpha_4 g_i * POST_t + X_{it} + \mu \quad (1)$$

Where α_2 is the coefficient on a group-specific effect fixed over time, and α_3 is a coefficient on a time-specific effect for both groups. The coefficient α_4 is the interaction term measuring the difference in outcomes for those workers covered by the NMW increase relative to those earning above the NMW, in the post-NMW increase period. The variable X_{it} is a matrix of individual level controls that include: gender, age, population group, education, firm size, and industry.

4. The Effects of COVID-19 on the Labour Market

In the section below we focus on the broad impacts of COVID-19 on the labour market, measuring impacts by examining trends in weekly hours of work, employment, and wages. We include results that rely on both the cross-sectional QLFS data and the panel component of the data. Outcomes are measured across a variety of demographic and labour market sub-groups, and all estimates are weighted using the survey weights provided by StatsSA. We emphasise here that the trends observed do not provide enough information to uncover causal mechanisms, but we do regard the impact of COVID-19 to be the driving force behind the large impacts in 2020Q2, noting that the changing survey method may also play a minor role here.

4.1. Hours of Work

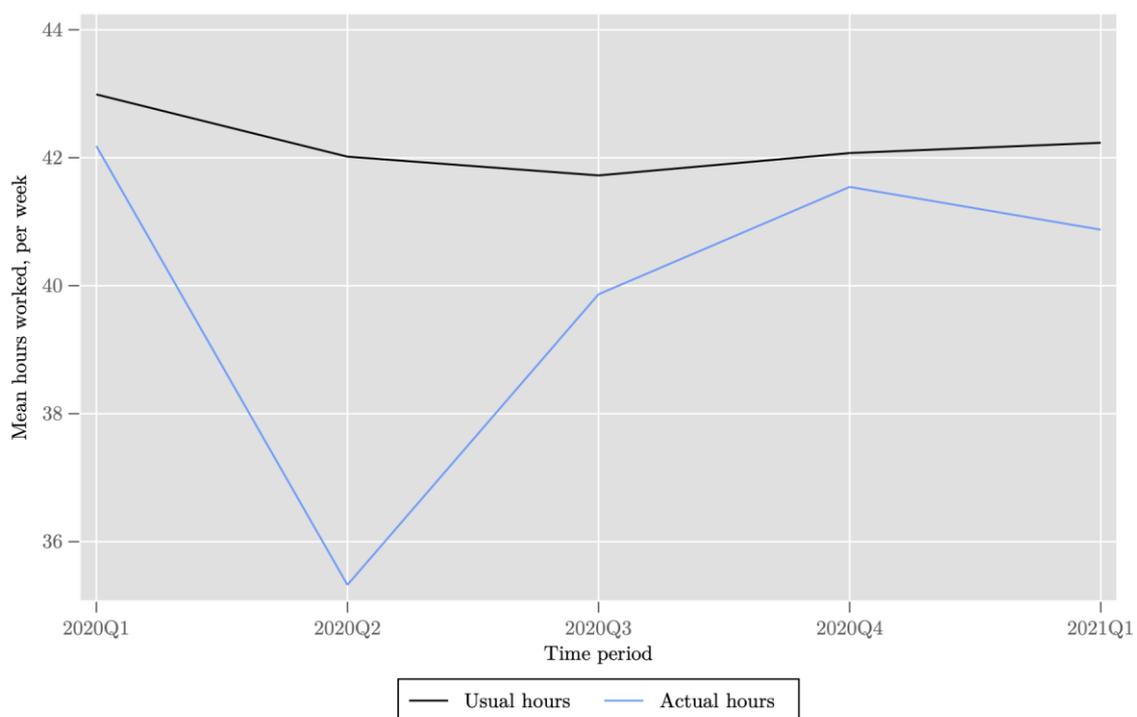
Changes to working hours are an important variable to examine in any research into minimum wage effects, but in this case they are a key marker of COVID-19 impacts. Indeed, COVID-19 and the resultant lockdown policy introduced in South Africa had extraordinary and immediate consequences for working hours. We present data from two different variables in the QLFS that capture information on hours of work, namely, ‘usual hours of work’ and ‘actual hours of work’. Estimates for usual hours of work are based on a question that asks all employed respondents: “How many hours do you usually work each week?”. Actual hours of work

⁹This follows Bhorat et al. (2020) in order to allow for the fact that NMW increases may have some impact on those earning just above the NMW, while also accounting for the fact that high wage workers are not a good comparison group for sub-NMW workers.

estimates are based on a slightly different question, which is: “Thinking of each day last week (Monday to Sunday) how many hours did you actually work?”, where answers are provided separately for each day of the week, and from this we calculate the weekly total.

Both of these variables are plotted in Figure 3, below, and the difference is clear. Reported actual hours fall sharply in 2020 relative to usual hours. In a normal year there is not usually a large difference between the trends in these two variables from one quarter to the next, but during 2020 they diverge significantly. Both are informative measures of how labour market activity responded over the period, with actual hours tracking immediate effects, and usual hours presenting a slightly more aggregated picture.

Figure 3. Usual vs Actual Weekly Hours of Work: 2020Q1-2021Q1

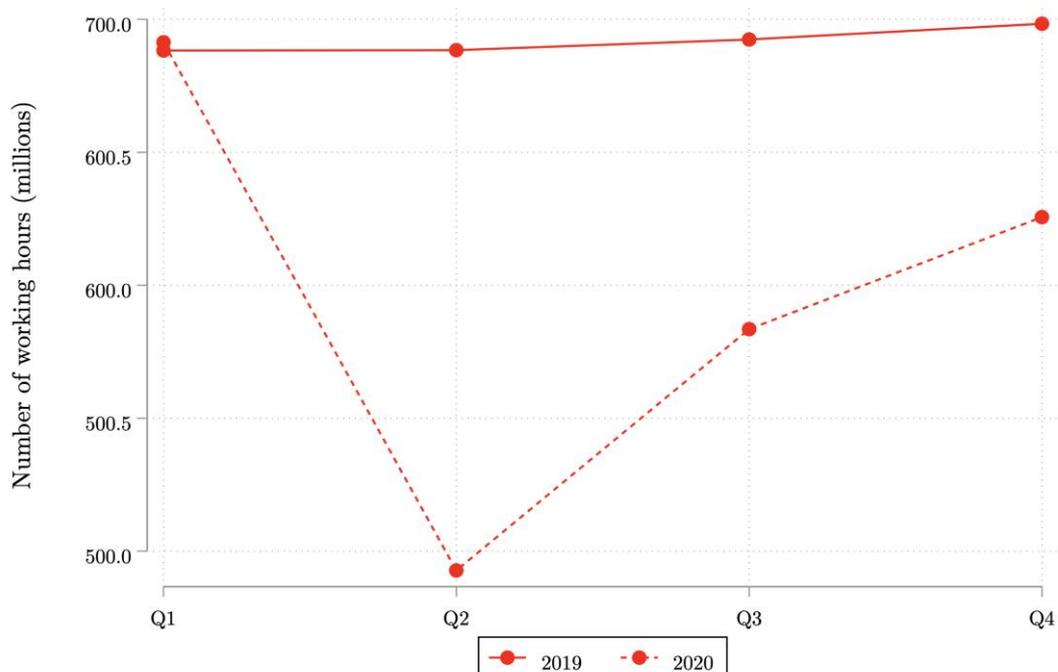


Source: StatsSA (QLFS, 2020Q1-2021Q1). Authors’ own calculations.

In order to measure the effect of COVID-19 on the labour market at an aggregate level, we sum the total number of usually hours worked per week across all employees in Figure 4 – where the 2020 period is plotted relative to 2019 to provide comparative context. The figure thus takes account of the total number of people working, as well as how many hours they work. We observe a 28% decline in total aggregate hours worked between the first and second quarter of 2020, which is a reduction of 200 million weekly working hours. This contraction in total labour hours is accounted for by the large employment reduction (as shown in Figure 2), but also an actual reduction in hours worked by those who remained employed. Many firms were able to operate during the lockdown that began in March 2020, but at reduced capacity.

While hours recover relatively rapidly, employment does not, and the year ends at a deficit of 70 million working hours, relative to the end of 2019.

