Labour Market and Unpaid Childcare Trajectories by Gender During the COVID-19 Pandemic in South Africa: Lessons for Policy

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and
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Bringing Rigour and Evidence to Economic Policy Making in Africa

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Contents

List of tables
List of figures
List of abbreviations and acronyms
Abstract
Acknowledgements

1. Introduction 1

2. Gender and the South African labour market 3

3. Data 6

4. COVID-19 and the effects on labour market outcomes 9

5. Childcare hours and labour market work during lockdown 20

6. Childcare and labour market trajectories 26

7. Conclusion and policy recommendations 34

Notes 37

References 38

Appendixes 42
A. Dependency ratios 42
B. Constructing hours of work and childcare variables 42
C. Extreme values in the hours of labour market and childcare work 44
D. Comparison of the sequence analysis (SQ) sample to the cross-sectional and balanced sample 44
E. Sequence analysis of only two labour market states 45

List of tables

1.	Key labour market outcomes, 2019–2021	11
2.	Employment type, occupation, and industry distribution by gender: QLFS 2020–2021	14
3.	Occupation, working from home and pay status (QLFS 2020: Q2)	19
4.	Dependency ratios: Black African women vs white women	21
5.	Average hours per day spent in the labour market (LM) and doing childcare (CC)	23
6.	Female average hours per day spent on labour market vs childcare	25
7.	Description of the sample of sequences	29
8.	Ten most common sequences for men and women	30
9.	Most common combinations of elements for the first 70% of the sample	32
10.	Frequency of not-employed (NE) and high care spells by gender	32
A1.	Proportion of employed adults living with children by gender (2020)	42
C1.	Weighted percentage of sample reporting minimum and maximum possible hours of labour market, childcare, and total hours of work	44
D1.	Wave 1 (April L5) demographics for a different samples conditional on being employed in February 2020	44
E1.	Ten most common trajectories between labour market states (1 = E; 0 = NE) for a sample who were employed in February 2020	45

List of figures

1. Comparing NIDS-CRAM and QLFS employment figures 8
2. Labour force participation by gender in the South African labour market 10
3. Employment rate by race and gender in the South African labour market 17
4. Occupational distribution by race and gender (2020 Q2) 18
5. Hours of childcare by labour market status for adults living with children 22
6. Mean hours per day spent on labour market and childcare work 24
7. Five most common labour market-childcare trajectories for men and women over the COVID-19 lockdown 31

List of abbreviations and acronyms

CATI	Computer Assisted Telephone Interviewing
COVID-19	Coronavirus Disease 2019
ECD	Early Childhood Development
EEA	Employment Equity Act
ILO	International Labour Organization
LFP	Labour Force Participation
NEA	Not Economically Active
NIDS-CRAM	National Income Dynamics Study-Coronavirus Rapid Mobile Survey
QLFS	Quarterly Labour Force Surveys
SRDG	Social Relief of Distress Grant
UIF-TERS	Unemployment Insurance Fund-Temporary Employer/Employee Relief Scheme
ZAR	South African Rands

Abstract

Measures taken to mitigate the spread of the COVID-19 pandemic, such as the closure of Early Childhood Development (ECD) centres and Schools, presented working parents with a time allocation challenge. This is because individuals have had to balance office work, childcare, and housework. Results from the QLFS show that, although both men and women lost about the same number of jobs, more women have dropped out of the labour force leading to a slight increase in the gender labour force participation gap. This aggregate result, however, masks differences between different groups of women, for example, the labour force participation (LFP) gap among black Africans widened more than the LFP gap in the white sub-group. Investigation of labour market hours showed a widening of the hours gap between men and women by the first quarter of 2021. A further investigation of both hours worked and childcare hours using NIDS-CRAM reveals that, when labour market production and childcare are considered together, women work more hours than men. Women work about an hour less than men on average in the labour market, but more than make up for this by working between 1.5-2 hours more than men doing childcare. During the strictest part of the COVID-19 lockdown, this stretched to 3.5-4 hours more for childcare than men. An investigation of trajectories using sequence analysis shows that, over the course of the year between February 2020 and March 2021, women who had been working before the first lockdown were more likely than men to spend spells not working. Additionally, spells outside of the labour market more often coincided with long hours of childcare for women than for men. Of the sample of men and women who were employed in February 2020, only 62% of men and 51% of women were still employed a year later, while about 5% of women, and only 2.5% of men, became permanently not employed after February 2020. The policy implication here is that, there is need for the state to allow for the expansion of ECD centres by reducing registration bottlenecks and making these centres affordable to all by increasing funding. This will lift the burden for families, and especially women, and enable those who have dropped out of the labour market to return and increase employment as the ECD sector is one of the female dominated sectors.

Key words: *COVID-19; Gender inequality; Labour force participation; Time allocation; Care burden.*

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1 Introduction

Persistent gender gaps in labour market outcomes are directly linked to traditional gender norms in the division of labour in the household (Anker, 1997; Blau & Kahn 2007; Agénoret al., 2018). Women's traditionally larger share of unpaid care work places an upper limit on the amount of time they can spend on paid labour market work and the type of work (full-time vs part-time work). Lower female labour force participation can, in turn, undermine women's bargaining power in the household (Anderson & Eswaran, 2009). The COVID-19 lockdowns are expected to worsen gender inequality in the labour market because of increased childcare demands which research shows is still mostly shouldered by women (Budlender 2019; Hatch & Posel, 2018). The ECD centres and school closures resulted in increased time spent on unpaid childcare at home, and we show, in this paper, that women have mainly stepped up to meet this demand with direct implications for their labour market participation. Most analyses on the impact of COVID-19 have focused on the extensive margin of jobs lost. In this paper, we focus on the intensive margin of hours worked at home or in the office by considering how South African men and women have reallocated their time after a shock in the demand for childcare.

Early research from the National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) reports that, more women than men had trouble working from home, going to work, or searching for work due to childcare responsibilities (Casale & Shepherd, 2020). Casale and Shepherd (2021) point out that, because a much larger share of women than men co-reside with children, childcare has disproportionately affected women's labour market participation. They find that 31% of women and 28% of men confirmed that looking after children in June 2020 had prevented them from going to work or made work very difficult.

In this paper, we build on and develop these initial insights by exploiting two household survey data sets, the Quarterly Labour Force Surveys (QLFS) and the NIDS-CRAM. We do this in several ways. Firstly, we describe trends in labour market outcomes for both men and women and show in particular that the gender gaps in labour force participation and hours worked has grown over the course of the lockdown. A contribution in this regard is using the QLFS to understand these outcomes, which so far has been less-utilized than NIDS-CRAM for this purpose. Our focus is also on the intersection of gender and race in South Africa, especially with regards to occupational sorting and which groups of women were in the types of occupations that could be

carried out from home. We then turn to a more thorough investigation of how hours of childcare have evolved with hours in the labour market. Understanding fluctuations in one is often key to understanding fluctuations in the other. We further exploit the panel aspect of the NIDS-CRAM data set to describe trajectories over the period of a year, from February 2020 to March 2021. The lockdown imposed in March 2020 had still not been lifted by March 2021, although the strictness of the levels fluctuated as the severity of the pandemic evolved. How much churning has there been over time, for example? And how has this interacted with the demands of childcare? These are questions that analysing trajectories is uniquely placed to answer.

Our main findings are consistent with trends found elsewhere in the world (International Labour Organization [ILO], 2021) that, although men lost more jobs in total, women lost a higher share of jobs and that the gender gap in labour force participation has widened slightly. We also find that there has been a substantial expansion in the gender gap in hours worked. These shifts are inextricably tied in with occupational sorting and the shock in the demand for childcare. More black women working in occupations that could not be performed from home meant employment and hours of work for black women have recovered more slowly than for white women. At the same time, more pressure on women to care for children has restricted their ability to return to the labour market. We see this, not only in hours worked, but also in the fact that women were more likely than men to follow trajectories that saw them permanently switching out of employment when lockdown hit in March 2020. We find that, when labour market production and childcare are considered together, women work more hours than men. Women work about an hour less than men, on average, in the labour market, but more than make up for this by working between 1.5-2 hours more than men doing childcare. During the strictest part of the lockdown, this stretched to 3.5-4 hours more for childcare than men. Over the course of the year, between February 2020 and March 2021, women who had been working before the first lockdown were more likely than men to spend spells not working. Spells outside of the labour market more often coincided with long hours of childcare for women than for men. Of a sample of men and women who were employed in February 2020, only 62% of men and 51% of women were still employed a year later. Lastly, 5% of women, but only 2.5% of men, became permanently not employed after February 2020.

The rest of this study is structured as follows. After presenting the background on gender and the South African labour market in Section 2, we discuss the data in Section 3. We then, in Section 4, describe existing gender gaps in the labour market and emerging labour market trends since the beginning of the pandemic in early 2020 (Quarter two of 2020 to Quarter one of 2021) using data from the Quarterly Labour Market Surveys (QLFSs). Section 5 investigates the trends in the childcare burden, while Section 6 presents the labour market trajectories of labour market participants using data from the NIDS-CRAM. We conclude by discussing policy implications in Section 7.

2. Gender and the South African labour market

Rising female labour force participation has been one of the most considerable economic developments in recent history around the world (Blau & Kahn, 2017). Trends in labour force participation and employment show that women have made great strides in labour force participation (Blau & Kahn, 2017; Klasen, 2019).

In South Africa, there is consensus that female labour force participation has been on the rise in the past few decades (Casale & Posel, 2002; Ntuli & Wittenberg, 2013; Mosomi, 2019b; Casale et al., 2021). Mosomi (2019a) showed that, between 1994 and 2014, the gender labour force participation gap had declined by nine percentage points, from 21% to 12%. Additionally, there has been an increase in the share of women in employment (Casale & Posel, 2005; Casale et al., 2021). The increase in female labour force participation has been attributed to several political, social, and economic changes in South Africa. The demise of apartheid, for example, led to the enactment of policies to reverse gender and racial discrimination in the labour market.

Because of the legacy of apartheid, there is an intersection between gender, race, and class (Casale et al., 2021) in the South African labour market, and it is incomplete to discuss gender inequality without discussing racial inequality. Apartheid laws, such as the Bantu Education, the Colour Bar, and Job Reservation, ensured that black Africans were relegated to the lowest paying jobs, the effects of which are still apparent in the post-apartheid labour market. To reverse the impact of apartheid laws, the post-apartheid government enacted policies, including the Employment Equity Act of 1998 (EEA) which was aimed at promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination (Leibbrandt et al., 2010). Furthermore, the EEA gave way to the implementation of affirmative action for previously marginalized groups, i.e., women, people with disabilities, and black people (African, Coloured, and Indian individuals). Additionally, the Black Economic Empowerment Act, No. 53 of 2003 was aimed at facilitating broad-based black economic transformation to enable meaningful participation of black people in the economy (Leibbrandt et al., 2010). Employment trends over time show that affirmative action did improve female labour force participation (Ntuli & Wittenberg, 2013), and there has been an increase of women in occupations where they were formerly underrepresented such as management jobs (Espi et al., 2019). However, because of apartheid education policies, white women benefited more from high skilled job opportunities than either black men or women, and thus occupations are still highly segregated along gender and racial lines (Espi et

al., 2019; Gradín, 2021). Important to remember is that South Africa is plagued with high levels of unemployment and therefore an increase in female labour force participation is not synonymous with employment. In fact, studies show that in South Africa, the 'feminization' of the labour market was accompanied by high female unemployment (Casale, 2004). Casale (2004) has detailed how the increase in female labour force participation in South Africa in the 1990s and early 2000s was due to a push into the labour market rather than a pull. Changing social and economic circumstances such as the decline in marriage rates especially among black men and women led to women being pushed into the labour market usually into precarious employment. Women, especially those in the youth bracket (age 15-34) are more likely to be unemployed compared to men. In 2019, the official female unemployment rate was 31.5%, while that of men was 26.8% (Casale et al., 2021).

Still on the topic of persistent gender gaps in the labour market, studies investigating the gender wage gap in South Africa report that, despite the closure of the gender gap in educational qualifications and implementation of affirmative action laws, the gender wage gap persists across the wage distribution (Ntuli, 2007; Bhorat & Goga, 2013; Mosomi, 2019a; Casale et al., 2021). However, the agreement is that, occupational and industry segregation play an important role in explaining the persistent gender wage gap (Mosomi, 2019a). Because women are overrepresented in the lowest paying jobs (domestic work and elementary occupations), narrowing the gender wage gap will require an increase in the number of women in high paying jobs. Research out of South Africa shows that, in the post-apartheid era, minimum wage legislation has contributed to the decline of the wage gap at the bottom of the wage distribution simply because of the high number of women in this part of the wage distribution (Mosomi, 2019a). Gender gaps in the care burden are well documented (Floro & Komatsu, 2011; Budlender, 2019). According to Budlender (2019), most of the unpaid care work (84%) involves the care of children, and it is mostly carried out by women. The gender inequality literature suggests that persistent gender gaps in the labour market are at least partly because of traditional gender norms in the division of labour in the household. For example, the gender wage gap can be linked to the gender gap in hours worked (Blau & Kahn, 2017). Recent findings show how some occupations penalize working women for their need for flexible hours given the double burden of childcare and labour market work (Goldin, 2014). More recently, Kleven et al. (2019) showed that, with the arrival of children in the family, mothers, more often than fathers, choose to cut back on working hours or even to opt out of the labour force.

