Extended Abstract

South African labour market and Income inequality: medium term effects from the COVID-19 pandemic

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1. Introduction

The coronavirus (COVID-19) has resulted in direct human health issues across the world, while containment measures such as travel restrictions, curfews and closures of public places are having severe economic consequences on the labour market, as well as widening the income inequality in already vulnerable countries (World Bank, 2020). South Africa responded early to the COVID-19 pandemic with a strict regime of measures to curb the spread of the virus (Carlitz & Makhura, 2021). A nationwide lockdown at alert level 5 was announced on the 22nd of March 2020. Subsequent waves of the virus saw a fluctuation between alert levels 1 and 5. While these intervals of lockdown did successfully reduce infections, this came at a large cost, with concomitant effects on the economy at large and the labour market in particular (Daniels et al., 2021). The impact of the pandemic is severe in South Africa because many households are vulnerable due to the prevalence of extreme poverty and persistent inequality in the country. Approximately 55.5percent (30.3 million people) of the population is living in poverty at the national upper poverty line[1] (World Bank, 2014).

In this paper, we evaluate how government regulations and the Covid-19 pandemic between 2020–2021 filtered locally and impacted household income distribution. We do this by investigating how the events of the two years affected the labour market and income inequality in South Africa. We use total personal income (net of taxes and transfers) to create annual household-level measures of income inequality. Our measures of inequality are Gini coefficient, ratio of income of the 90th to 20th percentile, income share held by the top 10th decile, log real income of 90th percentile, and log real income of 20th percentile.

2. Data

This paper makes use of three different data sources - the 2017 National Income Dynamics Study (NIDS), the 2020 NIDS-Coronavirus Rapid Mobile Survey (NIDS-CRAM), and the 2021

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[1] Approximately R992 (Exchange rate: US$1 = R17)

NIDS-Coronavirus Rapid Mobile Survey (NIDS-CRAM). The NIDS is a panel dataset that started in 2008 with a nationally representative sample of over 28,000 individuals in 7,300 households. The core survey has been repeated with these household members every two to three years, with the latest interview round conducted in 2017 (wave 5). NIDS-CRAM is a special follow-up with a sub-sample of Wave 5 NIDS household members on the current global Coronavirus pandemic and the associated national lockdown. The survey covers income and employment, household welfare, grant receipt, and knowledge and behaviour related to COVID-19. The data set used in this paper allows us to examine households during the pre-covid (2017), early-Covid (2020) and late-Covid (2021) periods in South Africa.

Table 1 presents the descriptive statistics for the data set. The racial distribution broadly matches that of the national census estimates, with just about 80 percent of the sample being African, 11 percent Coloured[2], 9 percent of White descent. The effects of the pandemic can be seen in the labour market status variables. Rates of broad unemployment in the sample are very high, beginning at 41 percent in the early-Covid period. While broad labour force participation remains constant, strict participation increases by 7 percentage points over the Covid-19 period, implying that while the will to work may have remained constant, only as lockdown levels decreased were individuals able to seek out opportunities to do so.

Table 1: Descriptive Statistics: Mean values of Household Characteristics

	Pre-Covid	Early-Covid	Late-Covid
Race			
African	0.86	0.79	0.79
Coloured	0.07	0.11	0.12
White	0.07	0.10	0.09
Female Household Head	0.55	0.53	0.52
Age of Household Head	37.1	40.7	41.6
Education			
Highest School Grade	10.1	10.2	10.2
Tertiary Education	0.33	0.39	0.42
Employment			
Employed (strict)	0.81	0.76	0.76
Unemployed (strict)	0.19	0.24	0.25
Unemployed (broad)	0.20	0.41	0.36
Labour force participant (strict)	0.64	0.61	0.66
Labour force participant (broad)	0.65	0.78	0.78
Household size	4.09	4.23	4.11
Household income	R8,311	R7,600	R7,986
Informal dwelling/housing	0.11	0.22	0.22
Household lost income during the year	-	0.32	0.17
Receives employment income	0.77	0.55	0.56
N	7,073	7,073	5,862

[2] In South Africa, Coloured is a commonly accepted term used to refer to those of Cape Malay descent, and to mixed race individuals

3. Empirical Strategy

To address the potential endogenous relationships from the impact of government regulations such as lockdowns, travel restrictions and curfews, on household employment and income inequality we use Difference in Difference (DiD) regressions. 2020 is the most severe year of the pandemic and marked with extreme uncertainty in the labour market. We take advantage of this year and code a household as treated if it is significantly affected by the pandemic. Such significant impact includes if the household becomes unemployed or there is a reduction in per capita household income. By doing this, we are able to compare differences in income inequality within households if treated against differences of non-treated households. We then compare the 2017 pre-covid to the 2021 late-Covid year treatment period. This approach allows us to estimate the medium-term effect of the pandemic on income inequality.