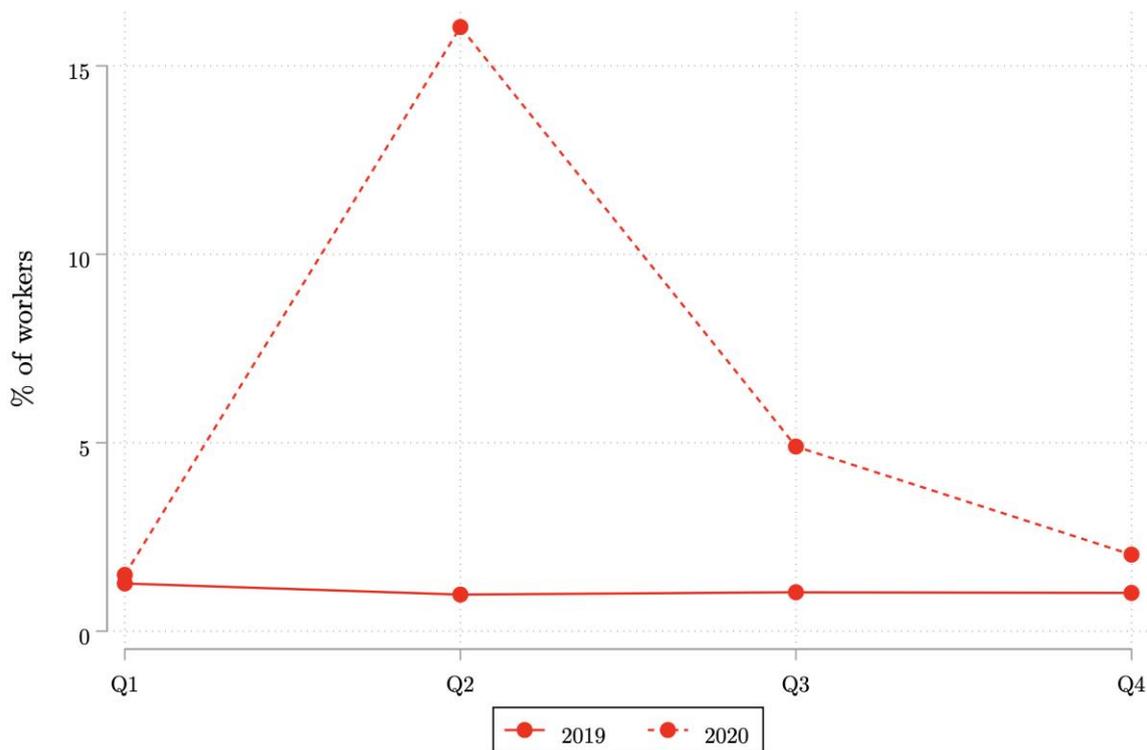
Figure 4. Aggregate Usual Weekly Working Hours: 2019-2020



Source: StatsSA (QLFS, 2019-2020). Authors' own calculations.

As a way to more directly examine the immediate and dramatic impact of the COVID-19 lockdown on hours of work, Figure 5 graphs the percentage of employees who report working zero actual hours, during 2019 and 2020. The incidence of workers in the QLFS who reported working no hours in the week prior to being surveyed increased roughly tenfold between 2020Q1-2020Q2, from 1.5% of the total sample (or 245 000 individuals) to 16% (2.3 million individuals). This equates to roughly 1 in every 6 workers in 2020Q2 reporting that they did not spend any time working in the week prior to being surveyed, despite having a job. Notably, the recovery in actual working hours is fairly rapid once lockdown restrictions begin to ease, and by the final quarter of 2020 we see that the share of zero-wage workers has dropped back down to approximately 2%, which is close to the equilibrium level of 2020Q1.

Figure 5. Share of Employed Reporting Zero Hours Worked in Previous Week: 2019-2020



Source: StatsSA (QLFS, 2019-2020). Authors' own calculations.

To examine the changing nature of working hours in more detail we track both usual and actual weekly hours of work across the main industry categories from 2020Q1-2021Q1. We test for significant differences in hours worked across the categories for industry, skill level, employment and sector type, and union status. Almost all differences discussed here are significant at the 1% level. Table 6 **Error! Reference source not found.** shows that the reduction in working hours was felt across all industries, but that the magnitude of the change varies considerably. On average usual hours worked fell by 2.2hrs/week, while reported actual working hours fell by 16.1, where this includes those who report working zero hours. In Agriculture – a sector that for the most part was relatively insulated from the impact of the COVID-19 lockdown – usual weekly hours fell by roughly 3.4% between the first and second quarter of 2020, while reported actual weekly hours dropped by over 8%. In most other sectors it appears that the impact was more severe, particularly for reported actual hours, which appear to decrease by almost 20% in Construction and CSP services. The nature of these inter-industry changes in working hours can be linked to both the lockdown regulations and the proportion of workers in an industry that are able to work remotely, as shown by Kerr and Thornton (2020). The changes in working hours do not differ significantly by skill, sector, or union status (despite the fairly substantial differences observed in hours worked across employment type and union status).

Table 6. Weekly Hours of Work, by Labour Market Sub-Group: 2020Q1-Q2

	2020Q1		2020Q2		Change (%)	
	Usual hours	Actual hours	Usual hours	Actual hours	Usual hours	Actual hours
Average	42,9	42,1	42,0	35,3	-2,2***	-16,1***
Industry						
Agriculture	45,6	44,6	44,0	41,0	-3,4**	-8,2***
Mining	45,2	45,1	44,2	37,7	-2,2	-16,2***
Manufacturing	43,4	43,1	41,9	36,1	-3,3***	-16,2***
Construction	41,9	40,3	39,2	32,4	-6,4***	-19,7***
Trade	45,8	45,2	44,5	37,5	-2,7***	-17,1***
Transport	50,8	49,8	49,4	42,2	-2,7	-15,2***
Financial Services	45,6	45,1	44,7	39,6	-2,1*	-12,0***
CSP	39,7	38,5	39,4	30,3	-0,7	-21,2***
Private Households	34,8	34,2	33,6	28,4	-3,4**	-17,1***
Skill						
High-skilled	41,9	41,1	41,5	33,8	-0,9***	-17,8***
Semi-skilled	45,1	44,2	43,8	37,4	-2,7***	-15,3***
Less-skilled	39,4	38,7	38,5	31,9	-2,2***	-17,3***
Formal vs Informal						
Formal	43,1	42,3	42,2	35,5	-1,9***	-16,1***
Informal	42,6	41,6	40,9	34,7	-3,9***	-16,6***
Public vs private						
Private	44,1	43,3	42,8	36,8	-2,6***	-15,0***
Public	38,9	37,7	39,2	30,4	0,5	-19,2***
Union status						
Member	43,2	42,4	42,4	36,5	-1,7***	-13,8***
Non-member	42,8	42,1	41,6	34,6	-2,7***	-17,5***

Source: StatsSA (QLFS, 2020). Authors' own calculations.

Notes: [1] The Welch t-test was used to account for variation in population size. [2] *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2. Employment

In this sub-section we examine employment trends from various perspectives in order to understand what happened to jobs in the South African labour market between 2020Q1 and 2020Q2. We have already shown, in Figure 2, above, that the aggregate employment effects of COVID-19 led to an immediate reduction in employment of 2.2 million jobs. As such we begin here with an overview table that provides a more detailed account of employment shifts over the full period, across a range of key labour market variables.

Table 7 measures the annual change in employment between 2020Q1 and 2021Q1, by industry, skill level, formality of employment, sector, and union status.

Overall it is clear that despite some measure of recovery after the initial 2.2 million jobs lost in 2020Q2, by the end of the period total employment is still down by 1.3 million. There is,

however, considerable variation across the various labour market groups, both in the overall number of jobs and the percentage changes within each category. To assess the comparative changes more clearly, we calculate a simple ratio that identifies where employment losses have been disproportionate relative to employment share. This is the ‘burden of job loss’ ratio in the final column, where a number above 1 indicates a disproportionate loss of employment.

The industries that experienced the largest relative employment declines are Construction (-19%), Manufacturing (-12%), Wholesale and Retail Trade (-10%), Private Households (-14%), and Mining (9%). Less skilled workers lost a larger percentage of jobs than their higher skilled counterparts, while those who were informally employed, workers in the private sector, and non-unionised employees experienced larger reductions in employment over the period. While these trends remain broad, the categories identified here overlap with some definitive features of low-wage work and are suggestive that the employment consequences of COVID-19 were uneven across earnings cohorts.

Table 7. Net Employment Changes, by Labour Market Group: 2020Q1-2021Q1

	Change (Total)	Change (%)	Share of Change (%)	Burden of job loss ratio
Total	-1 387 211	-8.5	100.0	1.0
Industry				
<i>Agriculture</i>	-72 377	-8.4	-5.2	1.0
<i>Mining and quarrying</i>	-40 529	-9.3	-2.9	1.1
<i>Manufacturing</i>	-208 436	-12.2	-15.0	1.4
<i>Construction</i>	-264 576	-19.7	-19.1	2.3
<i>Trade</i>	-340 668	-10.3	-24.6	1.2
<i>Transport</i>	-91 793	-9.2	-6.6	1.1
<i>Finance</i>	9 547	0.4	0.7	0.0
<i>CSP services</i>	-191 756	-5.1	-13.8	0.6
<i>Private households</i>	-188 831	-14.4	-13.6	1.7
Skill				
<i>High-skilled</i>	-133 317	-5.5	9.5	0.7
<i>Semi-skilled</i>	-823 405	-8.9	59.0	1.0
<i>Less-skilled</i>	-484 468	-10.1	34.7	1.2
Formality of employment				
<i>Formal</i>	-473 732	-4.4	33.9	0.5
<i>Informal</i>	-922 986	-16.6	66.1	1.9
Public vs private				
<i>Private</i>	-1 343 052	-9.9	96.2	1.2
<i>Public</i>	-53 665	-1.9	3.8	0.2
Union status				
<i>Member</i>	174 127	4.3	-12.5	-0.5
<i>Non-member</i>	-1 291 057	-13.8	92.4	1.6

Source: QLFS 2020Q1 and 2021Q1 (StatsSA). Authors’ own calculations.