How many hours a person spends on labour market work or caring for children is then a critical analytic lens for understanding the effects of the COVID-19 lockdowns. In economic theory, the time allocation theory (Mincer, 1962; Becker, 1965; Gronau, 1977; Ermisch, 1981) posits that households allocate time between market production and home production subject to time and budget constraints. A key idea is that it is efficient for members of a two-person household, or larger, to specialize in one type of production (Becker, 1981; Ermisch, 1981). Traditionally, women specialized in home production[1], and men in labour market production. The assumption of this model was that the household as a unit

pooled resources and shared them amongst family members. However, both economic and sociological literature has shown that heads of households (traditionally male) are not always altruistic and that women often suffer the consequences of this gendered set-up, which is usually loss of bargaining power within the household (Lundberg & Pollak, 1993; Lundberg, 2001; McElroy & Horney, 1981; Folbre, 1995; Agarwal, 1997). Additionally, with increased investment in female education, there is an increased opportunity cost of women staying out of the labour market (Ntuli & Wittenberg, 2013).

Early research on the socioeconomic impact of COVID-19 indicates that the pandemic has magnified the already existing inequalities in society (Statistics South Africa, 2020; Jain et al., 2020; Ranchhod & Daniels, 2020). African women who are overrepresented at the bottom end of the wage distribution and in the least paying occupations face the highest risk of being disproportionately affected by the pandemic (Adams-Prassl et al., 2020; Jain et al., 2020; Casale & Shepherd, 2020). The health risk nature of the COVID-19 pandemic sets it apart from previous global financial recessions. This is because the social distancing measures put in place to curb the spread of the virus meant that only essential or critical work could be carried out. For those who could still work, either from home or at their place of work, the closure of schools and ECD centres presented a unique time allocation challenge. The early national 'hard' lockdown meant that even domestic workers could not go to their place of work. Hence, with increased childcare and housework, a question we ask in this paper is how did closure of schools and ECDs affect labour market hours? Additionally, with pre-existing gender norms where women still shoulder the lion's share of housework and childcare (Floro & Komatsu, 2011; Hatch & Posel, 2018; Budlender, 2019), how will the COVID-19 pandemic affect the already existing gender gaps in the labour market? Our approach in this paper is to take a closer look at hours of work and childcare by gender given how we expect the burden of childcare to restrict female hours in the labour market.

We extend this time allocation framework to understand how the COVID-19 lockdown has rippled through the labour market by considering whether one's occupation allowed one to work from home. Being employed in an occupation where one can continue with work activity likely has a protective effect on income. Jobs that can continue with work activity include those that were classified as essential services (e.g., nurses, agricultural workers, police), but also included jobs with work activities that could be conducted from home. These included many professional and technical office jobs, like clerks, managers, and other business professionals. Stark occupational sorting by gender, but also race, cut the effect of the lockdown along lines that could exacerbate existing inequalities. Whilst women are clustered more than men in service occupations and clerking occupations, there is an uneven racial distribution across this group of women. White women are much more likely to hold clerking and professional jobs which can be done from home, whilst black women are more likely to hold service jobs which require presence on-site. Occupational sorting then structures the number of hours different groups of women could possibly work under lockdown conditions or whether they could keep their jobs, even if they did not have to cope with an additional burden of childcare.

3. Data

South African Labour Market Surveys

We utilize the Quarterly Labour Force Survey (QLFS), which is a household-based sample survey conducted by Statistics South Africa (Stats SA) since 2008. It collects data on the labour market activities of individuals aged 15 years and older who live in South Africa. The surveys all sample approximately 30,000 dwelling units based on about 3,000 Primary Sampling Units. However, as a result of the COVID- 19 pandemic and restricted movement, Stats SA suspended face-to-face data collection on 19 March 2020, and changed the mode of collection to Computer Assisted Telephone Interviewing (CATI) (Statistics South Africa, 2020). The subsequent waves of the QLFS, i.e., quarters two, three and four of 2020 and quarter one of 2021 were collected using CATI. Additionally, due to movement restrictions, the sample that was surveyed in the first quarter of 2020 was re-surveyed in the subsequent waves, essentially turning the QLFS into a panel. The fact that with the shift to CATI, only households with access to a telephone could be interviewed meant that the subsequent surveys are smaller (a reduction in sample of about 30%). As we discuss below, the reduction in sample is bound to introduce some sample selection bias due to differences in individual and labour market characteristics of telephone and non-telephone households. The data comes with survey weights, which in theory account for this bias.

While the QLFS is the best suited survey to analyse labour market outcomes, the survey unfortunately does not collect information on household characteristics or information on childcare. Given this limitation of the QLFS, we augment our analysis with data from the National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) survey. NIDS-CRAM interviewed a sample of adults from the pre-existing NIDS[2] wave 5 (2017) to try and ensure as representative a sample as possible given the difficulties of conducting fieldwork during lockdown restrictions. An advantage of the NIDS survey over the QLFS is that it contains both labour market information and information on children and their care givers. The NIDS-CRAM survey investigates the socioeconomic impacts of the national lockdown, and the social and economic consequences of the global coronavirus pandemic. The NIDS-CRAM questionnaire asked questions on labour market attachment before the pandemic and whether one was able to work during the pandemic. It also asked questions on household membership and care work. Whilst the original NIDS survey was face-to-face, NIDS-CRAM was

designed as a telephonic survey thus the questionnaire is much shorter and labour market information is limited. Labour market questions in NIDS-CRAM were designed for the purpose of collecting information under the circumstances of the pandemic and therefore are more flexible. For example, NIDS-CRAM uses a longer reference period to ask about employment status (a month, compared to a week in the QLFS).

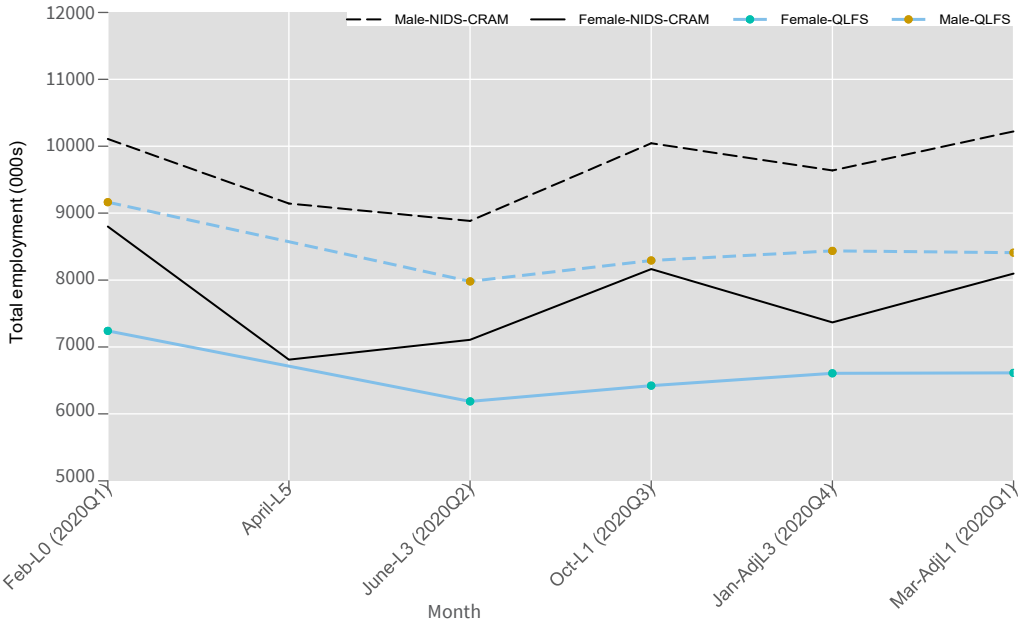
The questions in the QLFS survey conform to international best-practise, and are consistent with questions in previous QLFS waves enabling consistent comparison of outcomes before and after the onset of the pandemic. The QLFS has a much larger sample size, and its sampling frame is also more up to date reflecting the South African population in the first quarter of 2020, compared to the NIDS-CRAM sample which reflects the South African adult population in 2017 when the final wave of NIDS was conducted. As a result, the QLFS presents some advantages over NIDS-CRAM when studying labour market outcomes, but NIDS-CRAM is our only source of information about childcare. Both the QLFS and NIDS-CRAM have their strengths and weaknesses and we utilize them as complementary data sources to understand the gendered impact of the COVID-19 pandemic in the South African labour market.

Data quality issues and the impact on gender inequality analysis

In South Africa, we are fortunate to have more than one data set covering 2020. We have the Quarterly Labour Force Surveys (QLFS), which are South Africa's national labour market survey

data collected on a quarterly basis by Statistics South Africa (Stats SA) since 2008 (Statistics South Africa, 2020). The data is nationally representative and asks detailed questions about labour market outcomes. We also have access to the National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM), which is a nationally representative longitudinal survey of 7,073 adults. NIDS-CRAM was specifically set up to collect information on socioeconomic effects of the COVID-19 pandemic. There are five waves of NIDS-CRAM, starting on 7 May 2020 and ending on 11 May 2021 (Ingle et al., 2021). A challenge for our analysis is that aggregate employment totals differ between the QLFS and NIDS- CRAM. This is a concern since the two data sources provide information about the same population. Figure 1 compares employment totals by gender using information from the QLFS and NIDS-CRAM. Note that the reference period for questions about employment and the data collection dates of these two surveys differ. The reference period for the QLFS is whether one was employed in the previous week whereas the reference period for NIDS-CRAM is whether one was employed in a particular month (Daniels et al., 2021). Additionally, while wave 1 of NIDS-CRAM was conducted by Computer Assisted Telephone Interviewing (CATI) between 7th May and 27th June (Ingle et al. 2021); the 2020 quarter one wave of the QLFS was conducted with face-to-face interviews, but later switched to CATI on 19 March 2020 (Statistics South Africa, 2020).

Figure 1: Comparing NIDS-CRAM and QLFS employment figures



Notes: Sample contains working age individuals (age 15-65 years); proportions adjusted using sampling weights.
Source: Authors' own calculations using NIDS-CRAM Wave 1 to Wave 5, and QLFS 2019–2021.

Figure 1 shows the disagreement between the NIDS-CRAM and QLFS estimates, which differ from the outset. A key point for our analysis is that although both data sets report a persistent gender gap in employment, NIDS-CRAM finds that, during the hard lockdown (Level 5), more women compared to men lost their jobs. As a result, NIDS-CRAM finds that the gender gap in employment is wider in March 2021 compared to February 2020, even though NIDS-CRAM reports stronger employment recovery than the QLFS. By contrast, the QLFS reports an almost-constant gender gap in employment, so that there was no discernible change in the employment gender gap between Quarter 1 2020 and Quarter 1 2021.

These conflicting results have different implications for policy depending on which data set one chooses to believe. The QLFS results suggest that the COVID-19 lockdowns and recession have not exacerbated gender inequality in the labour market (at least, in terms of employment probability); whilst NIDS-CRAM, suggests it has. It is not obvious at the outset which data set is more correct. Each data set has different strengths and weaknesses in terms of sampling, calibration of survey weights, and questionnaire design. A close inspection of the survey method and various aspects of data quality is therefore required.

4. COVID-19 and the effects on labour market outcomes

Since the first case of COVID-19 was reported in South Africa in March 2020, the government has continued to put in place regulations to curb the spread of the virus. Some of the measures introduced included a complete shutdown of the economy popularly referred to as the 'hard' lockdown which was implemented on the 27 March 2020. During the hard lockdown, only essential services could be provided and only workers who could work from home continued working. According to the Government Gazette notice No. 43168, some of the businesses that provided essential services included food manufacturing, food retailers, security providers, and health services providers. Since then, the government has been slowly relaxing the regulations but even at the time of drafting this paper, October 2021, some restrictions are still place.

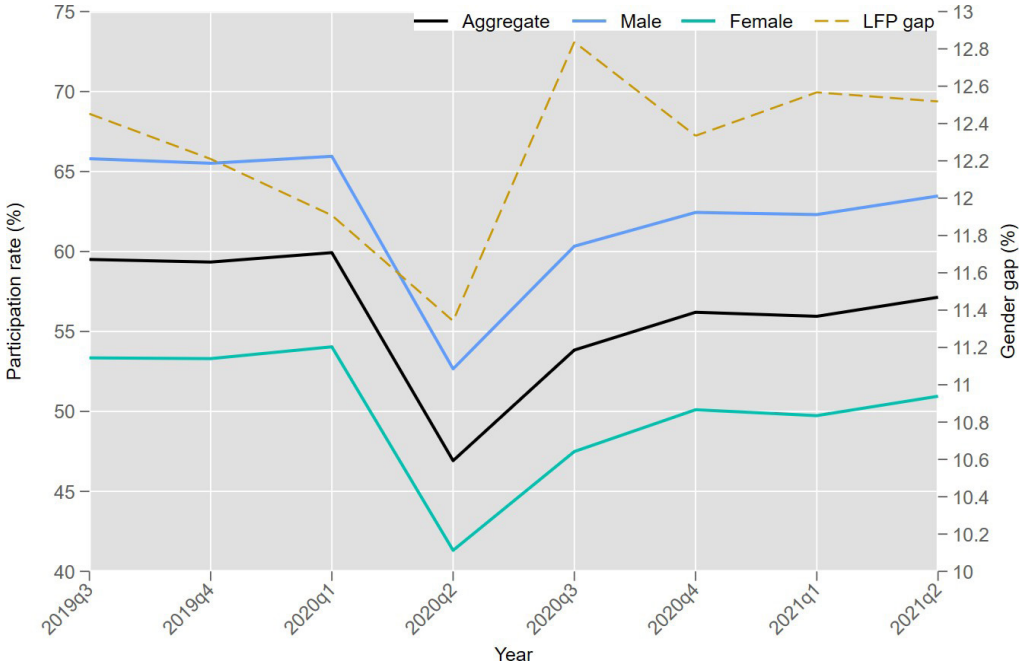
In this section, we present recent trends in labour market participation in South Africa using the most recent nationally representative labour market data. One concern is that the coronavirus pandemic (COVID-19) will undermine the progress women have made in the labour market. It is important to remember that, in the period preceding the COVID-19 pandemic, gender gaps in labour market participation and employment were substantial and persistent (Casale et al., 2021). This means that, even in situations where both men and women were impacted equally by the COVID-19 pandemic, women will be worse-off given the fact that they are starting from a lower base.