We estimate the following equation:

$$I_{ht} = \alpha + \alpha_1(Treated)_{hts} + \alpha_2(Post - Treatment)_{hts} + \alpha_3(Treated\ X\ Post - Treatment)_{hts} + \theta(Z)_{hts} + s_t + \varepsilon_{hts} \qquad (1)$$

From equation 1, I is income inequality in household h at a period t, while Z represents a vector of household-level controls in the pre-and late-covid periods. s denotes state fixed effects. Treatment is a dummy variable that takes the value of one if household h is significantly affected by the pandemic in 2020, and zero otherwise. Post-Treatment is a dichotomous variable that takes the value of one for the late-Covid period (2021), and zero for the pre-Covid period (2017). Our coefficient of interest is α_3. The interaction term estimates the increase in income inequality between the pre- and late-Covid periods of the treated households relative to the change in income inequality in control households. Our methodology also satisfies the Bertrand et al., (2004) and Contreras et al., (2021) scheme for dealing with serial correlation in the standard errors.

4. Results

Our result from Table 2 shows that inequality as measured by Gini and the income ratio of the 90th to 20th percentile are significantly higher in the treated households. Column 1 shows that the Gini index is 0.36 units higher in the post-treatment period compared to the pre-treatment one and relative to the corresponding change in control households. That is, treated households were on average 1% more unequal. Likewise, column 2 shows that the 90th percentile took home an additional about 8% more relative to the 20th percentile. Columns 3 and 4 show that the top 10th share of income and income of the 90th percentile were not significantly different in the post-Covid period. Importantly, column 5 shows that the incomes

of the 20th percentile fell 4.7%[3]. This suggests that the deterioration of equality is explained by the fall in the incomes of the lowest earners.

Table 2: Effect of the Covid-19 on income inequality

	Gini	Income 90/20	Top 10th Share of Income	Log real income of 90th percentile	Log real income of 20th percentile
Treated	0.552	1.220	-0.221	-0.024**	-0.045***
	(0.247)	(0.167)	(0.145)	(0.009)	(0.021)
Post-Treatment Period	0.143	-0.021***	0.224	0.046**	0.050**
	(0.445)	(0.155)	(0.461)	(0.011)	(0.018)
Treated X Post-Treatment Period	0.361**	0.282***	1.331	-0.022	-0.048***
	(0.240)	(0.222)	(0.320)	(0.003)	(0.015)
R-Sq	0.811	0.792	0.772	0.915	0.914

Control variables are gender, household size, share of population 18–64, with tertiary degree, real income per capita and unemployment rate. ***, **, *, next to coefficients represents statistical significance at the 1%, 5%, and 10% respectively.

To provide a better understanding of our findings we also conducted estimation at the individuals' level based on race. We examine the income of Africans, Coloured and White and the probability of being in the labour force. Using model specifications similar to that in Eq. (1), we pool individuals into pre-Covid and Covid-periods, for years 2017 and 2020–2021, respectively. Individual controls are education, type of dwelling, sex, household size and age. Our result shows that the incomes for all, 20th percentile, 50th percentile, and 80th percentile across racial groups are significantly lower in the covid period. However, Africans and Coloured incomes decline disproportionally more. Africans' incomes fell 15.2% relative to Africans in the pre-covid period. The corresponding effect is 10.7% and 3.2% for Coloured and Whites, respectively. The magnitude is even larger for those in the 20th percentile with incomes falling 22.2% and 29.4% for Africans. As further evidence, we conducted linear probability estimates to the likelihood of being in the labour force. Here we stratify our sample by educational attainment. The result shows that Africans and Coloured individuals have reduced likelihood of being in the labour force in the covid period. Africans with bachelor's degrees are 2 percentage points (pp) likely to be in the labour force. Similarly, whites with a high school degree or less are 5 pp likely to be in the labour force.

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[3] $(e^{-0.048} - 1)$.

5. Conclusion

Even though inequality has been a grave problem in South Africa before the Covid-19 pandemic, the regulations to reduce infections in the 2020-2021 period has further worsened the situation and have severe consequences on the labour market and the income inequality gap. This paper provides new evidence on the dynamic linkages between the Covid-19 period and increased income inequality. Our result reveals that since the pandemic, there has been a significant decrease in incomes of the lowest income earners at a rate beyond that of the high-income individuals. We also show evidence that the majority of the effect of the pandemic is felt most by low-income Africans and Coloured groups. A key policy implication of this paper is that to move towards equality there is a need for better safety nets for low-income earners. This could be in the form of investment in human capital through education and easier access to credit.

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