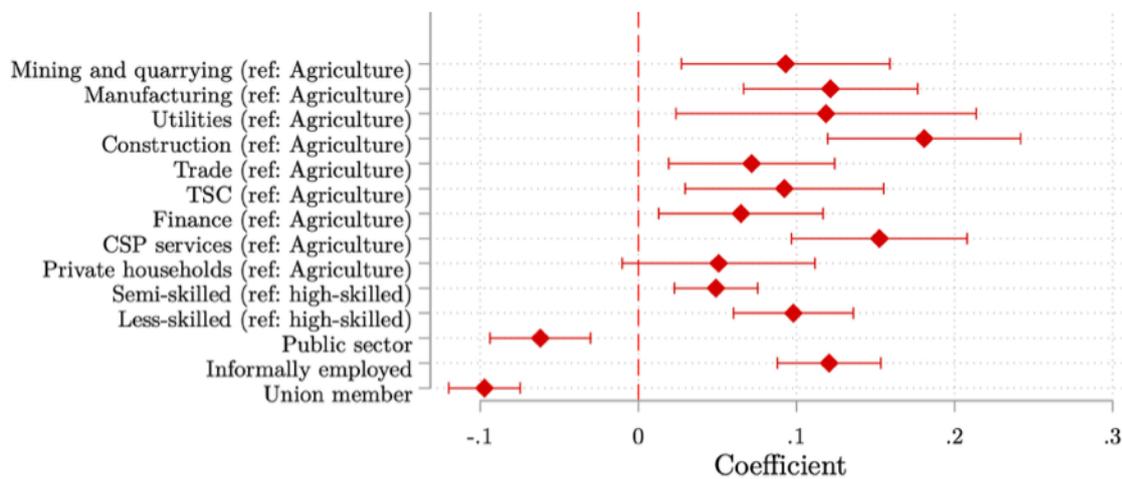
Notes: [1] Sample restricted to the working-age population (15 – 64 years). [2] All estimates weighted using relevant sampling weights. [3] Formality refers to employment, not sector. [4] The ‘Utilities’ industry has been left out due to its small sample size. [5] Burden of job loss ratio = share of change divided by 2020Q1 employment share, where values > 1 indicate a disproportionate burden.

To examine the employment impacts in additional detail, we make use of the panel component of the data and follow the same individuals over the first two waves of the period – 2020Q1-

2020Q2. For all those employed in Q1, we estimate the probability of exiting employment in the following quarter as a function of the same labour market variables used above. Figure , below, plots the coefficients from a multivariate regression for the probability of job loss that includes the listed covariates as well as controlling for a standard set of demographic variables including age, education, gender, and population group.

The results highlight some of the key labour market variables that are important covariates of job loss, and reveal a similar pattern to the results presented in Table 7. **Net Employment Changes, by Labour Market Group: 2020Q1-2021Q1**. Relative to Agriculture, the initial employment shocks between 2020Q1-Q2 are evident across all sectors of the economy, with a relative probability of job loss of over 10% in Manufacturing, Construction, and CSP. It is also clear that less-skilled workers, individuals working in the informal sector, those in the private sector, and workers who were not unionised, all faced significantly higher chances of losing their jobs. Alongside the numbers shown in the table above, the fact that these coefficients are so large lends weight to the argument that a small change in the NMW level, and low levels of compliance, is very much likely to get lost among these much bigger determinants and not have much material impact.

Figure 6. Coefficient Plot of the Probability of Job Loss: 2020Q1-2020Q2



Source: QLFS 2020Q1 and 2020Q2 (StatsSA). Authors' own calculations.

Notes: [1] Sample restricted to the working-age population (15 – 64 years). [2] All estimates account for complex survey design and are weighted using relevant sampling weight for 2020Q2. [3] Estimates obtained using OLS and a binary dependent variable = 1 if a given individual is employed in 2020Q1 and non-employed in 2020Q2, and = 0 if remain employed. [4] Capped spikes represents 95% confidence intervals computed using robust standard errors. [5] Standard errors clustered at the individual level.

The evidence provided above speaks to a major decline in aggregate employment after the onset of COVID-19 in 2020, with huge decreases between the first and second quarters. Despite a gradual recovery in the latter part of the year, aggregate employment remained considerably lower in 2021Q1 relative to a year earlier, with 1.4 million fewer jobs. Critically, the extent of these changes in employment differs considerably across various labour market

groups. Particular industries have fared worse than others, with large employment declines observed in Construction, Manufacturing, Wholesale and Retail Trade, Private Households, and Mining. Job losses have also been concentrated among less-skilled, those in the informal sector, the private sector, and among non-union members – categories typically associated with lower-wage workers most likely to be covered by the NMW.

4.3. Wages

We conclude our overview of the effects of COVID-19 on the labour market by looking at data on real wages over the period, where we rely on usual weekly hours of work to calculate hourly wages.

Table 8, below, shows average wages at the beginning and end of the period (2020Q1 and 2021Q1), broken down by industry, skill, formality of employment, sector, and union status. Overall we observe marginal annual increases at both the mean and the median of the wage distribution, between 2020Q1 and 2021Q1, where this amounts to wage growth of 4% and 5%, respectively. Despite these small changes on average, there is again considerable variation across industries. The workers earning the lowest wages in both periods are in the Agriculture sector and in Private Households, while the mean wage for workers in the Mining, Finance, and CSP services industries are the highest. As is consistent with our understanding of the profile of low-wage workers, less-skilled, informally employed, private sector, non-unionized workers received the lowest mean and median wages in both quarters.

Significant wage increases are observed in the Agriculture, Mining, and Trade sectors. This is in sharp contrast to the decreases observed in Transport, Construction, and Finance, which are surprising and may be an artefact of the CATI data. Differentiation by skill level indicates that the wage increase for semi-skilled workers was significant and greater in magnitude than less-skilled workers, both at the median and the mean. Being in the informal or formal sector does not appear to have a significant effect on wages over the period. Finally, public sector employees and union members experienced a positive change in wages over the period, albeit not significant. It is important to note that the changes observed here may be influenced to a large extent by the decreases in employment observed above, in that the sample of workers in 2020Q1 is very different from those employed in 2021Q1.

