The common characteristics of employment status during the Covid-19 Lockdown

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**A R T I C L E   I N F O**

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**A B S T R A C T**

The National Development Plan (NDP) of South Africa identifies the main ills that must be dealt with by 2030. These are poverty and inequality. The NDP also clearly points out the need to deal with unemployment. These build into the sustainable development goals with 2030 as the target year for achievement. Both the NDP for South Africa and the SDGs at the global level had these targets set way before the 2019 coronavirus hit. Now given the disruption that this pandemic caused, the trends and possibility of achieving these goals must be investigated. This paper looks at employment focusing on the characteristics of the people that had a job to return to after the hard lockdown in South Africa. The main objective is to identify the significant predictors of employment status at the household level. The paper uses data from Statistics in South Africa that were collected in 2021 during the midst of the pandemic. Variables such as age, province, race or population group and gender were included in the analysis. The results of the logistic regression show that age, race, age of the province, and household size are all significant predictors of whether the head of the household was in salaried employment during the Covid-19 pandemic. The fact that females were more likely to be in employment is painting a unique picture of the labour force than what is normally observed in the surveys.

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**Introduction**

The Sustainable development goals and the 2030 target is at an apparent risk considering the devastation fashioned by the Covid-19 pandemic and its associated effects. There is clear uncertainty regarding which goals will not be met and by what margin, especially for the developing countries which are likely to suffer more from the consequences of the pandemic (Hughes et al., 2021). The first six goals also known as the people goals are highly linked to income and households or human wellbeing. These six goals are on poverty, food security or hunger, health, education, gender and sanitation. Poverty as defined in the literature is generally a deprivation to the basic needs of life (Dunga, 2019; Mdluli & Dunga, 2021; World Bank, 2020a) In order for households to avoid deprivation of the basic needs, they need an income as most of these basic needs can be bought from a market place. In mostly developing countries households depend on subsistence farming, and their income is received from selling the surplus produce. However there is a majority of households that are dependent on employment for their income (Dunga, 2017; World Bank, 2020a, 2020b).

The incidences of poverty across the globe are expected to worsen as a direct result of covid-19 preventative restrictions. One single dimension that was affected by the covid-19 restrictions is the employment and the unemployment that resulted from the closing of economic activities and businesses. This paper isolates the effect of the covid-19 pandemic on employment in South Africa and zeros in on the common characteristics of the people that were able to keep their job during the hard-lockdowns. The paper uses data collected by stats SA that was collected during the pandemic in 2021. The paper focuses on household social economic variables like gender and marital status among other things. The link between gender and the ability to keep a job is highly relevant considering the fact that school were closed and most families had to find a way of taking care of their children who were at home, and in most
cases home schooling as some school continued with online classes. To what extent did the gender roles and the gender balances within the homes affect who was to continue working. The rest of the paper is organised as follows; the next section is the literature review followed by the research methodology employed in the paper and the data sources and measurements. Then section four is the results and discussion flowed by the conclusion.

**Literature Review**

The literature review is based on the theories of poverty as the link to the both the conservative and the liberal understanding of causes of poverty. Although the analysis does not dwell on poverty but it is implied within the paper that employment is linked to access to income and hence a way to alleviate poverty. The link between poverty and income is ubiquitous in the literature (Assaad et al., 2002; Dunga, 2019; W. Grobler, 2015; W. C. J. Grobler & Dunga, 2019; Shinn et al., 1998; World Bank, 2020a). the World Bank has acknowledged the importance of income through employment as a way of raising the livelihoods of people in order to make strides towards the first sustainable development goal of ending extreme poverty (World Bank, 2016, 2018, 2020a). Employment is considered the most important source of income for many households globally. In South Africa, 59.4% of households were dependent on a salary as a source of income according to a STATSA (2021) survey. The type of job and quality notwithstanding, employment remains an important source of income and many countries have embarked on policies that are aimed at creating employment for their citizens to achieve the SDGs by 2030.

**Gender and employment status**

There are several factors that are associated with the probability of being in employment. A number of studies have been conducted on the link of socio economic characteristics and employment (Dunga, 2016; Dunga & Sekatane, 2014; Geller & Curtis, 2011; Mncayi & Dunga, 2016; OECD, 2017; Shai, 2021; van Aardt, 2012). Gender, Age, marital status, and population group/race are among some of the variables that are considered in understanding the employment status of heads of household. Stats SA (2021) reported that child care landscape has also changed immensely in the wake of covid-19. “percentage of children aged 0–4 years that remained at home with a parent, guardian, other adults or children increased from 57,8% in 2019 to 64,6% in 2021. During the same time, the percentage of children that attended grade R, preschool, nursery school, crèche, and edu-care centres decreased from 36,8% in 2019 to 28,5% in 2021”. This implies that there was need for someone to remain at home to take care of the children. That has a serious bearing on the employment status of the guardian. The literature on care (Evans, 2006; ILO, 2018; Shai, 2021) shows that most of care work is unpaid and skewed towards women and girls. The number share of care work between males and females is such that, women are forced to withdraw from the labour market to take care of the elderly and the children at the expense of a career in the job market (ILO, 2018; OECD, 2017). Thus gender and the demographic composition of a household has a bearing on who gets to remain in employment especially in the pandemic times.