Recent trends of main labour market characteristics

A descriptive analysis of the QLFS data shows that, while the pattern of the decline in labour force participation is similar for men and women, the already wide gender gap in labour force participation seems to be expanding as the pandemic progresses (see Figure 2). Although only slightly, Figure 2 shows that as feared by many economists, the gender gap in participation seems to have expanded between the first quarter of 2020 and the second quarter of 2021. This is because more women than men who were labour force participants prior to the pandemic are still out of the labour force as shown in Table 1. Table 1 provides a more detailed descriptive analysis of recent labour market trends using the Quarterly Labour Force Surveys. The table also shows that about the same number of men and women dropped out of the labour market in the second quarter of 2020, but by the third quarter of 2020 more men had recovered their

employment as compared to women. By the first quarter of 2021, over 517,000 women were still out of the labour force compared to about 396,000 men. The implication here is that, with more women becoming economically inactive compared to men, the labour force participation gap is bound to expand as seen in Figure 2.

Figure 2: Labour force participation by gender in the South African labour market



Notes: Sample contains working age individuals (age 15-65 years); proportions adjusted using sampling weights.
Source: Authors' own calculations using QLFS 2019–2021.

Table 1 shows that the number of females who reported not being economically active (NEA) increased by 2.5 million in the second quarter of 2020 from 9.1 million to 11.68 million. Interestingly, male NEA also increased by 2.5 million, but the numbers of male NEA have been declining at a faster rate, and by the first quarter of 2021, there were just under 900,000 more female NEAs compared to the last quarter of 2019, while there were about 750,000 more male NEAs.

Table 1: Key labour market outcomes, 2019-2021

Year	2019Q4		2020Q1		2020Q2		2020Q3		2020Q4		2021Q1	
Variable	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Strict LFP (000s)	10 533	12 651	10 716	12 779	8 226	10 243	9 486	11 778	10 053	12 232	10 016	12 255
Broad LFP (000s)	12 040	14 002	12 283	14 130	9 505	11 438	10 933	13 027	11 657	13 559	11 710	13 693
Strict LFP (%)	53%	66%	54%	66%	41%	53%	47%	60%	50%	62%	50%	62%
Broad LFP (%)	61%	73%	62%	73%	48%	59%	55%	67%	58%	69%	58%	70%
Employment (000s)	7 235	9 219	7 252	9 172	6 188	7 985	6 430	8 298	6 608	8 443	6 613	8 414
Employment rate (%)	37%	48%	37%	47%	31%	41%	32%	43%	33%	43%	33%	43%
Full-time	6 034	8 412	6 045	8 401	5 117	7 097	5 270	7 439	5 445	7 653	5 492	7 705
Part-time	1 201	807	1 206	772	1 071	875	1 161	859	1 163	790	1 121	709
Formal (000s)	5 170	6 942	5 102	6 946	4 591	6 181	4 677	6 312	4 787	6 393	4 829	6 411
Informal (000s)	1 089	1 961	1 162	1 893	846	1 548	883	1 731	929	1 741	937	1 716
Private households(000s)	976	315	988	333	751	257	870	255	892	310	847	287
Not economically active (000s)	9 228	6 659	9 113	6 598	11 684	9 209	10 488	7 745	10 010	7 358	10 121	7 414
Not economically active (%)	47%	34%	46%	34%	59%	47%	53%	40%	50%	38%	50%	38%
Hours worked (Incl zero hrs)	40,0	44,6	39,6	44,3	31,6	37,5	36,9	42,0	38,9	43,9	37,7	43,5
Hours worked (Excl zero hrs)	40,6	44,9	40,4	44,8	39,5	43,2	39,6	43,5	40,0	44,5	39,9	44,8
Occupations												
Legislators and managers(000s)	450	999	456	1 002	403	890	418	902	429	898	419	925
Professionals	514	458	511	439	563	511	496	524	473	480	486	504
Tech and Assoc.profess(000s)	743	660	730	630	655	564	705	619	748	610	817	588
Clerks	1 256	477	1 204	474	1 071	402	1 129	402	1 149	432	1 158	443
Service workers(000s)	1 288	1 452	1 326	1 429	1 028	1 277	1 071	1 331	1 127	1 351	1 113	1 374
Skilled agriculture(000s)	23	56	18	53	14	54	16	45	22	64	11	51

continued next page

Table 1 Continued

Year	2019Q4		2020Q1		2020Q2		2020Q3		2020Q4		2021Q1	
Variable	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Occupations												
Crafts and trades(000s)	230	1 680	237	1 706	189	1 335	172	1 410	174	1 491	172	1 460
Operators(000s)	167	1 210	172	1 216	144	1 075	154	1 062	161	1 097	156	1 129
Elementary Occupations(000s)	1 603	2 167	1 640	2 173	1 396	1 796	1 432	1 958	1 443	1 954	1 450	1 872
Domestic workers(000s)	959	59	957	50	716	32	827	39	866	35	821	33
Industry												
Agriculture(000s)	303	584	288	578	271	528	230	578	249	562	228	565
Mining(000s)	71	359	63	373	63	310	77	342	64	319	68	328
Manufacturing(000s)	605	1 116	601	1 109	517	941	536	927	534	963	552	952
Utilities(000s)	36	84	36	79	35	78	31	59	32	67	36	79
Construction(000s)	145	1 209	144	1 203	138	931	113	972	131	1 039	120	961
Trade(000s)	1 483	1 775	1 553	1 774	1 367	1 586	1 347	1 667	1 393	1 673	1 342	1 643
Transport(000s)	195	818	178	819	174	713	147	731	182	762	150	752
Finance(000s)	1 070	1 504	1 061	1 463	897	1 341	1 057	1 386	946	1 368	1 076	1 455
Services(000s)	2 344	1 454	2 328	1 440	1 964	1 286	2 013	1 377	2 179	1 378	2 182	1 391

Notes: Sample contains all working age individuals (age 15-65 years). Totals and proportions are adjusted using sampling weights.
Source: Authors' own calculation using QLFS 2019–2021 data.

Contrary to early research using NIDS-CRAM (Casale & Posel, 2020) where women were reported to have lost two-thirds of all the jobs lost, results from the QLFS displayed in Figure 1 suggest an almost equal job loss between men and women (female employment dropped by about 1.1 million jobs while male employment dropped by about 1.2 million jobs). Female employment dropped by about 5% between 2020: Q1 and 2020: Q2 compared to male employment which dropped by about 6% (see Table 1). Important to note is that, while men lost more jobs in total, women lost a higher share of employment (14.8% compared to 13.4% for men), and given that women are already starting from a lower base, this has implications for the gender employment gap going forward. Important to note also is that globally, research shows that at the beginning of the pandemic, women lost more jobs because of the occupations women are concentrated in but as the pandemic progressed and due to the long period it has persisted, industries where men are concentrated have also been affected due to the breakdown of global value chains and thus some reports show that, in total, men have lost more jobs, but women have lost a higher share of jobs (ILO, 2021).

In Table 2, we disaggregate total employment into formal, informal, and private households (domestic work). We show that, while more men lost jobs in the formal sector, when one combines domestic work and the informal sector, there is an almost equal split on the number of jobs lost by men and women. The importance of the domestic work sector in the South African labour market is well documented (Budlender, 2010; Lund & Budlender, 2009). Table 2 shows that between 13% and 14% of all women are employed in this sector which is mostly considered informal because most people employed in this sector have no formal written contracts. Employees in this sector work in the private homes of their employers which makes these employees vulnerable to low pay and precarious job conditions. Additionally, women make up 75% of all employees in this sector; therefore, even if the table shows that there are fewer women in the informal sector compared to men, if we consider the domestic workers, the share of women in the informal sector will actually be higher. Part-time employment is a salient feature of female employment. Literature shows that women are more likely to select into part-time employment given their higher probabilities of being the main care givers (Posel & Muller, 2008). Table 2 shows that about 17% of all employed women were in part-time employment (work less than 35 hours a week) in the first quarter of 2020 while only 8% of men were in part-time employment. For those employed in part-time work, majority are female with the female share of part-time employment estimated at about 59% in the same quarter. This share declined to 51% in the second quarter of 2020 because of more men joining part-time employment. Looking at absolute employment numbers, our calculations reveal that female part-time employment declined by about 130 ,000 jobs, while male part-time employment increased by over 100,000 jobs between quarter 2 and quarter 3 of 2020. This is an interesting result and might be pointing to the fact that, with ECD centres closed, female part-time workers were not able to work at all while men worked part-time due to social distancing regulations that prompted a reduction in working hours. By the first quarter of 2021, however, male part-time employment had declined to the pre COVID-19 level but female part-time employment had not recovered. This result is consistent with the finding that female employment has been slower to recover, and many more women are still out of the labour force.

Table 2: Employment type, occupation, and industry distribution by gender: QLFS 2020-2021

Survey Year	2020q1			2020q2			2021q1			2020q1-2021q1		
Variable	**Female**	**Male**	**Share F**	**Female**	**Male**	**Share F**	**Female**	**Male**	**Share F**	**Female**	**Male**	**share F**
Full-time	83%	92%	42%	83%	89%	40%	83%	92%	41%	0%	0%	-1%
Part-time	17%	8%	59%	17%	11%	51%	17%	8%	59%	0%	0%	0%
Formal	70%	76%	42%	74%	77%	43%	73%	76%	43%	3%	0%	1%
Informal	16%	21%	38%	14%	19%	35%	14%	20%	35%	-2%	0%	-3%
Domestic Work (Priv hh)	14%	4%	75%	12%	3%	75%	13%	3%	75%	-1%	0%	0%
Occupations												
Legislators and managers	6%	11%	31%	7%	11%	31%	6%	11%	31%	0%	0%	0%
Professionals	7%	5%	54%	9%	6%	52%	7%	6%	49%	0%	1%	-5%
Tech and assoc professionals	10%	7%	54%	11%	7%	54%	12%	7%	58%	2%	0%	4%
Clerks	17%	5%	72%	17%	5%	73%	18%	5%	72%	1%	0%	1%
Service workers	18%	16%	48%	17%	16%	45%	17%	16%	45%	-1%	1%	-3%
Skilled agriculture	0%	1%	26%	0%	1%	20%	0%	1%	18%	0%	0%	-7%
Craft and related trades	3%	19%	12%	3%	17%	12%	3%	17%	11%	-1%	-1%	-2%
Plant and machine operators	2%	13%	12%	2%	14%	12%	2%	13%	12%	0%	0%	0%
Elementary Occupation	23%	24%	43%	23%	23%	44%	22%	22%	44%	-1%	-1%	1%
Domestic workers	13%	1%	95%	12%	0%	96%	12%	0%	96%	-1%	0%	1%

continued next page

Table 2 Continued

Survey Year	2020q1			2020q2			2021q1			2020q1-2021q1		
Variable	**Female**	**Male**	**Share F**	**Female**	**Male**	**Share F**	**Female**	**Male**	**Share F**	**Female**	**Male**	**share F**
Industry												
Agriculture	4%	6%	33%	4%	7%	34%	3%	7%	29%	-1%	0%	-5%
Mining	1%	4%	15%	1%	4%	17%	1%	4%	17%	0%	0%	3%
Manufacturing	8%	12%	35%	8%	12%	35%	8%	11%	37%	0%	-1%	2%
Utilities	0%	1%	31%	1%	1%	31%	1%	1%	31%	0%	0%	0%
Construction	2%	13%	11%	2%	12%	13%	2%	11%	11%	0%	-2%	0%
Trade	21%	19%	47%	22%	20%	46%	20%	20%	45%	-1%	0%	-2%
Transport	2%	9%	18%	3%	9%	20%	2%	9%	17%	0%	0%	-1%
Finance	15%	16%	42%	15%	17%	40%	16%	17%	43%	2%	1%	0%
Services	32%	16%	62%	32%	16%	60%	33%	17%	61%	1%	1%	-1%

Notes: Sample contains all employed individuals (age 15-65 years). Proportions are adjusted using sampling weights.
Source: Authors' own calculation using QLFS 2020–2021 data.