Table 8. Real Wage Changes (Rands/hr), by Labour Market Group: 2020Q1-2021Q1

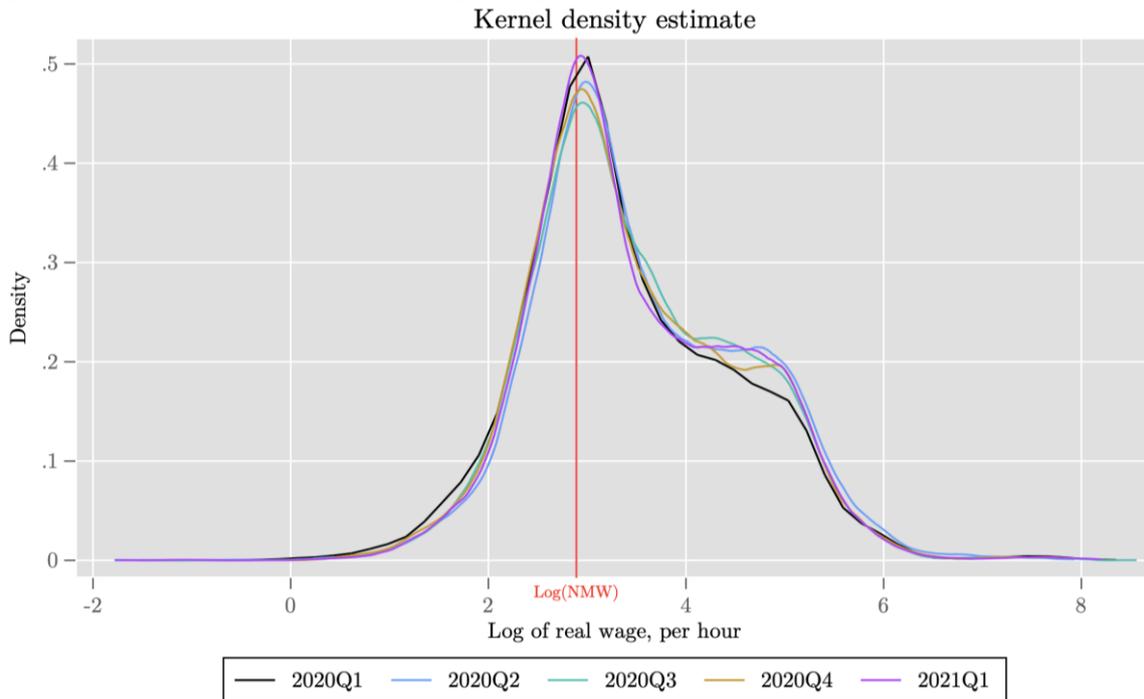
	2020Q1		2021Q1		Change (%)	
	Median	Mean	Median	Mean	Median	Mean
Average	24,7	60,4	25,9	63,1	5,0**	4,4**
Industry						
<i>Agriculture</i>	18,0	21,1	17,4	22,0	-3,0*	4,3
<i>Mining and quarrying</i>	66,5	90,9	75,1	95,5	13,0***	5,0
<i>Manufacturing</i>	30,7	61,3	32,0	80,2	4,2	30,8
<i>Construction</i>	22,1	42,5	22,3	34,3	0,9	-19,4
<i>Trade</i>	21,6	34,7	22,9	46,6	6,1**	34,4*
<i>Transport</i>	27,1	71,9	28,7	65,5	5,6	-8,9
<i>Finance</i>	27,6	89,0	25,5	70,5	-7,6	-20,8
<i>CSP services</i>	61,0	86,0	68,8	91,2	12,8	6,1
<i>Private households</i>	15,9	19,9	17,2	21,4	8,0	6,6
Skill						
<i>High-skilled</i>	149,2	221,7	143,4	211,1	-3,9	-4,8
<i>Semi-skilled</i>	29,6	53,0	31,5	59,3	6,7*	11,9***
<i>Less-skilled</i>	17,7	23,1	17,7	24,5	0,0	6,2
Sector of employment						
<i>Formal</i>	33,0	73,9	34,1	74,6	3,4	0,8
<i>Informal</i>	14,8	20,2	14,9	20,8	0,8	3,2
Public vs private						
<i>Private</i>	22,2	51,2	22,9	51,5	3,5	0,5
<i>Public</i>	72,0	95,4	77,6	99,3	7,8	4,1
Union status						
<i>Member</i>	64,3	89,9	68,8	91,8	7,0***	2,1
<i>Non-member</i>	19,7	48,5	19,9	48,5	0,8	-0,1

Source: QLFS 2020Q1 and 2021Q1 (StatsSA). Authors' own calculations.

Notes: [1] Sample restricted to the working-age population (15 – 64 years). [2] All estimates weighted using relevant sampling weights. [3] Formality refers to employment, not sector. [4] The Utilities industry has been left out due to its small sample size. [5] Burden of job loss ratio = share of change divided by 2020Q1 employment share, where values > 1 indicate a disproportionate burden. [6] The Welch t-test was used to account for variation in population size. [7] A non-parametric K-sample test was used to test the equality of medians. [8] *** p<0.01, ** p<0.05, * p<0.1.

A different way to look at how wages have responded over the period is to examine the full wage distribution over the period. Figure , below, plots the distribution of wages for all workers in each wave, where the vertical red line cuts the wage distribution at the new NMW, i.e. the NMW level after the 2020 increase. Typically, if wages had increased significantly for those earning below the NMW, we would expect to see a noticeable rightward shift in the distribution. In particular, we would expect to see movement in the distribution that is to the left of the vertical line, as low-wage workers' wages rise in response to the law. Indeed such a distributional wage shift is evident in previous research that examines the effects of sectoral minimum wages in South Africa (Dinkelman & Ranchhod, 2012; Bhorat et al., 2014). While a pronounced shift is not immediately apparent here, there is some slight rightward movement of the distribution after 2020Q1, and we do see a marginal increase in the number of wage earners clustered near the NMW in the final wave (2021Q1). While the differences between these distributions over the waves appear minor, they are statistically significant when comparing 2020Q1 to 2021Q1. However, more evidence is required to understand the wage dynamics taking place here.

Figure 7. Wage Distribution, Hourly Wages: 2020Q1-2021Q1

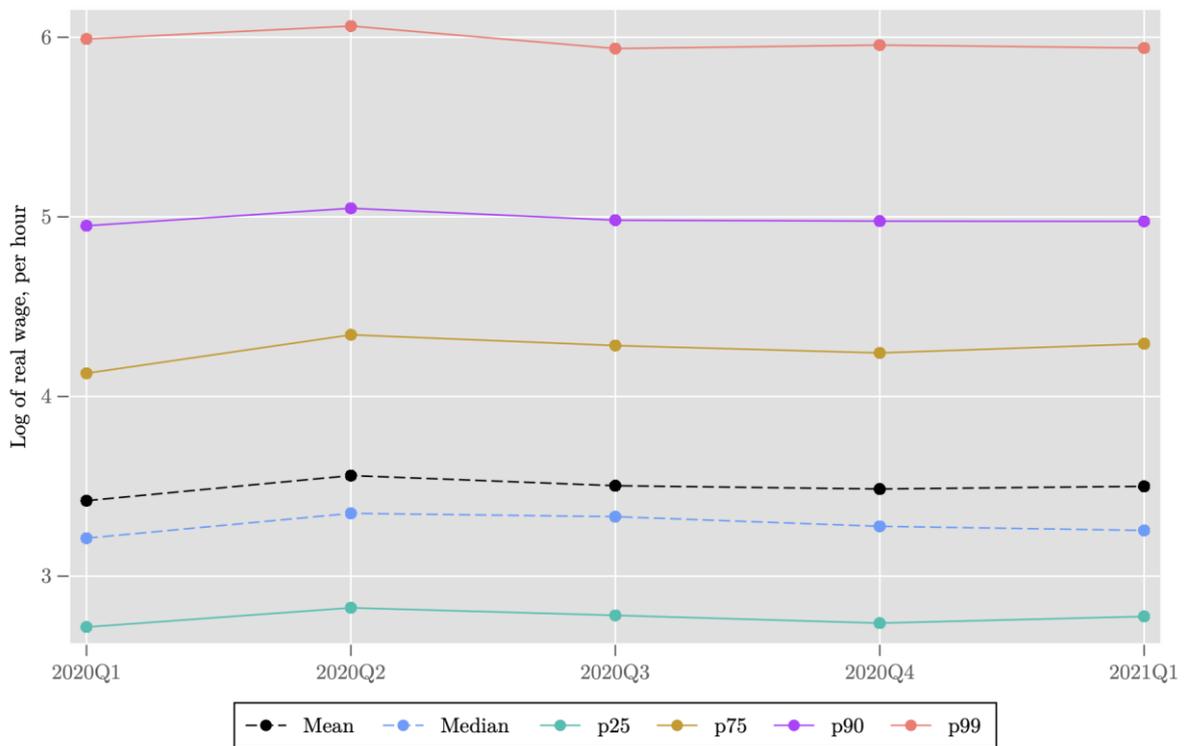


Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Notes: Combined Kolmogorov-Smirnov test between 2020Q1 and 2021Q1 confirms that distributions are statistically different.

In Figure , below, we split the wage distribution into quintiles to see how weighted average wages in each quintile change across the waves. A similar trend to the aggregate movements observed above is evident here. It appears that both on aggregate and for each quintile, the average wages of those who are employed increase between quarters one and two, where this increase seems to be less pronounced at the upper end of the wage distribution. This result may not be so surprising given that, as we have shown above, many lower wage workers from 2020Q1 would not have been employed in 2020Q2, thus pushing up wages. Nevertheless, it is interesting to note that this increase is evident at all points in the distribution and not only in the lower quintiles.

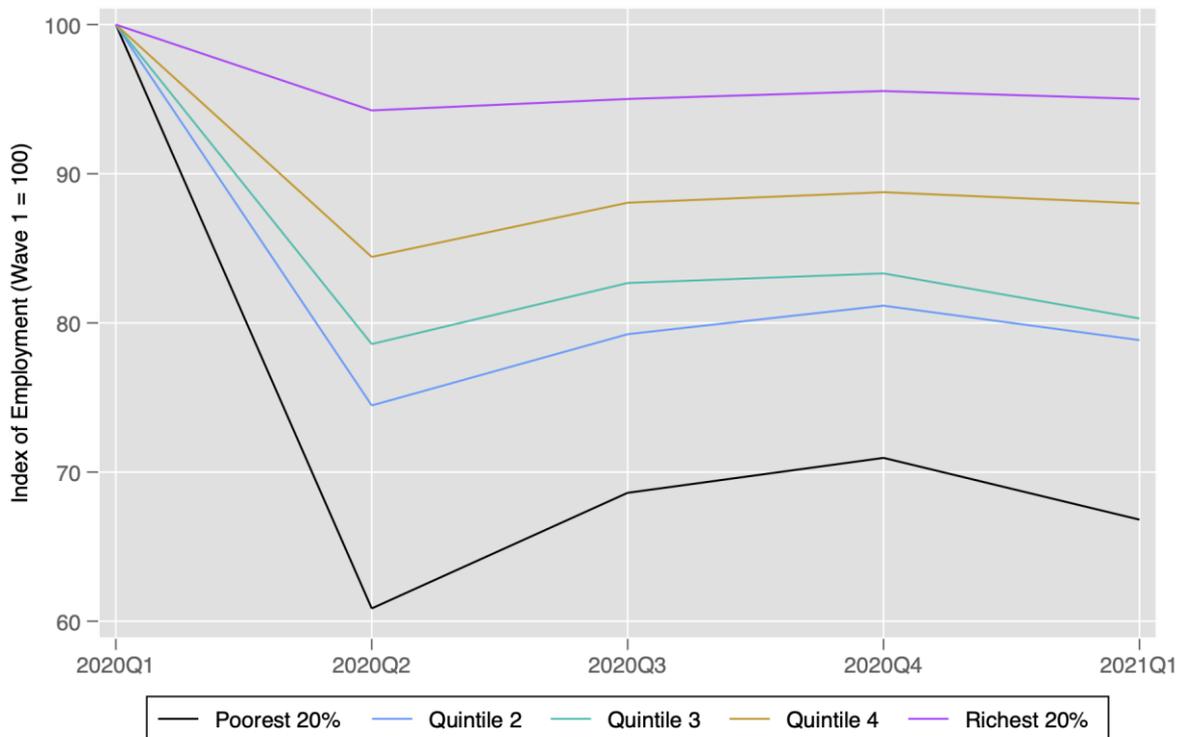
Figure 8. Wage Quintiles: 2020Q1-2021Q1



Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Treating the QLFS data as repeated cross sections over time is useful for identifying aggregate trends, but offers limited insights into how specific groups of individuals were affected over the period. In the employment trends above, individuals can switch across the two identified wage groups, making it difficult to clearly identify how low-wage workers were impacted. In addition, many low-wage workers became unemployed after 2020Q1 and thus fall out of the sample. To more clearly examine how employment impacts vary by earnings, we use the panel to follow the same individuals over time. In Figure , below, we create wage quintiles for all employees in 2020Q1, and then measure employment outcomes over the period, where these are indexed for the sake of comparability. Put simply, we calculate total employment levels in each wave, relative to total employment in Wave 1, and according to the five wage groups identified in Wave 1.

Figure 9. Indexed Employment Trends, by Wave 1 Quintile: 2020Q1-2021Q1



Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

What the trends make clear is that employment loss was directly linked to earnings, with low-wage workers more likely to lose their jobs. Employment losses in 2020Q2 were smallest for those workers in the top 20% of the wage distribution, while the largest employment losses were experienced by those in the bottom quintile. Indeed, what the figure shows is that for every 100 workers in the bottom quintile in 2020Q1, only about 62 remained employed in the following quarter, relative to 95 workers in the top quintile. Similar trends are evident for those in quintiles 2-4, where employment loss is greater for lower wage workers. While these results cannot tell us anything about the different causes of the trends we observe, they do make it clear that the cohort of workers covered by the NMW (those in the bottom 40% of the wage distribution) were most likely to lose their jobs in 2020Q2.

The evidence presented so far strongly suggests that the lowest paid workers in the labour market suffered the greatest job losses between 2020Q1 and 2021Q1, while those workers that remained employed received the lowest increase, and in some cases a decrease, in wages over the period. With the vast majority of these low-wage workers being covered by the NMW, it is important to formally explore trends in employment and wages for this cohort of workers.

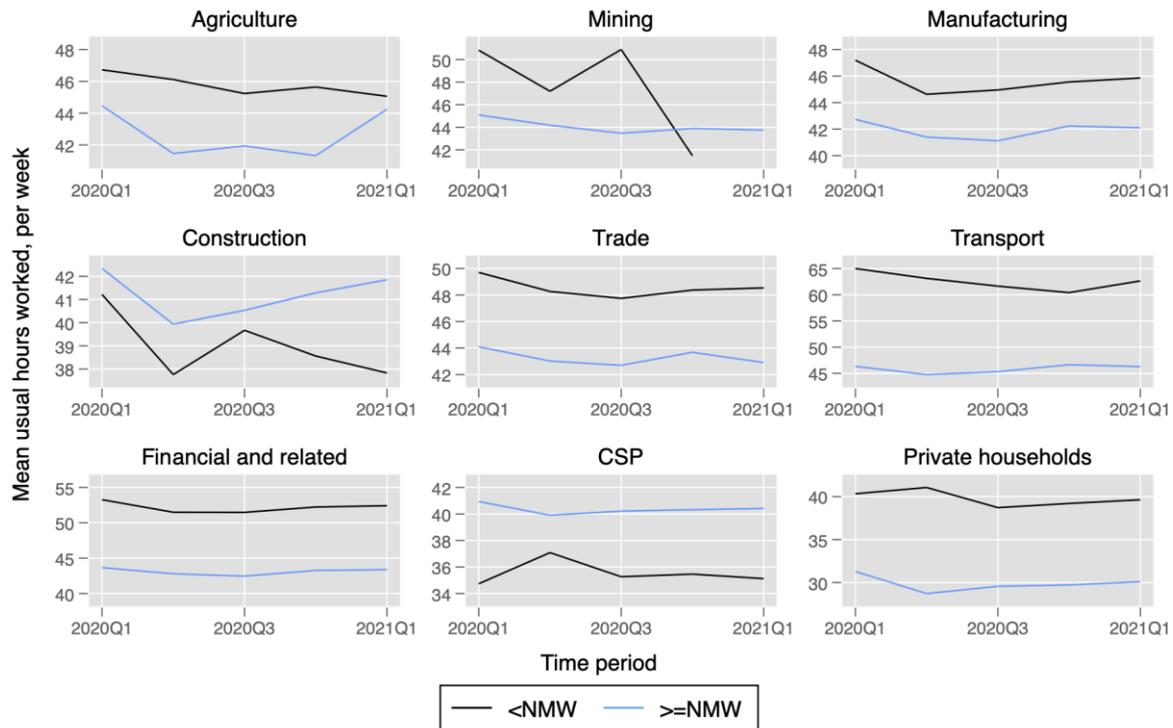
5. Labour Market Outcomes for National Minimum Wage Workers

In this section we turn our attention to the labour market outcomes of workers who earn below the NMW, or 'covered workers'. We are particularly interested in how this group has fared over the 2020 period. We use the NMW level, as reported in Table 1, to split employees into two groups based on whether they earn below the NMW, or whether they earn at and above the NMW. Splitting workers in this way offers some initial insight into whether the outcomes of covered workers have been markedly different from uncovered workers.

5.1. Hours of Work

In Figure , below, we plot usual weekly hours of work for covered and uncovered workers across the main industry categories between 2020Q1 and 2021Q1. There are a number of noticeable trends here worth pointing out. Firstly, the plots make it clear that in general, workers earning below the NMW work more hours per week than those who earn at or above the NMW. The exceptions to this are workers in Construction and CSP services, where covered workers have lower weekly hours. Secondly, while the levels are significantly different, the broad trends in weekly hours over the period appear to be relatively similar between the two groups of workers. In almost all cases, reported usual hours of work decrease noticeably in 2020Q2, and this is the case regardless of NMW group and industry. However, for workers in CSP services and Domestic Work (Private Households), we observe small increases in hours of work for covered workers. Thirdly, there is considerable variation across industries, as noted in the previous section. We observe large decreases in weekly hours in sectors such as Construction, and to a lesser extent in Manufacturing, while in other sectors such as Finance, CSP services, and Transport, workers report relatively small declines on average, echoing the trends seen above.

Figure 10. Usual Weekly Hours of Work, by NMW Coverage & Industry: 2020Q1-2021Q1



Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Note: For Mining, from 2020Q4 onwards there are no employed individuals in the QLFS sample who report earning wages below the NMW.

The trends above then suggest no clear differences in the impact of COVID-19 on covered workers relative to uncovered workers. To test this more carefully we use the panel sample, which follows the same individuals over the period, to run a Difference-in-Differences regression that compares usual hours of work across the two worker groups, before and after 2020Q2. To be clear, the two groups of workers in this case are:

1. Covered workers – those earning below the NMW in 2020Q1.
2. Uncovered workers – those earning 10% above the NMW in 2020Q1, but not more than 50% above the NMW.

We are interested in the following question: Did the reported weekly hours of work for covered workers rise by more than the hours of work for uncovered workers in the period after the NMW was increased? While comparing covered and uncovered workers attempts to isolate the impact of the NMW, we note that both the effects of COVID-19 and changes to the QLFS sample occurred at the same time as the NMW increase. All of these changes may have affected lower-wage workers differently to higher wage workers, and as such any observed outcomes cannot be attributed to the NMW increase alone.