Important for this paper is how the hours worked changed during the pandemic. To understand how childcare responsibilities affected labour market hours, we must first understand how labour market hours changed. Table 1 shows that, on average, women in the South African labour market work on average four hours less than men. This average hours gap has been pushed further up by the recent COVID-19 pandemic. Important to note is that there was an increase in the share of employed individuals reporting zero[3] hours in 2020 due to the lockdowns, and we find that there was a larger share of women in the zero-hour category. In the last quarter of 2019, the proportion of employed individuals reporting zero hours of work was about 1% (authors' own calculation from QLFS). This increased to about 20% for women and 13% for men in the second quarter of 2020. This suggests that more women compared to men could not work during the pandemic. Inclusion of zero hours makes a significant difference when looking at the trend in average hours worked over time. When zero hours are included, female labour market hours dropped by about two hours between 2019 and 2021, while average male labour market hours dropped by about an hour. Between quarter one and quarter two of 2020, female labour market hours dropped significantly by about eight hours, while male labour market hours dropped by about seven hours (see Table 1). One of the reasons for the inability to work is increased childcare. Since the QLFS unfortunately does not collect information on childcare, we shall rely on data from NIDS-CRAM to investigate this further.

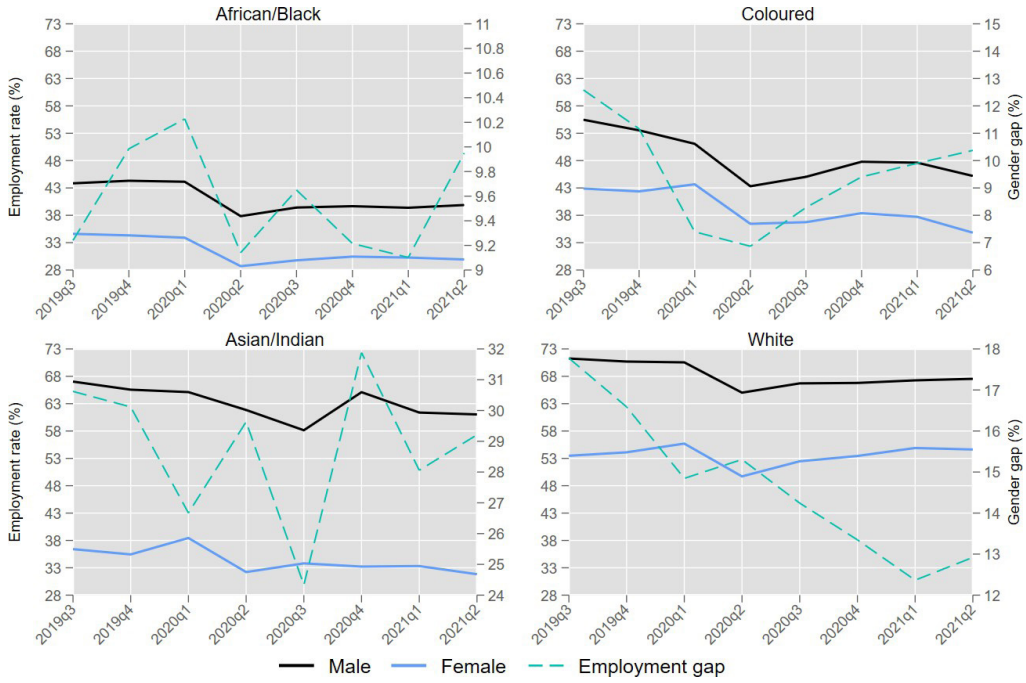
Intersection of gender and race in the South African labour market

As we alluded to in the introduction, gender differences in the South African labour market are not homogeneous. In this section, we present labour market trends by race and gender. Figure 3 presents trends in labour force participation by gender and race. The figure shows the persistent gender and racial differences in labour force participation and the drop in labour force participation because of the COVID-19 pandemic. Importantly, the figure confirms what has already been documented by early research, that the effect of COVID-19 in the labour market is heterogeneous (Jain et al., 2020; Ranchhod & Daniels, 2020). The figure shows that, between the first quarter of 2020 and the second quarter, there was a drop in participation across all groups, but the severity of the drop and rate of recovery differs amongst the different groups. While the gender gap in participation is lowest between African/black men and women, the drop in participation was also largest within this group with an increasing trend in the gender labour force participation gap.

Figure 3 presents employment trends by gender and race. The figure shows that by the first quarter of 2021, the employment rate had not recovered to the pre-pandemic level for all groups except for white women. The employment trend for white women can be partly attributed to occupational segregation by race. As we discuss below, one of the channels through which the employment impact of COVID-19 manifested was

through the type of occupation one found him/her self in. Figure 4 shows that, while men and women are clustered in different occupations, there are racial differences in occupational sorting. White women are more likely to be in occupations that allowed them to work from home during the pandemic. Figure 4 shows that white women were the most likely to work from home possibly because they are well represented in professional and technical occupations which could be carried out from home.

Figure 3: Employment rate by race and gender in the South African labour market



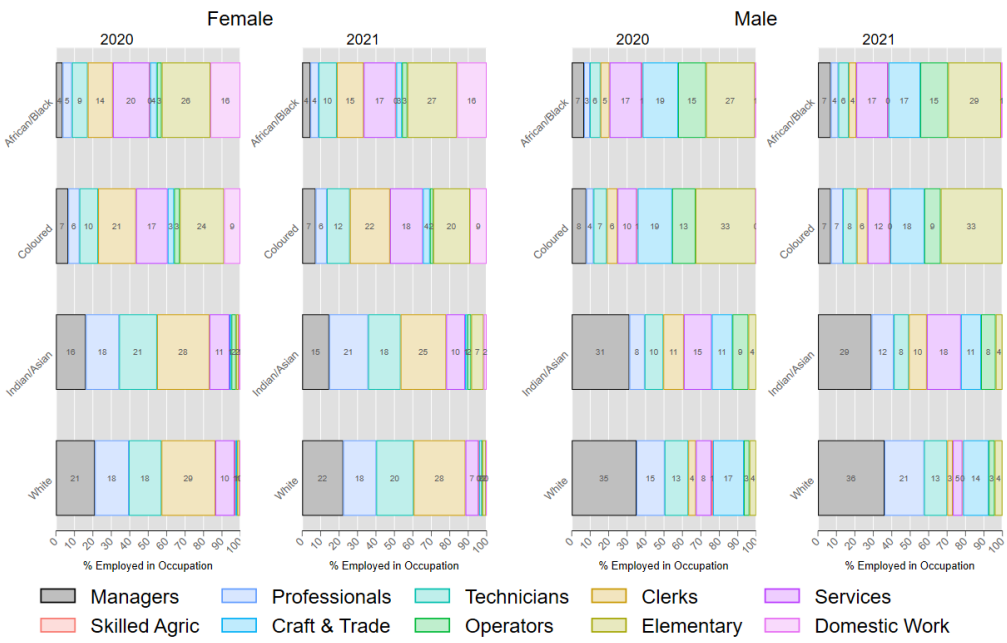
Notes: Sample contains working age individuals (age 15-65 years); proportions adjusted using sampling weights.
Source: Authors' own calculations using QLFS 2019–2021.

The share of women in management remains low at 31%, while the share of women in professional occupations was about 54% in quarter 2 of 2020 although, as shown in Table 2, this share declined to 49% by the first quarter of 2021. Table 3 also shows that the occupations where workers were least likely to work from home were domestic work, machine operators, services, and elementary occupations. Coincidentally, these are the occupations that experienced the most job loses (see Table 1), and these are the occupations where black and coloured men and women are overrepresented (see Figure 4). What is more worrying is that workers in low paying occupations were also the most likely to receive no pay. Table 3 shows that craft and trade workers, elementary workers and domestic workers were the most likely to have their wages cut. This makes these the most vulnerable workers.

Results also show that more women lost jobs in the services, clerking, and domestic work occupations while more men lost jobs in management, machine operations, and elementary occupations. What is striking from Figure 4 is that white men gained about six percentage points in the share employed in professionals occupations usually dominated by women. With the shift to remote working due to the national lockdowns, the increase in jobs in professional and technical occupations makes intuitive sense (see Table 1). It is puzzling, however, that more men than women secured professional jobs. It is possible that more professional women took a step back from working remotely due to the increased demands of household work and childcare responsibilities. If this is the case, there are implications for future trends in the gender wage gap.

Additionally, studies showed that having a post-secondary education was positively associated with the ability to work from home (Kerr & Thornton, 2020). Table 3 shows that occupations that could be done from home have the highest share of tertiary educated individuals. For example, the professional occupation is composed of about 85% tertiary educated individuals and about 54% of the individuals in technical and associate professions have a tertiary qualification. In South Africa, where women are more likely than men to have post-secondary education, studies reported that women were more likely to have the ability to work from home compared to men (white women in particular) (Benhura & Magejo, 2021). This is also because women are overrepresented in professional and clerking occupations.

Figure 4: Occupational distribution by race and gender (2020 Q2)



Notes: Sample contains employed individuals (age 15-65 years). Proportions adjusted using sampling weights.
Source: Authors' own calculations using QLFS 2020 and 2021.

Table 3: Occupation, working from home and pay status (QLFS 2020: Q2)

Occupation	WFH	Share Female	Tertiary educ.	No pay	Reduced Pay	Full pay
1. Managers	41.4%	31.2%	53.1%	15.7%	22.3%	62.1%
2. Professionals	46.5%	52.4%	84.7%	4.5%	9.2%	86.3%
3. Technicians	28.1%	53.7%	57.6%	12.3%	15.6%	72.0%
4. Clerks	22.7%	72.7%	29.6%	7.3%	18.7%	74.0%
5. Services	7.3%	44.6%	14.9%	16.5%	14.6%	68.9%
6. Skilled Agric.	31.7%	20.5%	30.3%	13.7%	18.9%	67.5%
7. Craft & Trade	12.7%	12.4%	16.1%	28.7%	22.6%	48.7%
8. Operators	1.5%	11.8%	8.1%	16.9%	25.1%	58.0%
9. Elementary	9.5%	43.7%	4.3%	24.4%	15.2%	60.4%
10. Domestic Work	0.6%	95.7%	2.0%	27.2%	15.6%	57.2%

Notes: Sample contains employed individuals (age 15-65 years). Proportions are adjusted using sampling weights.
Source: Authors' own calculation using QLFS 2020 Q2 data.

Important to remember, however, is that given racial disparities in terms of education attainment and racial occupational segregation, white women were in a better position to work from home compared to black women. This result is confirmed by the study by Benhura & Magejo (2021), using NIDS-CRAM, who report that non-white individuals are less likely to work from home.

5. Childcare hours and labour market work during lockdown

The interest of this paper is how the demands of childcare affected women's labour market outcomes. We take advantage of the rich data in NIDS-CRAM to investigate hours spent on childcare and labour market work. We present evidence on how the increased childcare because of COVID-19 affected average hours spent on childcare and labour market work. We also show how labour market trajectories of employed men and women have been affected by this shock.

Who responds to a shock in the demand for childcare provision?

Researchers have already used NIDS-CRAM to describe how childcare evolved with the onset of lockdown. Casale and Shepherd (2021) reveal that women have disproportionately shouldered more of the increased burden of childcare over lockdown compared to men, and as a result, their return to the labour market has been slower. Our own description of the Quarterly Labour Force Survey showed that, in 2020, only 40% of employed women lived in households without children, while 53% of men lived in households without children (see Table A1 in Appendix A). Casale & Shepherd (2021) report that, about 40% of people living with children had at least one of these children attending an ECD centre before the first lockdown. NIDS-CRAM asked questions about who was caring for these children from waves 2-5 (October L1-March Adj. L1), and two-thirds of the same women said they were now looking after these children themselves. By contrast, the corresponding share for men varied from 14% to 25% across waves 2-5.

Table 4 contrasts the likelihood of living with dependent children (children below 18 years of age) between black African women and white women. Results show that, in February 2020 before the first lockdown, over 83% of black African women reported living with a child below 18 years old compared to only 36% in the case of white women. The pattern is repeated when looking at children under the age 7, with 63% of black African women reporting living with small children and only 14% of white women reporting the same. This difference in dependency ratios stems from the South African family structure where due to poverty and inequality, African families are more likely to be multi-generational with the grandmother, daughter, and grandchildren living in the same household. On the other hand, older white women

are more likely to be living in single person households. The implication here is that, while most women have been affected by the childcare burden shock, the economic impact of this shock has been more severe on black African women.

Table 4: Dependency ratios: Black African women vs white women

	Child below 18			Child below 7		
	Black African	White	Diff.	Black African	White	Diff.
Feb L0	0.83	0.36	0.47	0.63	0.14	0.50
	(3678)	(3678)		(185)	(185)	
April L5	0.81	0.35	0.45	0.58	0.13	0.45
	(3566)	(3489)		(186)	(186)	
June L3	0.82	0.31	0.51	0.59	0.11	0.48
	(2911)	(2796)		(151)	(151)	
Oct L1	0.82	0.33	0.48	0.60	0.12	0.48
	(3268)	(3268)		(150)	(150)	
Jan Adj. L3	0.81	0.30	0.51	0.58	0.10	0.47
	(3025)	(3025)		(146)	(146)	
Mar Adj. L1	0.81	0.27	0.54	0.58	0.09	0.49
	(3142)	(3142)		(147)	(147)	

Notes: Sample consists of adults who were employed in February 2020 and who had non-missing labour market status and hours of childcare work data for all waves of NIDS-CRAM.
Source: Authors' own calculation using NIDS-CRAM.