The regression results are summarised in Table 99, below. The first output column presents results with no control variables, while the second column results include a full set of labour

market and demographic controls. The POST variable shows that for all workers in the sample the average usual weekly hours of work decreased after 2020Q2, by approximately 1.3 hours per week in our preferred specification. The coefficient for Covered Workers reveals, as observed above, that on average over the full period, covered workers report working more hours per week than uncovered workers. This difference is almost 5 hours per week when we control for various labour market and demographic characteristics of individuals. The main coefficient of interest, however, is the interaction term which reports the differential outcome for covered workers in the post period relative to uncovered workers. None of the results on the interaction term are statistically significant. That is, we do not find that changes in usual weekly hours of work are measurably different between covered and uncovered workers after the NMW was increased.¹⁰

Table 9. Hours of Work, Difference-in-Differences Regression Results

VARIABLES	(1) Usual Weekly Hours	(2) Usual Weekly Hours
POST	-1.270*** (0.135)	-1.392*** (0.136)
Covered Workers	3.820*** (0.253)	4.926*** (0.259)
Interaction	0.443 (0.286)	0.385 (0.284)
Constant	41.37*** (0.148)	45.52*** (1.933)
Controls	N	Y
Observations	15,590	15,458

Source: QLFS 2020Q1-2021Q1 (StatsSA), panel sample. Authors' own calculations.

*Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

5.2. Employment

Building on the employment trends observed in the previous section, where we quantified the negative shocks experienced on aggregate and across various sub-groups, below we seek to examine the impact of COVID-19 on covered workers. We begin with Table 10, below, which shows aggregate employment results for all wage earners between 2020Q1-2020Q2, and then breaks this initial employment shock down for covered and uncovered workers. The total number of workers earning greater than or equal to the NMW fell by 11% between the first and second quarter, from 7.1 million to 6.2 million. For workers earning less than the NMW, the comparative employment decline was 17%, falling from 4.2million workers to 3.5 million.

We note here that this decrease in the numbers of workers earning less than the NMW could be driven by several factors. It is certainly the result of overall employment falling due to the

¹⁰ Using different 'post' period specifications does not affect our regression results.

effects of COVID-19 on the economy, which as we suggest above – and will go on to show more clearly – was marginally worse in employment terms for lower wage workers. In addition, rising wages would also serve to reduce the number of workers in this category and move them into the group earning at or above the NMW. Indeed, according to the data on earnings, this does appear to explain part of the observed trend here. In general then, we find a large overall reduction in the number of employees in the labour market, where this decrease is larger in numerical terms for workers earning at or above the NMW, but larger in percentage terms for those earning below the NMW.

Table 10. Workers, by NMW Coverage: 2020Q1-2021Q1

Period	2020Q1	2020Q2	Total Change	% Change	Share of Change
All Wage Earners*	11 346 579	9 818 540	-1 528 039	-13%	100%
Employees Earning ≥ NMW	7 072 842	6 248 749	-824 093	-11%	54%
Employees Earning < NMW	4 273 737	3 569 791	-703 946	-17%	46%

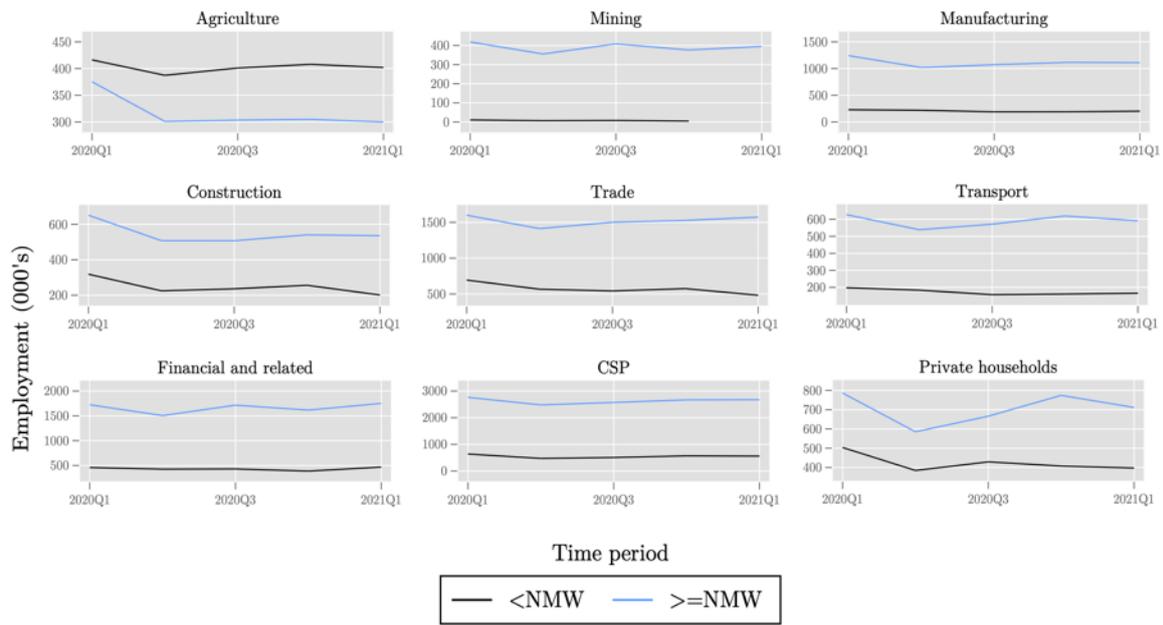
Source: QLFS 2020Q1-2020Q2 (StatsSA). Authors' own calculations.

Notes: The sample here is based on respondents who report their earnings, which is roughly 70% of employees in the QLFS.

In Figure , below, we examine the employment changes for the two identified groups – workers who earn below the NMW, and those who earn at or above it – across main industry categories for the full period, from 2020Q1-2021Q1. As in the hours of work analysis above, it is useful to have a clearer sense of how the employment outcomes of covered and uncovered workers vary by industry. However, we note that the composition of the sample in each quarter is not static over time, meaning individuals can move between the two identified categories if their wages rise or fall across the NMW cut-off.

The plots reveal the large employment shocks taking place in Q2 across industries, with very limited recovery in the following waves. It is again clear that the magnitude of the employment declines varies considerably across industries, but also by the NMW cut-off. For example, we see that total employment in Agriculture, despite being relatively insulated from the COVID-19 lockdown, does fall in 2020Q2, and it is clear that the employment of workers earning at or above the NMW decreases more steeply than for those earning below the NMW. By contrast, in other sectors such as Private Households (Domestic Work), Wholesale and Retail Trade, and Construction, the aggregate employment trends for both covered and uncovered workers follow similar trends. Notably, in several sectors such as Mining, Manufacturing, Transport, and Finance, the total number of employees earning sub-minimum wages is very low, and the trend is relatively flat across the period, where these trends are less accurate as they are reliant on small underlying samples, especially from 2020Q2 onwards.

Figure 11. Employment Trends, by Industry and NMW Cut-Off: 2020Q1-2021Q1



Source: StatsSA (QLFS, 2020-2021). Authors' own calculations.

In

Table 11, below, we measure these industry-level changes for the initial employment shock between the first and second quarter of 2020 in more detail, again comparing changes across covered and uncovered workers. In the upper half of the table, which measures employment declines for workers earning at or above the NMW, we see that employment losses are concentrated in six industries – Manufacturing, Construction, Wholesale and Retail Trade, Finance, CSP services, and Domestic Work – where most industries see declines that range between 10-20%. For those workers that earn below the NMW, we observe larger immediate declines in four main industries – Construction, Wholesale and Retail Trade, CSP services, and Domestic Work – where these are slightly larger in percentage terms and range between 12-28%.

Table 11. Employment by NMW Cut-Off and Main Industry: 2020Q1-2020Q2

Period	2020Q1	2020Q2	Total Change	% Change	Share of Change
EMPLOYEES EARNING >= NMW					
<i>Agriculture</i>	333 050	296 319	-36 731	-11,0	5%
<i>Mining</i>	299 128	255 108	-44 020	-14,7	6%
<i>Manufacturing</i>	756 364	666 421	-89 943	-11,9	11%
<i>Construction</i>	569 580	437 341	-132 239	-23,2	17%
<i>Trade</i>	1 111 906	1 008 002	-103 904	-9,3	13%
<i>Transport</i>	40 863	37 849	-3 014	-7,4	0%
<i>Finance</i>	1 118 784	957 367	-161 417	-14,4	20%
<i>CSP</i>	1 824 042	1 705 924	-118 118	-6,5	15%
<i>Private Households</i>	579 661	478 741	-100 920	-17,4	13%
EMPLOYEES EARNING < NMW					
<i>Agriculture</i>	440 988	419 299	-21 689	-4,9	3%
<i>Mining</i>	11 327	6 715	-4 612	-40,7	1%
<i>Manufacturing</i>	313 556	285 752	-27 804	-8,9	4%
<i>Construction</i>	394 542	306 963	-87 579	-22,2	12%
<i>Trade</i>	1 131 598	936 267	-195 331	-17,3	28%
<i>Transport</i>	230 242	209 924	-20 318	-8,8	3%
<i>Finance</i>	483 230	444 423	-38 807	-8,0	6%
<i>CSP</i>	748 325	549 221	-199 104	-26,6	28%
<i>Private Households</i>	516 054	405 845	-110 209	-21,4	16%

Source: QLFS 2020Q1-2020Q2 (StatsSA). Authors' own calculations.