Time allocation: Labour market hours vs childcare hours over lockdown

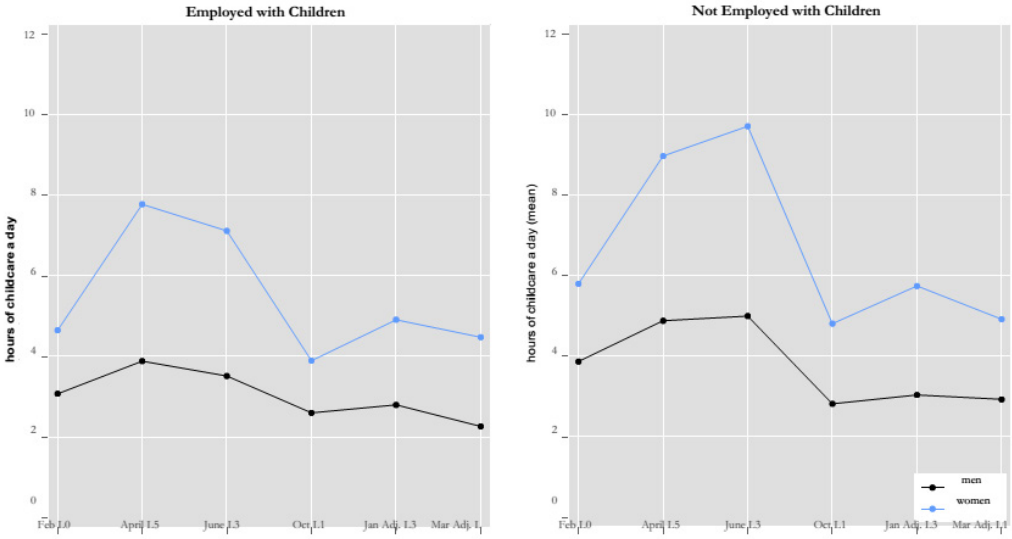
The NIDS-CRAM surveys asked respondents how many hours, on average, they spent doing labour market work each day, as well as how many hours they spent caring for children at different points in the lockdown. Specifically on childcare, in Wave 1 (April 2020), respondents were asked whether in April, they personally spent more time than usual looking after children, and how many more hours they spent looking after children. In Wave 2, respondents were asked to give (1) the number of hours a day they spent looking after children during the level 5 lockdown period (April 2020); and (2) the number of hours a day they spent looking after children during the level 3 lockdown period (June 2020). Waves 3-5 then asked respondents how many hours a day they spent looking after children in October 2020 (level 1), January 2021 (adjusted level 3), and March 2021 (level 1), respectively (more details on the hours variable in Appendix B).

Figure 5 presents the evolution of hours spent on childcare by labour market status. Consistent with Casale & Shepherd (2021)'s analysis of the same data, Figure 5 shows that the intensity of childcare increased during schools and ECD centres closures and fell when these institutions opened again. Women consistently carried out more childcare compared to men, and the fluctuation of the intensity of childcare was more sensitive to lockdowns

for women compared to men. This placed hard constraints on their ability to participate in the labour market. Given the household budget constraint of time allocation between the labour market and the household, a useful way to see how the increased childcare burden affected both men and women is to compare labour market hours and childcare hours side by side.[4] Comparing actual hours worked in both the labour market and the household sphere is important for a few reasons. We can more accurately quantify differences by using a continuous measure of intensity instead of comparing states (e.g., employed vs. not employed, living with children vs. not living with children). Further, as discussed in the introduction, women still shoulder more childcare and household duties compared to men, which affects the amount of time that can be dedicated to paid labour market work leading to them being overrepresented in part- time work. Thus, with lockdowns forcing both men and women to work from home, this exercise can help us determine whether there were any behavioural changes in terms of men taking on more childcare. This is a question that can be answered with data about hours spent on each activity.

Since the interest of this study is how the childcare burden influenced women's work, we work with a sample of people who were employed in February 2020, and document how their time spent in labour market and childcare fluctuated over the period until March 2021. The sample is not the same group over time because only 538 people, out of a possible total of 8,157, had non-missing hours of work and non-missing care data for all six periods. Instead, each wave reports the mean of a cross-sectional sample for anyone who reported being employed in February 2020, weighted using the cross-sectional weights scaled to the NIDS 2017 adult population. There were 2,658 people who said they had some kind of job in February 2020, and this reduces to the 2,083 in row 1 of Table 5 when we consider those who also had non-missing hours of work and childcare.

Figure 5: Hours of childcare by labour market status for adults living with children



Notes: Sample contains adult individuals (age 18 and above) co-residing with children.
Source: Authors' own calculations using NIDS-CRAM, adjusted using cross-sectional sampling weights.

Table 5 reports mean hours of work in each category being labour market (LM) and childcare (CC) for men (M) and women (F). Sample size is reported in the last three columns. Table 6 is similar to Table 5, but comparing black African women and white women. The averages reported in Table 5 are illustrated in plot-form in Figure 6 where labour market hours and childcare hours are stacked to show gender differences when both activities are considered together. Table 5 shows how LM hours contracted between February and April 2020, while CC hours expanded. Recall that hours lost here includes people who lost their jobs and LM hours went down to zero. Men worked more hours than women on average in February 2020 and lost fewer hours over lockdown. Men lost about 2.8 hours between February and April, whilst women lost more at 3.5 hours. Men also bounced back relatively more quickly. By October, men's mean hours in the LM were just 1.1 hours away from pre-lockdown hours, whilst women were still 1.7 hours away. Average hours changed substantially between February L0 and the hard lockdown in April, then increased slightly during the relaxed lockdown level, L3 in June, and then settled down more after October when the economy was at the lightest lockdown level, L1. Of a sample of people who had jobs in February 2020, both men and women in this group were working fewer hours by March 2021. As we show later, this is the outcome of some people in this group losing their jobs over lockdown, and never regaining employment again in this period.

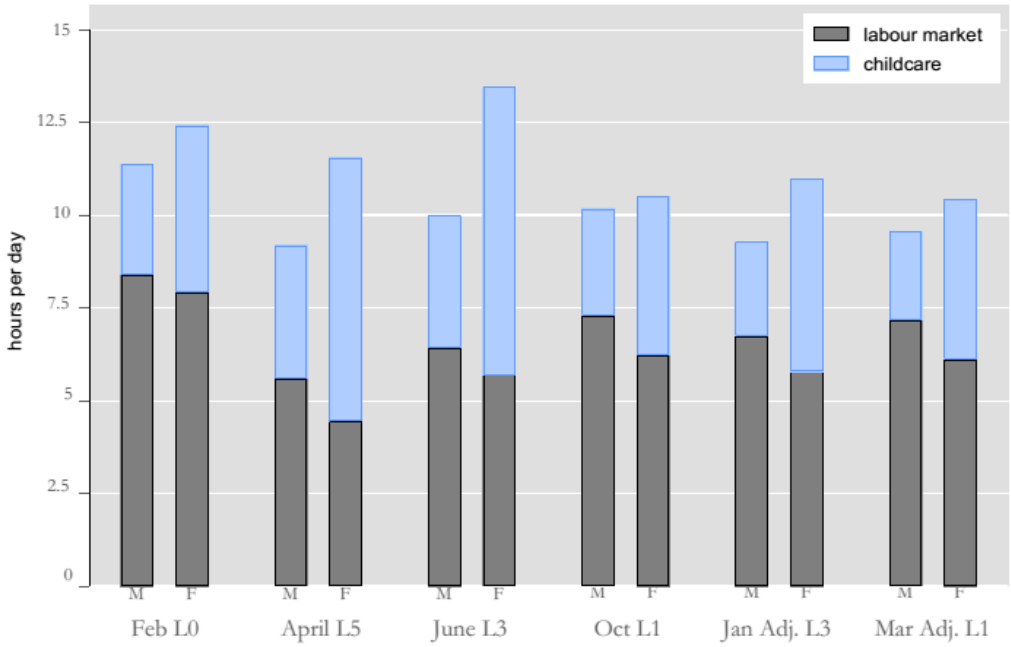
The opposite story plays out for CC hours. Women start off working more CC hours than men; and CC hours expand over lockdown and gradually decline until March 2021. The average CC hours for a sample of women who had some kind of job in February 2020 increased by 2.6 hours between February and April 2020. Men only increased their hours of CC by about half an hour, but recall that we know from Table A1 that men are also less likely to live with children. CC hours drop substantially between June L3 and October L1, when schools and some ECD centres opened again, and South Africans could travel more freely to return to places of work. Women's hours of CC are more sensitive in general to the lockdown levels. For example, women's CC hours picked up again in January 2021, during the relatively strict adjusted L3 lockdown, whilst men's hours in January 2021 actually decreased compared to October 2020.

Table 5: Average hours per day spent in the labour market (LM) and doing childcare (CC)

	LM			CC			N		
	M	**F**	**Gap**	**M**	**F**	**Gap**	**M**	**F**	**Total**
Hours									
Feb L0	8.4	7.9	**-0.5**	3.0	4.5	**1.5**	918	1165	**2083**
April L5	5.6	4.4	**-1.1**	3.6	7.1	**3.5**	712	835	**1547**
June L3	6.4	5.7	**-0.7**	3.6	7.8	**4.2**	711	821	**1532**
Oct L1	7.3	6.2	**-1.1**	2.9	4.3	**1.4**	760	896	**1656**
Jan Adj. L3	6.7	5.8	**-1.0**	2.5	5.2	**2.7**	716	820	**1536**
Mar Adj. L1	7.2	6.1	**-1.1**	2.4	4.3	**1.9**	797	934	**1731**

Notes: LM = labour market. CC = childcare. M = men. F = women. Feb L0 – Oct L1 are 2020. Jan Adj. L3 – Mar Adj. L1 are 2021.
Source: Authors' own calculations using NIDS-CRAM, adjusted using cross-sectional weights scaled to the 2017 adult population.

Figure 6: Mean hours per day spent on labour market and childcare work



Source: Authors' own calculation from NIDS-CRAM.

Table 5 also reports the gender gap in hours which are in predictable directions. Men work more LM hours and women more CC hours. The gap in LM hours hovered around the one-hour mark; whilst the gap in CC hours varied much more and was widest in the hard lockdown months of April and June when ECD centres and schools were closed. In Figure 6 we plot the average labour market hours and childcare hours stacked together for both men and women; this is the total height of the bars. Although women work about an hour less in the LM, they more than make up for it by working more than an hour more than men doing childcare. This is what is commonly termed as the "double shift" pulled by women. Both at the beginning and end of the period, women were working about an hour more per day, but during the strict lockdown women were working up to an average of 3.5 hours more per day. This happened during June L3, when schools and ECD centres were still closed, but the economy had slowly started to open, meaning South Africans were also trying to return to work as much as possible to earn an income. The result was women's average workday stood at 14 hours in June 2020. This difference is primarily owed to women absorbing more childcare duties - even if they were working in February 2020. The equalising of the gap in total hours in October 2020 is the result of men upping their hours of work, whilst women received some childcare relief when ECD centres and schools opened in October L1. At the end of the day, women end up working more hours in total and childcare is a huge contributor as to why labour market data consistently shows women working less hours. Oosthuizen (2018) also found that women produced more than men over the lifetime when unpaid work in the household was considered along with paid work.

Table 6: Female average hours per day spent on labour market vs childcare

	LM			CC			Number of Observations		
	Black African	**White**	**Gap**	**Black African**	**White**	**Gap**	**Black African**	**White**	**Total**
Hours									
Feb L0	8,0	7,5	**0,5**	5,5	1,8	**3,6**	903	88	**991**
April L5	4,0	5,0	**-1,0**	8,8	3,6	**5,2**	628	74	**702**
June L3	5,4	6,3	**-0,8**	9,6	3,6	**5,9**	623	67	**690**
Oct L1	6,1	6,9	**-0,8**	4,6	2,5	**2,1**	729	46	**775**
Jan Adj. L3	5,6	6,0	**-0,4**	5,8	2,7	**3,1**	665	48	**713**
Mar Adj. L1	5,9	6,2	**-0,3**	5,0	1,9	**3,1**	752	55	**807**

Notes: LM = labour market. CC = childcare. Feb L0 - Oct L1 are 2020. Jan Adj. L3 – Mar Adj. L1 are 2021.
Source: Authors' own calculations using NIDS-CRAM, adjusted using cross-sectional weights scaled to the 2017 adult population.

Comparing black African women and white women, Table 6 shows that black women record less hours in the labour market and more hours doing childcare. This is consistent with what we showed above that black women are more likely to be living with younger children. Also, consistent with racial inequality in South Africa, white women are in a better position to afford childcare compared to black women. The conclusion from these figures is that women bore the brunt of the demands of childcare during lockdown, when institutions that could care for children, like schools and ECD centres, were closed. Women who were employed as of February 2020 already spent more time on CC than in the LM compared to men. But overall, COVID-19 lockdowns meant much more childcare work for women who had been working in February 2020, and sometimes more work in general, taking LM and CC work together. The upshot of women doing more childcare is that they appear to have been slower to return to normal hours of work and lagged further behind their pre-lockdown levels by March 2021 than men did.

6. Childcare and labour market trajectories

A unique feature of the NIDS-CRAM data is that it is a panel and is released with a balanced panel weight. This allows us to track the trajectories of individuals across time using sequence analysis. Sequence (SQ) analysis is a method of analysing longitudinal data focusing on how the ordering of elements (e.g., work states, marital states) over time can inform us about life trajectories in general (MacIndoe et al., 2004). Sequence analysis is descriptive and exploratory in nature aiming to mark out emergent patterns in the data. This makes it different to more formal modelling approaches to longitudinal data (e.g., hazard rate modelling, transition rate modelling) or those that aim for causal identification (e.g., difference-in- difference, regression discontinuity). Sequence analysis works by identifying different states or events (e.g., marital status, job loss) and then describing the sequence in which these states changed, or events occurred. The character of the sequence itself is taken as the object of analysis and, for example, researchers are able to draw out which sequences are more or less common and how sequences vary by key demographics (MacIndoe et al., 2004).

In this section, we are interested in how work in the labour market and childcare influenced trajectories by investigating how respondents moved in and out of different states of combinations of labour market and childcare work. Of the full pool of 8,157 respondents, 2,658 were employed in February 2020. This number reduces to 1,211 in the balanced panel. This reduces even further when we limit our sample to those who were employed in February 2020 and require non-missing hours of labour market and childcare work data. To reduce the data requirements, we limit the analysis of labour market work to labour market status, instead of hours in the labour market. This leaves us with 868 people who were employed in February 2020 and for whom we have non-missing labour market status and hours of childcare for every period in our analysis. High data requirements mean sequence analysis of social science data is often carried out on small samples. The ability of the data to represent the population in general is also challenged by the inability to use survey weights when doing sequence analysis.

Table D1 (in the appendix) describes how what we term our SQ sample of 868 people compares to the full NIDS-CRAM cross-sectional sample, balanced panel, and survey-weighted balanced panel on key demographics. The SQ sample compares very favourably to the unweighted cross-sectional and balanced panel. The most serious

deviation of the raw SQ sample versus the weighted balanced sample is that women occur much more frequently in the SQ sample. This is not a problem for our analysis because all our analysis is performed separately by gender. Other than gender ratio, employed people are under represented by about four percentage points, and people co-residing with children are overrepresented by about seven percentage points in the SQ sample versus the weighted balanced panel. In other words, the SQ sample does a relatively good job of approximating the balanced and cross-sectional samples despite its small size. That our SQ sample also compares relatively well to the weighted sample suggests there should only be limited bias from our inability to weight our analysis. The analysis that follows then trades off some statistical power in terms of sample size with the very rich information that we have for this small sample and the unique insights we can extract from such data.

To analyse trajectories, we create the following categories, also known as elements in sequence analysis:

1. Employed, not living with children.

2. Employed, living with children, doing zero hours of childcare.

3. Employed, living with children, doing <5 hours of childcare a day.

4. Employed, living with children, doing >5 hours of childcare a day.

5. Not employed, not living with children.

6. Not employed, living with children, doing zero hours of childcare.

7. Not employed, living with children, doing <5 hours of childcare a day.

8. Not employed, living with children, doing >5 hours of childcare a day.

Table 7 provides a first description of the trajectories within this sample. It describes how many sequences (i.e., respondents) are observed, being 483 women and 398 men. There are eight elements, being the eight mutually exclusive categories we have created of combinations of labour market status and intensity of childcare. There are five waves plus the baseline of February 2020, adding up to a maximum sequence length of 6. From this set-up, there are 262,144 producible sequences, being eight elements to the power of six time periods. But the bottom row reports that there are only 292 different trajectories followed by the 483 women: and 249 different trajectories for the 398 men. Dividing the number of observed sequences by the sample size yields the percentage in the bottom row, which is a measure of how diverse the trajectories are in that sample. If every person followed a unique trajectory, this percentage would be 100%; and it would be 0% if everyone followed

the same trajectory. Higher percentages indicate more variation, and we see there was only slightly more diversity in the trajectories that men followed over this period, than women. The table also reports the breakdown of the variation in sequences, or trajectories: 228 women followed a unique trajectory, 32 trajectories are shared by two women; and in maximum case, 37 women share the same trajectory.

The advantage of analysing sequences across several periods, rather than transitions over two time periods is that the information about preceding and following time periods is not lost. Sequences allow us to see whether a respondent spent a protracted spell out of employment or doing long hours of childcare, or whether this was a brief blip. The table reports the ten most common sequences. The sequences numbers refer to the combination categories of labour market status and hours of childcare. The table reports, for example, that 37 women (7.66% of the female sample) followed the sequence of category 1 throughout, meaning they were employed and not living with children. Note that some sequences are tied in frequency, so the table reports 11 sequences for men. Figure 7 illustrates the top five most common sequences. More common trajectories are plotted with thicker lines than less common ones. Trajectories with the same starting point are offset slightly to make them easier to follow visually over time.

The red horizontal line on the figure marks the change from employed (E) status (categories 1-4) to not employed (NE) status (categories 5-8). Something to note is that the figure does not report as much switching from E to NE status in April L5 than might be expected. This is because of the complexity added by considering four different states of childcare. Much more switching of labour market status is recorded if the sequences were reduced to only being E and NE. Table E1 (in the appendix) shows this to be the case. As we showed in the previous section, hours of childcare were more sensitive to the lockdown than hours of work. Therefore, it is not surprising that the most common trajectories here reflect changes in childcare more than changes in labour market status.

The most common trajectory for both men and women (row A) was to maintain employment whilst not living with children, but this applied to about double the share of men than women. As much as 17% of the male sample followed this trajectory; whilst only about 8% of the female sample did the same. Women were more evenly spread over their top three most common trajectories; whereas, men were highly concentrated in their most common trajectory, and more thinly spread over the remaining sequences. This speaks to heterogeneity amongst the female experience of the lockdown. The second and third most common sequences for women (rows B and C), accounting for about 10% of the female sample, was to maintain employment and do long hours of childcare. For men, though, the second most common sequence was for employed men who were already doing some childcare to up this over lockdown. The third most common sequence for men was the case where someone who was not living with children, briefly spent a spell out of employment in April after the strictest lockdown was first imposed.

Table 7: Description of the sample of sequences

WOMEN			MEN				
# of observed sequences:			483	# of observed sequences:			398
overall # of obs. elements:			8	overall # of obs. elements:			8
max sequence length:			6	max sequence length:			6
# of producible sequences:			262144	# of producible sequences:			262144
Obs.	**Seq.**	**% of obs.**	**Cum.**	**Obs.**	**Seq.**	**% of obs.**	**Cum.**
1	228	47.2	47.2	1	205	51.5	51.5
2	32	6.6	53.8	2	27	6.8	58.3
3	19	3.9	57.8	3	6	1.5	59.8
4	4	0.8	58.6	4	4	1.0	60.8
5	4	0.8	59.4	5	2	0.5	61.3
7	1	0.2	59.6	6	1	0.3	61.6
8	1	0.2	59.8	7	2	0.5	62.1
16	1	0.2	60.0	8	1	0.3	62.3
30	1	0.2	60.2	67	1	0.3	62.6
37	1	0.2	60.5				
Total	**292**	**60.5**		**Total**	**249**	**62.6**	

Notes: Sample consists of adults who were employed in February 2020 and who had non-missing labour market status and hours of childcare work data for all waves of NIDS-CRAM.
Source: Authors' own calculation using NIDS-CRAM.

Outside of the top three, there are some other trajectories of interest. Row D presents the case where an employed woman who was already doing more than five hours of childcare a day switched into being not employed and remained there for the rest of the period. Row E for men presents the case where an employed man was living with children but doing no childcare, starts doing some childcare in October 2020. The remaining sequences are more likely to show childcare level fluctuating between the low category 3 (< 5 hours a day) and the high category 4 (> 5 hours day) for women; and sometimes switching into being not employed (but still doing childcare). Whereas for men, the remaining sequences are more likely to show levels of childcare dipping down to either no care whilst co-residing with children, or not co-residing with children.

So far, the sequence analysis suggests that women started out at and maintained higher levels of childcare than men, given employment commitments, and that their trajectories were more likely to reflect sensitivity to lockdown level. Women's most common trajectories also included the case where they switched into being not-employed and remained there throughout the period, whereas this permanent switch-out didn't crop up amongst men's most common trajectories. Another way to compare trajectories is by comparing whether the elements contained in the sequence are the same, regardless of the order and timing. For example, sequences C, F, G, H and J, in Table 8 for women would all be classified the same if we are only considering

which elements they include, which are 3's and 4's. In our case, this would be useful to compare how many sequences contain elements of being not-employed or the highest intensity category of childcare.

Table 8: Ten most common sequences for men and women

	WOMEN				MEN			
	Sequence	**Freq.**	**Percent**	**Cum.**	**Sequence**	**Freq.**	**Percent**	**Cum.**
A	111111	37	7.66	7.66	111111	67	16.83	16.83
B	444444	30	6.21	13.87	344444	8	2.01	18.84
C	344444	16	3.31	17.18	151111	7	1.76	20.6
D	488888	8	1.66	18.84	444444	7	1.76	22.36
E	151111	7	1.45	20.29	222333	6	1.51	23.87
F	344334	5	1.04	21.33	333333	5	1.26	25.13
G	344343	5	1.04	22.36	444333	5	1.26	26.38
H	444443	5	1.04	23.4	111411	4	1.01	27.39
I	448444	5	1.04	24.43	344244	4	1.01	28.39
J	333344	4	0.83	25.26	444244	4	1.01	29.4
K					444443	4	1.01	30.4

Notes: Sample consists of adults who were employed in February 2020 and who had non-missing labour market status and hours of childcare work data for all waves of NIDS-CRAM.
Sources: Authors' own calculation using NIDS-CRAM.

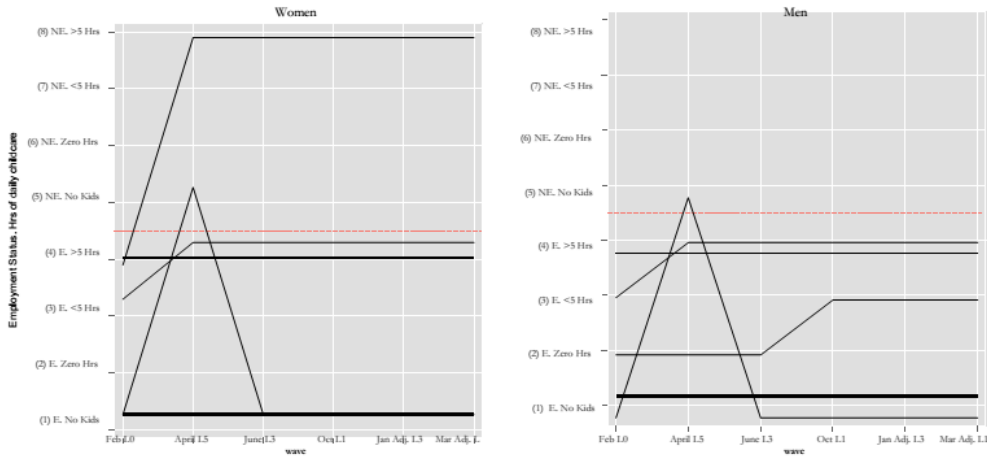
Table 9 reports the sequence variation based on elements only (and not ordering) for the first 70% of the sample of men and women. For example, it shows that 72 women followed trajectories that only included the elements 3 and 4. In contrast to the previous Table 8, we now see women are most likely to follow trajectories that include spells of childcare work, whereas men are most likely to follow a trajectory where they only live without children whilst maintaining employment (row A). Row B shows that the second most common case for women also includes spells of being not-employed; whereas for men this involves care work but staying employed. Row C is even more revealing. For both men and women, the third most common set of elements includes spells in and out of employment; but for women, this is paired with high levels of childcare work. This is not the case for men who are not living with children in Row C. Spells of a certain category can also be directly counted. We are most interested in whether our sample of adults who had employment in February 2020 spent any spell being not employed or working extremely long hours on childcare. We count the number of spells of being not-employed (elements 5-8) and our maximum category of childcare (elements 4 or 8) per person and report the breakdown in Table 10. Here, high care spells are defined as spells where someone worked more than five hours a day on average caring for children. There were 2,898 spells to observe for women (6 time periods multiplied by 483 women), and 2,388 for men. Men were less likely to experience ever being not employed; 61.9% of men vs. 50.7% of women were

employed throughout. Similar shares of men and women experienced one NE spell. This could possibly be the spike of job loss or of weaker job attachment over the hard lockdown in April 2020. However, women are more likely than men to have experienced 3-5 spells of being not employed, despite having employment in February 2020. Of a sample of women who were employed in February 2020, 5.38%—about double the share for men—did not regain employment.

Turning to spells of high care work, men are more than twice as likely as women to have never spent a spell working more than five hours a day caring for children on average. Only 19% of women had zero high-care spells, but the same share was 42% for men. Smaller proportions of women than men only did one or two spells of high care. But then, 19% of women — more than double the share of men — spent as many as five spells doing high-care work. About 15% of women—approximately five times the share of men—were engaged in high-care throughout the period. This suggests that women were significantly more likely to be engaged in prolonged periods of high levels of childcare.

In conclusion, one interpretation of the sequence and spell analysis is that, because women were already doing very high levels of childcare, they did not have much capacity to do more. Although women might have transitioned into being not employed for many reasons, one reason could be that they did not have the capacity to both work and care for children at such high intensity at the same time.

Figure 7: Five most common labour market-childcare trajectories for men and women over the COVID-19 lockdown



Notes: Sample restricted to respondents who were employed in February 2020 and who had non-missing labour market status and hours of childcare data for all five waves. Thicker lines indicate more common trajectories. Red horizontal line divides the plot into Not Employed (NE) status above and Employed (E) status below.
Source: Authors' own calculations using NIDS-CRAM.