Given the various analytical constraints described at the beginning of this report, we are not able to provide more detailed econometric analysis of employment shifts that measures the precise impact on covered workers. This is due largely to the confounding effects of COVID-19 on the labour market, and the changes to the QLFS survey. However, in the following subsection we provide a relatively detailed description of wage changes experienced by covered workers, including an econometric analysis comparing wage outcomes.

5.3. Wages

Before examining the wage data in more detail, we note that readers should be cautious of extrapolating too much from these results for several reasons. From 2020Q2 onwards, the wage earning sample in the QLFS is smaller than usual, both due to the large employment declines resulting from COVID-19, and the change to the CATI survey method which led to a sample size reduction of approximately 30%. This leads to larger standard errors in our estimates, and reduces precision. In addition, the primary earnings question in the QLFS questionnaire was changed, such that it is not currently possible to identify respondents who are employed, but say they earn no wages, in contrast to previous waves of the data. Generally this is not a serious problem, but given the fact that COVID-19 led to a large number of people in 2020Q2 remaining employed but earning lower or possibly no wages, this may impact on the earnings results.

We begin in Table , below, with an overview of average wages across the period (2020Q1-2021Q1), where again we split the sample of employees in the labour market by the NMW cut-off. Hourly wages appear to rise marginally for both groups over the period. It is surprising to observe such consistent wage increases across the period in a time when the impact of COVID-19 has been so severe. This increase appears to be marginally larger for workers in the sub-NMW cohort; it should be noted that while these differences are small in magnitude, they are statistically significant. The overall increase observed here may be driven by lower wage workers losing jobs and dropping out of the sample, and we examine this using the panel below. However, the increase may also be a consequence of the CATI sample, where lower wage households dropped out of the survey and the StatsSA re-weighting was not able to effectively account for this, given the small sample. Indeed, the jump in wages occurs between the first and second quarter, and average wages appear to decrease after 2020Q2.

Table 12. Workers, by NMW Coverage: 2020Q1-2021Q1

Period	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	Total % Change
EMPLOYEES EARNING >= NMW						
Mean Wage	91,9	102,5	90,1	92,9	95,6	4% **
Median Wage	48,1	53,2	51,3	50,0	50,8	5% ***
Median/NMW	2,30	2,56	2,47	2,41	2,45	6%
EMPLOYEES EARNING < NMW						
Mean Wage	11,6	12,6	12,4	12,3	12,3	6% ***
Median Wage	11,4	12,9	12,6	12,5	12,5	9% ***
Median/NMW	0,56	0,62	0,61	0,60	0,61	7%

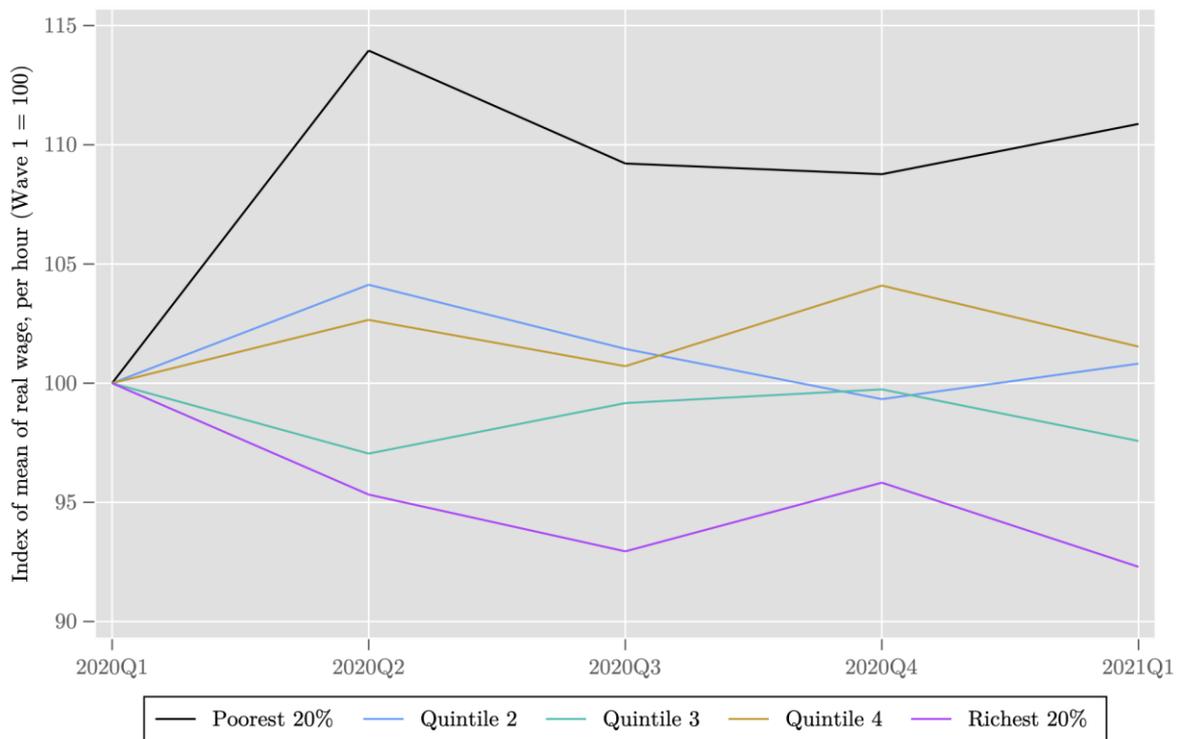
Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Notes: [1] The Welch t-test was used to account for variation in population size. [2] A non-parametric K-sample test was used to test the equality of medians. [3] *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Based on the unusual wage trends above, we make use of the panel to allow for a more specific analysis of wage changes over the period. Figure , below, restricts the panel to those who remain employed over the full period, and for whom we have information on earnings in each wave. Put simply, we keep the composition of the sample of wage earners constant throughout. We then divide the sample into quintiles based on reported hourly wages in 2020Q1, and track indexed wage movements over the period. Again the results are surprising, and perhaps even more so than the trends observed above. It appears that wages move in the opposite direction to employment, where the wages of workers in the bottom quintile rise the most, while those in the top 20% report decreasing real wages. The wages of workers in the middle of the distribution do not change much in real terms. Because the composition of the sample is stable, these trends are not driven by low wage workers dropping out.

One possible explanation of the upward sloping wage trend for those in the bottom quintile may be that hours of work fell by more for those in this group, which would artificially inflate hourly wages. However, we find that monthly wage trends reveal a similar pattern. It is possible that employers of workers earning far below the NMW chose to increase wages after the NMW was raised. However, we note again here that these trends are also likely to be a consequence of the change in the QLFS survey from 2020Q2 onwards. Unfortunately, without more detailed analytical work, the main underlying cause of the trends observed here remains unclear.

Figure 12. Indexed Wage Trends, by Wave 1 Quintile: 2020Q1-2021Q1



Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

As in the hours of work analysis above, we make use of the panel nature of the data to select a sample of individuals who we can track across the full period under review. This sample comprises of employees for whom we have wage data in each quarter. We then use this panel sample to run another Difference-in-Differences regression that compares wage outcomes of our two identified groups of workers, before and after the NMW increase, where the two groups are the covered and uncovered workers as before. In this case our question of interest is: Did the wages of covered workers rise by more than the wages of uncovered workers in the period after the NMW was increased?

We must emphasise again that while we wish to isolate the impact of the NMW, COVID-19 and the various changes to the QLFS sample occurred at the same time. These both affected low-wage workers differently, relative to higher wage workers, and as such our observed outcomes cannot be attributed to the NMW increase alone. The results are presented in Table , below.

The first two rows show that average hourly wages increase after 2020Q1 for all workers, and that this increase is statistically significant. As shown above, this is the result of large increases between 2020Q1 and 2020Q2, and may be driven by changes to the QLFS sample in the CATI survey. The coefficient on Covered Workers shows that across the full period, workers earning below the NMW have lower wages than those earning above it, which is axiomatic. The interaction term, however, is our main variable of interest in all three specifications and is not significant. That is, we find no differential wage gains for covered workers after 2020Q1, relative to uncovered workers, when controlling for demographic and labour market characteristics.¹¹ This suggests that while employment changes do appear to have been disproportionately borne by lower wage workers, we do not observe differential wage increases for sub-NMW workers.

Table 13. Panel Wage Effects, Difference-in-Differences Results: 2020Q1-2021Q1

	(1)	(2)
VARIABLES	Real Hourly Wage	Real Hourly Wage
POST	0,559*** (0,156)	0,327** (0,148)
Covered Workers	-16.37*** (0.197)	-14.30*** (0.197)
Interaction	0,0526 (0,229)	0,106 (0,217)
Controls	N	Y
Constant	15,55*** (0,200)	22,20*** (2,142)
Observations	6 471	6 425

Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.4. Non-Compliance

In this final sub-section we examine rates of non-compliance across main industry categories. Table presents both headcount and gap estimates for NMW non-compliance, where the former measures the proportion of workers that earn below the NMW, and the latter measures the average distance below the NMW among those who earn sub-minimum wages. The average level of NMW non-compliance in 2020Q1, before the NMW was raised, was 35.8, meaning that approximately 36% of all workers were paid below the NMW. A year later, in 2021Q1, this number remains much the same, at 36.2. The NMW was increased by 3.8%, and wages appear to have risen by roughly this amount for those who remained employed in 2021Q1, meaning that the overall rate of non-compliance remained stable. However, we find that the depth of violation did fall over the period, suggesting that for those workers earning

¹¹ Using different 'post' period specifications does not affect our regression results.

below the NMW, wages increased in real terms, but not all the way up to the NMW. This trend is in line with the wage trends seen in Figure , where it appears that wages for those at the bottom end of the distribution increased by more.

Table 14. Minimum Wage Violation Headcount and Gap, by Main Industry: 2020Q1-2021Q1

Industry	Headcount			Depth		
	2020Q1	2021Q1	Change	2020Q1	2021Q1	Change
	%	%	%	%	%	%
Agriculture	57,7	63,1	9,34	17,7	17,4	-1,46
Mining	3,5	0,0	-100,0	1,9	0,0	-100,0
Manufacturing	25,1	26,7	6,17	8,6	7,3	-16,09
Construction	45,4	46,4	2,12	17,1	16,7	-2,22
Trade	45,9	41,5	-9,67	16,1	12,6	-21,91
Transport	37,7	40,3	6,87	17,0	16,8	-1,09
Financial Services	32,8	36,7	11,95	9,5	10,5	11,19
CSP	27,4	26,7	-2,83	12,9	10,6	-17,14
Private Households	46,9	44,5	-5,24	17,0	14,5	-14,61
Total	35,8	36,2	1,01	13,1	11,8	-9,54

Source: QLFS 2020Q1-2021Q1 (StatsSA). Authors' own calculations.

Across industry categories we see substantial variation in rates of NMW violation. Agriculture has the largest proportion of sub-NMW earners, and this appears to have increased over the period. Construction, Wholesale and Retail Trade, and Domestic Work, all have rates of violation close to 45%, and these remain relatively unchanged. Levels of violation appear to have also risen in Finance, and Transport. In 2021Q1, there are no individuals employed in Mining who report wages that are below the NMW. Notably, the final column of the table shows that the depth of violation has fallen in all industries, albeit with substantial inter-industry variation. Again, we note that this may be an artefact of the changing QLFS sample, but it may also point to some level of partial compliance, where employers increase wages in response to a higher minimum wage, but this increase is not all the way up to the legislated minimum.

6. Conclusion

COVID-19 has had unprecedented consequences for the South African economy in general and the labour market in particular, and there is no doubt that these overshadow any impact of the NMW increase may have had during this period. The various impacts of COVID-19 and the associated government lockdowns have also lead to a range of unusual labour market changes, such as extreme variations in working hours when many people were prevented from working. In turn, these have implications for our analysis when calculating hourly wages. Changes to the QLFS survey, which was conducted telephonically from 2020Q2 onwards, also resulted in a smaller, and potentially biased sample, which may have consequences for the representivity of our estimates. Unfortunately at this stage it is not possible to get clarity on the extent of this

bias. Furthermore, the COVID-19 lockdown dramatically increased the movement of people between households in the week prior to the initial lockdown coming into force, and this has implications for our ability to identify the same individuals across households in the data over time. Together this confluence of issues limit the kind of quantitative analysis that can be done to examine the direct effects of the 2020 NMW increase over the period.

Our analysis is thus largely descriptive in nature and focuses firstly on the labour market changes experienced by all workers. We observe that COVID-19 and the various government lockdown interventions resulted in an annual net employment decrease of 1.4million between 2020Q1 and 2021Q1. Most of these employment losses were borne by a few key sectors, namely, Construction, Private Households, Manufacturing, Trade, and CSP services. We also find that employment losses were larger among lower wage workers. Hours of work decrease sharply in 2020Q2 during the strict lockdown, with roughly 15% of workers reporting no hours worked at all in the week prior to being surveyed. Weekly hours of work then gradually revert back to equilibrium levels by the end of 2020. Regarding wages, we find that median real hourly wages increase marginally over the period, but that there is considerable sectoral variation underlying this aggregate increase.

The second component of the report focuses on differences in outcomes between workers that earn below the NMW, and those that earn at or above it. We find no measurable differences in weekly hours of work changes between these two groups, where both follow a trend of falling rapidly and then recovering fully by the end of 2020. Our analysis shows that employment reductions were marginally greater for those earning below the NMW, where these decreases in employment were largest in four main industries, namely, Construction, Wholesale and Retail Trade, CSP services, and Domestic Work. However, this trend relies on cross-sectional data and we do not attribute it to the NMW increase. The reliability of disaggregated wage data is of some concern given the smaller sample, but our analysis finds no differential gains for sub-NMW wage workers relative to uncovered workers. Put differently, we find no evidence to suggest that the wages of those workers covered by the NMW increased by more than workers who were not covered by the law. This is in line with what we expect given the size of the required increase. Rates of NMW violation remain stable over the period, with significant differences across industries, and we note that the depth of violation falls, suggesting that wages of those earning below the NMW rose – but not all the way up to the minimum wage.

7. References

Bhorat, H., Kanbur, R., and Stanwix, B. (2014). Estimating the impact of minimum wages on employment, wages, and non-wage benefits: the case of agriculture in South Africa. *American Journal of Agricultural Economics*, 96(5), 1402-1419.

Bhorat, H., Kanbur, R., and Stanwix, B. (2021). An Empirical Assessment of the National Minimum Wage in South Africa. In: *State of the Nation: Ethics and Politics of South Africa's Struggle Against Poverty and Inequality*, Edited by Bohler-Muller, N., Soudien, C. and Reddy, V. HSRC Press, February 2021. Chapter 7, pp. 154-172.

Bhorat, H., Lilenstein, A. and Stanwix, B. (2020). The Impact of the National Minimum Wage in South Africa: Early Quantitative Evidence. Research Report to the National Minimum Wage Commission. Available at:

<http://www.labour.gov.za/DocumentCenter/Publications/Basic%20Conditions%20of%20Employment/The%20Impact%20of%20the%20National%20Minimum%20Wage%20in%20South%20Africa,%20early%20quantitative%20evidence .pdf>

Department of Labour and Employment (2021). Employment and Labour Minister TW Nxesi announces minimum wage increases. Available at: <http://www.labour.gov.za/employment-and-labour-minister-tw-nxesi-announces-minimum-wage-increases>

Dinkelman, T., and Ranchhod, V. (2012). Evidence on the impact of minimum wage laws in an informal sector: Domestic workers in South Africa. *Journal of Development Economics*, 99(1), 27-45.

Kerr, A., and Thornton, A. (2020). Essential Workers, Working from Home and Job loss Vulnerability in South Africa. DataFirst Technical Paper (No. 41). Available at: https://www.datafirst.uct.ac.za/images/docs/DataFirst-TP20_41.pdf

Patel, L., Mthembu, S., and Graham, L. (2020). The National Minimum Wage in the Agriculture and Domestic Work Sectors: Report of a qualitative study of stakeholder responses to the National Minimum Wage. Research Report to the National Minimum Wage Commission. Available at:

<http://www.labour.gov.za/DocumentCenter/Publications/Basic%20Conditions%20of%20Employment/The%20National%20Minimum%20Wage%20in%20the%20Agriculture%20and%20Domestic%20Work%20Sectors.pdf>

Statistics South Africa (StatsSA). (2020). Quarterly Labour Force Surveys 2020Q-2021Q1. Pretoria. Available at: www.Statssa.gov.za

Statistics South Africa (StatsSA). (2021). Quarterly Labour Force Survey, Technical Notes. Available at: <https://www.statssa.gov.za/publications/P0211/P02111stQuarter2021.pdf>

Stewart, M. B. (2004). The impact of the introduction of the UK minimum wage on the employment probabilities of low-wage workers. *Journal of the European Economic Association*, 2(1), 67-97.