Table 9: Most common combinations of elements for the first 70% of the sample

	WOMEN				MEN			
	Elements	**Freq.**	**Percent**	**Cum.**	**Elements**	**Freq.**	**Percent**	**Cum.**
A	**34**	72	14.91	14.91	**1**	67	16.83	16.83
B	**348**	52	10.77	25.67	**34**	44	11.06	27.89
C	**48**	44	9.11	34.78	**15**	34	8.54	36.43
D	**234**	42	8.7	43.48	**234**	34	8.54	44.97
E	**1**	37	7.66	51.14	**24**	21	5.28	50.25
F	**4**	30	6.21	57.35	**348**	16	4.02	54.27
G	**15**	26	5.38	62.73	**23**	15	3.77	58.04
H	**24**	14	2.9	65.63	**12**	10	2.51	60.55
I	**478**	11	2.28	67.91	**124**	9	2.26	62.81
J	**124**	9	1.86	69.77	**134**	9	2.26	65.08
K	**2348**	9	1.86	71.64	**1234**	8	2.01	67.09
L	**248**	9	1.86	73.5	**2348**	8	2.01	69.1
M					**14**	7	1.76	70.85
N					**4**	7	1.76	72.61

Notes: Sample consists of adults who were employed in February 2020 and who had non-missing labour market status and hours of childcare work data for all waves of NIDS-CRAM.
Source: Authors' own calculation using NIDS-CRAM.

Table 10: Frequency of not-employed (NE) and high care spells by gender

%	**NE Spells (5-8)**		**High Care Spells (4 or 8)**	
(N)	**Women**	**Men**	**Women**	**Men**
0	50.93	62.31	19.46	41.71
	(1476)	(1488)	(564)	(996)
1	15.53	14.57	7.66	13.07
	(450)	(348)	(222)	(312)
2	10.77	10.05	10.77	13.32
	(312)	(240)	(312)	(318)
3	10.35	6.28	13.66	9.8
	(300)	(150)	(396)	(234)
4	7.04	4.02	14.08	10.05
	(204)	(96)	(408)	(240)
5	5.38	2.76	19.05	8.79
	(156)	(66)	(552)	(210)
6			15.32	3.27
			444	78
Total	**100**	**100**	**100**	**100**
	(2898)	**(2388)**	**(2898)**	**(2388)**

Notes: Sample consists of adults who were employed in February 2020 and who had non-missing labour market status and hours of childcare work data for all waves of NIDS-CRAM.
Source: Authors' own calculation using NIDS-CRAM.

When lockdown was imposed and households were under pressure to more childcare, this might have induced some women to switch into being not employed to cope with this need. For about 5% women who had had jobs in February 2020, this switch was permanent, and once it was made, they never returned to employment over the following year. Men, on the other hand, were doing less childcare at the beginning of the pandemic. This meant they had some capacity to increase their level of childcare whilst continuing working, without stretching themselves to the same breaking point as women and switching out of employment.

7. Conclusion and policy recommendations

This paper aimed to investigate how the uneven distribution of childcare in the home as a result of the COVID-19 pandemic has affected the existing gender inequalities in the South African labour market. Results from the QLFS show that, as feared, the gender gap in labour force participation has been exacerbated by the COVID-19 pandemic. More women dropped out of the labour market compared to men in the second quarter of 2020, and by the first quarter of 2021, there were still more women than men out of the labour force. Also, that women were more likely than men to follow trajectories that saw them permanently switching out of employment when lockdown hit in March 2020 might be closely linked to an increase in childcare responsibilities due to the closure of ECD centres. Trajectories over the course of the year between February 2020 and March 2021 revealed that women who had been working before the first lockdown were more likely than men to spend spells not working. Spells outside of the labour market more often coincided with long hours of childcare for women than for men.

With regards to employment, we find that in terms of aggregate jobs lost, men and women lost about the same number of jobs with the total number of jobs lost by men being slightly higher. In terms of the share of jobs lost, however, women lost a higher share of jobs. While this result contradicts early research using the NIDS-CRAM data set, which found that out of all the jobs lost during the second quarter of 2020, two-thirds belonged to women (Casale & Posel, 2020), our result using the official labour statistics from the QLFS is consistent with global findings. The ILO, for example, reports that while men lost more jobs in total globally, women lost a larger share of jobs. Additionally, while employment seems to be recovering for both men and women, the recovery has been slower for women (ILO, 2021). We attribute the contradiction between NIDS-CRAM and the QLFS to data quality issues; however, investigation of these data quality issues is beyond the scope of this study, and it is an ongoing research area.

We also find that job loss differed by race which is attributed to existing labour market inequalities and occupational sorting. Individuals in jobs that could not be carried out from home were more likely to experience job loss and/or no wages. Unfortunately, these also happen to be the low skill, low pay jobs. More black women working in occupations that could not be performed from home meant employment and hours of work for black women have recovered more slowly than for white women.

As expected, more women compared to men lost jobs in the services and the domestic work sector while more men compared to women lost jobs in the manufacturing and construction sector. What is important to note is that the COVID-19 induced recession will have negative effects for both men and women. This is because while at the beginning of the pandemic the recession seemed less financial, the extended period of the pandemic and the effect it has had on both international and local trade, has transformed the recession into a financial one affecting both female and male dominated industries. The long-term effects on existing gender inequalities might therefore take longer to unpack.

Combining labour market production and childcare hours revealed, as expected, that women worked more hours than men. Women worked about an hour less than men, on average, in the labour market, but more than made up for this by working between 1.5-2 hours more than men doing childcare. During the strictest part of the lockdown, this stretched to 3.5-4 hours more childcare than men.

Given the results of this research, key policy implications include:

1. There is need for the state to regulate and fund childcare services. This will lift the burden for families, and especially for women. There is need for universal early childhood education and development provision. This involves the expansion of ECD centres by reducing registration bottlenecks and making these centres affordable to all. Increased childcare responsibilities due to closures of ECD centres resulted in the inability of care- givers to work or search for jobs. In addition, with workers and owners of the ECD centres depending on parental fees and the government subsidy for their livelihoods, the closure of ECD centres due to the COVID-19 pandemic resulted, not only in the increase of the childcare burden for parents, but also a loss of income for workers in this sector, a majority of whom are women. Moreover, the majority of ECD centres are unregistered, making it difficult for them to access COVID-19 relief services such as the UIF-TERS. State childcare in South Africa is not universal and is limited with childcare for children younger than age five[5] being mostly provided by family members (especially grandmothers) or by private institutions (Cantillon et al., 2021). Public spending on early childhood education and care in South Africa is quite low and it is in the form of a means tested subsidy to registered ECD centres (De Henau et al., 2019, Wills & Kika-Mistry, 2021). The subsidy of about 17 ZAR (South African Rands) per day per child is not adequate to cover the full cost of childcare and parents, or caretakers have to cover the remaining cost (Wills & Kika-Mistry, 2021). Using the 2018 General Household Survey, Wills & Kika-Mistry (2021) show that excluding those in grade R, only 36% of children aged 0-5 years attend some form of early childhood education and care programme, and of these, the majority (84%) paid fees. Furthermore, many of the private ECD centres are not registered due to stringent registration requirements that discourage entry into this sector. So, with ECD centre fees ranging from about 100 ZAR to over 1,000 ZAR (Wills & Kika-Mistry 2021), the end result is that children from poor households who need early

childhood education and care the most, are the most disadvantaged when it comes to accessing early childhood education and care. An expansion of the ECD sector therefore implies, not only an increased access of early childhood education and care for all children, but also potential to increase employment (De Henau et al., 2019) in a country where the official unemployment rate is at an all-time high of 34.9% as at quarter three of 2021 (Statistics South Africa, 2021).

2. Given that women are less likely to participate in the labour market and less likely to be employed, policies to mitigate the impact of COVID-19 must be gender sensitive. There is need for a more deliberate targeting of the most disadvantaged groups. For example, other studies have found that women were underrepresented among the recipients of both COVID-19 Social Relief of Distress Grant (SRDG) and Unemployment Insurance Fund-Temporary Employer/Employee Relief Scheme (UIF-TERS) (Casale et al., 2021) mostly because women are less likely to be employed thus less likely to be registered for UIF. Additionally, accessibility of the grants has been criticized due to outdated systems, poor communication, and complicated application processes which lock out many eligible South Africans (e.g., informal workers and those in rural areas) out of the grant systems (Köhler & Bhorat, 2020). For the women that have dropped out of the labour force and stayed out, getting them back will require a mix of interventions including better childcare solutions, better working conditions, including flexible working environments and transport, formal contracts, and a living wage. Addressing occupational sorting is more complicated as it requires continued dismantling of gender stereotypes with regards to what jobs are suited for men and which ones are suited for women. This will involve introducing school going children to both male and female role models doing all sorts of work. Racial occupational segregation requires continued investment in the improvement of educational qualifications of black South Africans because occupational sorting is closely correlated with education qualification

Notes

1. Home production refers to production of household goods and services for everyday life including food preparation, childcare, and housework.

2. The National Income Dynamics Study (NIDS) is a broadly nationally representative panel study which started in 2008 and interviewed around 28,000 people across South Africa. These people were then re-interviewed, together with anyone they were living with at the time, every two to three years.

3. These are employed individuals who were absent from work in the last week (Monday to Sunday), but they had a paid job or a business to return to.

4. Details on the construction of these variables are in Appendix B.

5. The official age requirement for grade R or grade zero which is the school reception grade is age 6. All poor children of school going age can access free education from grade R up to secondary school. While grade R is not compulsory in South Africa, some schools offer this grade as a way of preparing learners for grade 1

6. In all waves, employee and self-employed respondents were asked separately about their average workday or business day, respectively. However, it appears the question for February 2020 was a catch-all for both types of respondents.

References

Adams-Prassl, A., T. Boneva, M. Golin and C. Rauh. 2020. *Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys.* CEPR Discussion Paper No. DP14665. Centre for Economic Policy Research, London.

Agarwal, B. 1997. "Bargaining and gender relations: Within and beyond the household". *Feminist economics*, 3(1): 1–51.

Agénor, PR. 2018. *A Theory of Social Norms, Women's Time Allocation, and Gender Inequality in the Process of Development.* Centre for Growth and Business Cycle Research Discussion Paper Series No. 237. The University of Manchester.

Anderson, S. and M. Eswaran. 2009. "What determines female autonomy? Evidence from Bangladesh". *Journal of Development Economics,* 90(2): 179–91.

Anker, R. 1997. "Theories of occupational segregation by sex: An overview". *Int'l Lab. Rev.,* 136: 315.

Becker, G.S. 1965. "A theory of the allocation of time". *The Economic journal,* 75(299): 493–517.

Becker, G.S. 1981. *A Treatise on the Family.* Cambridge, MA: Harvard University Press.

Benhura, M. and P. Magejo. 2021. *Who Cannot Work from Home in South Africa?* Technical Report No. 2. Wave 4 National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM).

Bhorat, H. and S. Goga. 2013. "The gender wage gap in post-apartheid South Africa: A re-examination". *Journal of African Economies,* 22(2): 1–22.

Blau, F.D. and L.M. Kahn. 2007. "The gender pay gap have women gone as far as they can?". *The Academy of Management Perspectives,* 21(1): 7–23.

Blau, F.D. and L.M. Kahn. 2017. "The gender wage gap: Extent, trends, and explanations". *Journal of Economic Literature,* 55(3): 789–865.

Budlender, D. 2010. "Decent work for domestic workers". Study prepared for the SERVICES Sector Education and Training Authority. Community Agency for Social Enquiry (CASE), Johannesburg.

Budlender, D. 2019. "Changes in the care burden over the transition to adulthood". SALDRU Working Paper No. 234. University of Cape Town, January.

Cantillon, S., E. Moore and N. Teasdale. 2021. "Covid-19 and the pivotal role of grandparents: Childcare and income support in the UK and South Africa". *Feminist Economics,* 27(1–2): 188–202.

Casale, D. 2004. "What has the feminisation of the labour market 'bought' women in South Africa? Trends in labour force participation, employment, and earnings, 1995–2001". *Journal of Interdisciplinary Economics,* 15(3-4): 251–75.

Casale, D. and D. Posel. 2002. "The continued feminisation of the labour force in South Africa". *South African Journal of Economics,* 70(1): 156–84.

Casale, D. and D. Posel. 2005. "Women and the economy: How far have we come?". *Agenda*, 19(64): 21–29.

Casale, D. and D. Posel. 2020. *Gender and the Early Effects of the COVID-19 Crisis in the Paid and Unpaid Economies in South Africa*. National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) Policy Paper.

Casale, D. and D. Shepherd. 2020. *The Gendered Effects of the Ongoing Lockdown and School Closures in South Africa: Evidence from NIDS-CRAM Waves 1 and 2*. National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) Policy Paper.

Casale, D. and D. Shepherd. 2021. *The Gendered Effects of the COVID-19 Crisis and Ongoing Lockdown in South Africa.* Technical Report No. 3. Wave 5 National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) Policy Paper.

Casale, D., D. Posel and J. Mosomi. 2021. "Gender and work in South Africa". In A. Oqubay, F. Tregenna and I. Valodia, eds., *The Oxford Handbook of the South African Economy.* Oxford: Oxford University Press.

Daniels, R.C., K. Ingle and T. Brophy. 2021. *Labour Market Dynamics in the Era of COVID-19: What we've Learnt from NIDS-CRAM the Quarterly Labour Force Surveys (QLFS)*. Technical Report No. 4. Wave 5 National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM).

De Henau, J., D. Budlender, F. Filgueira, I. Ilkkaracan, K. Kim and R. Mantero. 2019. "Investing in free universal childcare in South Africa, Turkey, and Uruguay: A comparative analysis of costs, short-term employment effects and fiscal revenue". UN Women.

Ermisch, J. 1981. "An economic theory of household formation: Theory and evidence from the General Household Survey". *Scottish Journal of Political Economy*, 28(1): 1–19.

Espi, G., D. Francis and I. Valodia. 2019. "Gender inequality in the South African labour market: Insights from the employment equity act data". *Agenda*, 33(4): 44–61.

Floro, M.S. and H. Komatsu. 2011. "Gender and work in South Africa: What can time-use data reveal?". *Feminist Economics*, 17(4): 33–66.

Folbre, N. 1995. "Holding hands at midnight': The paradox of caring labour". *Feminist Economics*, 1(1): 73–92.

Goldin, C. 2014. "A grand gender convergence: Its last chapter". *The American Economic Review,* 104(4): 1091–1119.

Gradín, C. 2021. "Occupational gender segregation in post-apartheid South Africa". *Feminist Economics*, 27(3): 102–133.

Gronau, R. 1977. "Leisure, home production, and work – The theory of the allocation of time revisited'', *Journal of political economy*, 85(6): 1099–1123.

Hatch, M. and D. Posel. 2018. "Who cares for children? A quantitative study of childcare in South Africa". *Development Southern Africa*, 35(2): 267–82.

Ingle, K., T. Brophy and R. Daniels. 2021. Panel User Manual. National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM).

International Labour Organization (ILO). 2021. *An Uneven and Gender-Unequal COVID-19 Recovery: Update on Gender and Employment Trends 2021*. Policy Brief. International Labour Organization, Geneva, Switzerland.

Jain, R., J. Budlender, R. Zizzamia and I. Bassier. 2020. "The labor market and poverty impacts of COVID-19 in South Africa". SALDRU Working Paper No. 264. Southern Africa Labour and Development Research Unit, UCT, Cape Town, July.

Kerr, A. and A. Thornton. 2020. "Essential workers, working from home and job loss vulnerability in South Africa". DataFirst, University of Cape Town.

Klasen, S. 2019. "What explains uneven female labour force participation levels and trends in developing countries?" *The World Bank Research Observer,* 34(2): 161–97.

Kleven, H., C. Landais, J. Posch, A. Steinhauer and J. Zweimuller. 2019. "Child penalties across countries: Evidence and explanations". *AEA Papers and Proceedings,* 109: 122–26.

Köhler, T. and H. Bhorat. 2020. COVID-19, *Social Protection, and the Labour Market in South Africa: Are Social Grants Being Targeted at the Most Vulnerable?* Technical Report. Development Policy Research Unit (DPRU), University of Cape Town.

Leibbrandt, M., I. Woolard, H. McEwen and C. Koep. 2010. "Employment and inequality outcomes in South Africa". Southern Africa Labour and Development Research Unit, University of Cape Town.

Lund, F. and D. Budlender. 2009. "Paid care providers in South Africa: Nurses, domestic workers and home-based care workers". Project on the Political and Social Economy of Care, UNRISD, Geneva.

Lundberg, S. 2001. "Gender and household decision-making". In *Frontiers in the Economics of Gender,* pp. 132–50 London, UK: Routledge.

Lundberg, S. and R.A. Pollak. 1993. "Separate spheres bargaining and the marriage market". *Journal of Political Economy*, 101(6): 988–1010.

Macindoe, H. and A. Abbott. 2004. "Sequence analysis and optimal matching techniques for social science data". In Handbook of Data Analysis, ed. M. Hardy and A. Bryman, pp. 387–406, London, UK: Sage.

McElroy, M.B. and M.J. Horney. 1981. "Nash-bargained household decisions: Toward a generalization of the theory of demand". *International Economic Review,* 22(2): 333–49.

Mincer, J. 1962. "Labour force participation of married women: A study of labour supply". In *Aspects of Labour Economics,* pp. 63–105. Princeton, NJ: Princeton University Press.

Mosomi, J. 2019a. "Distributional changes in the gender wage gap in the post-apartheid South African labour market". WIDER Working Paper No. 2019/17. UNU-WIDER, Helsinki.

Mosomi, J. 2019b. "An empirical analysis of trends in female labour force participation and the gender wage gap in South Africa". *Agenda*, 33(4): 29–43.

Ntuli, M. 2007. "Exploring gender wage discrimination in South Africa, 1995–2004: A quantile regression approach". IPC Working paper series No.56. Gerald R. Ford School of Public Policy, University of Michigan.

Ntuli, M. and M. Wittenberg. 2013. "Determinants of black women's labour force participation in post-apartheid South Africa". *Journal of African economies,* 22(3): 347–74.

Oosthuizen, M. 2018. *Counting Women's Work in South Africa: Incorporating Unpaid Work into Estimates of the Economic Lifecycle in 2010*. Technical Report, CWWWP8. University of Cape Town, Development Policy Research Unit.

Posel, D. and C. Muller. 2008. "Is there evidence of a wage penalty to female part-time employment in South Africa?" *South African Journal of Economics,* 76(3): 466–79.

Ranchhod, V. and R.C. Daniels. 2020. "Labour market dynamics in South Africa in the time of COVID-19: Evidence from wave 1 of the NIDS-CRAM survey". Wave 1 NIDS-CRAM Policy Paper.

Statistics South Africa. 2020. *Quarterly Labour Force Survey, Statistical Release P0211.* Pretoria: Statistics South Africa.

Statistics South Africa. 2021. *Quarterly Labour Force Survey Quarter 3*. Pretoria: Statistics South Africa.

Wills, G. and J. Kika-Mistry. 2021. "Supply-side and demand-side approaches to financing early childhood care and education in South Africa". Ilifa Labantwana and Resep ECD Working Papers No. ECD WP 003/2021. Ilifa Labantwana, Cape Town, October.

Appendixes

Appendix A: Dependency ratios

Table A1: Proportion of employed adults living with children by gender (2020)

Variables	Male	Female
No kids	0.53	0.40
	(0.00)	(0.00)
Age 0-3	0.21	0.25
	(0.00)	(0.00)
Age 4-6	0.17	0.22
	(0.00)	(0.00)
Age 7-14	0.33	0.44
	(0.00)	(0.00)
Observations	**25,507**	**23,134**

Notes: Sample contains employed individuals aged 16-65 years.
Standard errors are in parentheses. Proportions are adjusted using sampling weights.
Source: Authors' own calculation from the Quarterly Labour Force surveys 2020.

Appendix B: Constructing hours of work and childcare variables

Waves 1-5 of NIDS-CRAM asked respondents how many hours they worked on an average work day in April 2020 during the level 5 lockdown period (L5), June 2020 (L3), October 2020 (L1), January 2021 (Adj. L3), and March 2021 (L1). In Wave 1, respondents were asked how many hours they worked in an average day in February 2020 . Respondents provided an answer in hours, resulting in an hours of work variable that is continuous, ranging from zero with a maximum of 24 hours for all respondents who were employed. Since this variable is meant to capture hours in the labour market spent earning income, we allocate all not-employed respondents a value of zero. This means we have an hours of work in the labour market variable for all respondents, ranging from zero to 24 hrs, for February 2020 (L0), April 2020 (L5), June 2020 (L3), October 2020 (L1), January 2021 (Adj. L3), and March 2021 (L1).

NIDS-CRAM also asked questions about how many hours of childcare a respondent did at different points between February 2020 and March 2021. In Wave 1, respondents were only asked whether in April, they personally spent more time than usual looking after children, and how many more hours they worked. In Wave 2, respondents were asked to give: (1) the number of hours a day they spent looking after children during the level 5 lockdown period (April 2020); and (2) the number of hours a day they spent looking after children during the level 3 lockdown period (June 2020). Waves 3-5 then asked respondents how many hours a day they spent looking after children in October 2020 (L1), January 2021 (Adj. L3), and March 2021 (L1), respectively.

This means that although respondents were not directly asked how many hours of childcare they did in February 2020, we have enough information to reach an approximate estimate of what that might be. We have both how many hours they worked in April, as well as how many of those hours count as additional compared to February. Subtracting the latter from the former allows us to backwards infer what February 2020 hours might have been. However, doing so requires making some strong assumptions because the Wave 1 question about additional hours of childcare was answered in brackets of hours, instead of in point format. Respondents could answer with one of four brackets: (1) nearly an hour more, (2) 1-2 hours more, (3) 3-4 hours more, and (4) over 4 hours more. For respondents answering in categories 1-3, we allocated them a value of additional hours equal to 1, 1.5, and 3.5, respectively. It was much more difficult to allocate the fourth catch-all category of "over 4 hours", into which about three-quarters of respondents fell. To populate this category, we took into account information about hours in April, noting the shares of respondents reporting extreme values for childcare (see Table C1). This made us think that to get a realistic estimate for February 2020, we needed to confront the large share of people saying that they had both worked more than four hours extra and were now working 24 hours of childcare. To do so, we set up the following rule that took into account respondent's answers for April. If respondents worked four or more additional hours in April than they usually did, and worked between five and six hours in April, we allocated them a value of two hours of childcare as a baseline estimate for February 2020. If respondents worked four or more additional hours in April than they usually did, and worked between six and 12 hours in April, we allocated them a value of four hours of childcare as a baseline estimate for February 2020. If respondents worked four or more additional hours in April than they usually did, and worked more than 12 hours in April, we allocated them a value of eight hours of childcare as a baseline estimate for February 2020.

Despite these crude approximations and our erring on the side of allocating fewer hours of childcare, our descriptive tables show that we are still likely overestimating hours of childcare in February 2020. Finally, we clean the variables to equal zero if someone reported not living with a child in any of these periods. We now have a continuous hours of childcare variable ranging from 0 to 24 hours for February 2020, April 2020, June 2020, October 2020, January 2021, and March 2021.

Appendix C: Extreme values in the hours of labour market and childcare work

Table C1: Weighted percentage of sample reporting minimum and maximum possible hours of labour market, childcare, and total hours of work

	LM		CC	
	0hrs	24hrs	0hrs	24hrs
Men				
Feb L0	1.4	0.2	59.5	2.9
April L5	31.5	0.3	67.3	8.1
June L3	24.1	0.5	60.2	5.9
Oct L1	15.4	0.0	55.2	2.1
Jan Adj. L3	21.3	0.0	61.6	0.8
Mar Adj. L1	16.7	0.1	56.9	0.1
Women				
Feb L0	0.5	0.0	39.8	3.2
April L5	44.7	0.1	50.3	18.5
June L3	27.7	0.0	42.0	18.8
Oct L1	21.3	0.0	40.0	2.0
Jan Adj. L3	28.2	0.1	37.2	3.1
Mar Adj. L1	24.6	0.1	41.6	1.3

Source: Authors' own calculation using NIDS-CRAM.

Appendix D: Comparison of the sequence analysis (SQ) sample to the cross-sectional and balanced sample

Table D1: Wave 1 (April L5) demographics for a different samples conditional on being employed in February 2020

%	Full sample		Balanced Panel		Balanced Panel - wgtd.		SQ Sample	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Female	54.4	49.8	53.5	49.9	40.1	49.0	55.3	49.7
17-34	39.1	48.8	39.1	48.8	39.7	49.0	37.7	48.5
35-59	57.3	49.5	57.6	49.4	56.7	49.6	59.0	49.2
60+	3.6	18.7	3.3	17.9	3.5	18.5	3.3	18.0
African	79.7	40.2	83.4	37.2	72.5	44.7	79.5	40.4
NEA	3.5	18.3	3.2	17.7	2.4	15.2	2.6	16.1
Discouraged	13.0	33.7	13.9	34.6	10.9	31.2	13.8	34.5
Unemp	6.9	25.4	7.0	25.6	5.6	23.0	7.3	26.0
Emp	75.7	42.9	74.9	43.4	80.7	39.4	76.3	42.6
Co-res w kid	71.2	45.3	71.3	45.3	63.5	48.2	70.2	45.8
N	**2658**		**1211**		**14 284 889.30**		**868**	

Appendix E: Sequence analysis of only two labour market states

Table E1: Ten most common trajectories between labour market states (1 = E; 0 = NE) for a sample who were employed in February 2020

	WOMEN				MEN			
	Sequence	**Freq.**	**Percent**	**Cum.**	**Sequence**	**Freq.**	**Percent**	**Cum.**
A	111111	243	50.63	50.63	111111	244	62.89	62.89
B	101111	31	6.46	57.08	101111	23	5.93	68.81
C	110111	26	5.42	62.5	110111	12	3.09	71.91
D	100000	26	5.42	67.92	100111	12	3.09	75
E	100111	15	3.13	71.04	100000	10	2.58	77.58
F	110000	14	2.92	73.96	111100	10	2.58	80.15
G	111000	11	2.29	76.25	111101	9	2.32	82.47
H	100011	10	2.08	78.33	111011	7	1.8	84.28
I	101100	9	1.88	80.21	111000	6	1.55	85.82
J	111100	9	1.88	82.08	100001	5	1.29	87.11
K					111110	5	1.29	88.4

Source: Authors' own calculation using NIDS-CRAM.

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