**Marital status and employment status**

The modern trend among the youth of the 21st century does not put emphasis on marriage (Dunga, 2017). There has been a clear downward trend in marriages across countries and in increase in the avarage age at which people are getting married (Dunga & Sekatane, 2014; Lundberg & Pollak, 2015). STATSSA (2020) reported that “Marriages are becoming less common in South Africa. Could this mean that marriage is becoming a fading tradition? According to the Marriages and Divorce, 2020 report released by Statistics South Africa, the total number of people getting married has fallen steadily from 2011 to 2020. Besides the high decline in 2020 that may have resulted from the restrictions on gatherings in that year, the number of civil marriages have been consistently declining. Civil marriages fell by 22,5% between 2011 and 2019 and declined by a further 31,1% in 2020”

This link between marriage and employment is therefore changing overtime as more people are looking for employment before starting a family. The literature however has shown that in the traditioanal patrichial societies, women and girls are more likely to be married or aspire for marriage than employment (African Union, 2015; Government of Malawi, 2019). In areas where there is child marriage, the literature shows that its is mostly because of poverty and hence those women/young girls are very unlikely to be in gainful employment. This in most cases is associated with gender violence as the woman is forced to stay in marriage for economic support (Bisika et al., 2009; Government of Malawi, 2019).

The results from a survey by STATSSA (2021) show the dwindling figures in the legally married category especially amonth those between the age of 18 and 34 years old. Figure 1 shows that only 7.4 males and 13.3% females were legally married in the age group of 18 -34 years. Another alarming statistic was the percentage of widowed females in the older category of 75 and above. This is an indication that males were more like to die before their spouces.
Population group and employment status

There are different contexts in which the population group or race of the head of household may have a bearing on their probability of being in employment or not. The country background of South Africa warrants an inclusion of this dimension due to the past imbalances that existed between the different races. These imbalances affected the education level of other racial groups and consequently there possibility of gaining employment. There have been strides since 1994 to correct the imbalances and hence it becomes useful to assess the changes achieved by including this variable in the analysis. Stats SA (2021) reports that in their survey there were more black/african households in South Africa as would be expected hence it is also expected that there are supposed to be more of that category in the population employed as a percentage of the total population not necessarily as a percentage of the racial categor. Studies show that there is a significant effect of race on working in skilled employment. Results by UN DESA (2016) which included south africa found that race was a significant determinant of working in a skilled employment (Khan, 2007; UN DESA, 2016).

Age and employment

The human capital theory shows that there is a relationship between age and earnings via the life cycle theory and employment (Mincer, 1997; Sweetland, 1996). Mincer(1997) in the popular mincerian function looks at age as a determinant of earnings and in a quadratic formation where in the early years there is lower earning which grow over time to a vertex of the trajectory. Thus where age is a proxy of experience it would be considered a crucial component of the mincerian function. Normally age would be considered as experience beyond the school going age (Mincer, 1958; Shabbir, 1994). The basic mincerian function takes the following from

$$\ln w = f(sx) = \ln w_{0} + \Phi s_{0} + \beta_{1} x_{1} + \beta_{2} x_{2}$$

Where w is earnings or waged and is a function of schooling given by s and years of experience given by x and the squared component of experience to take into account the theoretical understanding that experience which is normally proxied by age has a vertex. The argument that youth unemployment is high in most cases is also linked to the experience requirement for most jobs (van Aardt, 2012). In South Africa, you unemployment is the highest of all the age categories and remains a challenge to the National development goals stipulated in the national development plan of dealing with poverty and inequality through the creation of employment especially among the youth (National Planning Commission, 2012).

Research and Methodology

The data reported in this paper were collected by STATSSA and was released in 2021. This data was collected through general household survey that was conducted during the covid-19. All the precautionary measures were adhered to in the process of the data collection. The data was collected form households and mostly head of household information was collected from the head of household. The household information was also collected.

The main question that used in the analysis was asked to the respondent whether they had a job to return to after the covid-19 lockdown and associated restrictions that made a number of people to stay at home. The results are reported in table 1.
Table 1: Paid work to return to

<table>
<thead>
<tr>
<th>Salaries/wages/commission</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Yes</td>
<td>5113</td>
<td>53.1</td>
<td>53.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4516</td>
<td>46.9</td>
<td>46.9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9629</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: StatsSA 2021

In the variable coding, yes is coded as 1 and no is coded as 0 and thus in a regression model with a household or head of household having a salaried work, a binary logistic regression model is estimated given that the dependent variable is dichotomous.

Model specification

A binary logistic regression model is estimated given that the dependent variable is categorical and dichotomous or binary. In cases where the dependent variable has more than two categories a multinomial model is appropriate. The binary logistic model estimates the probability of falling in the success category. For example, give a simple model as follows;

\[
Y_i = \beta_0 + \beta_1 X_1, \ldots 1
\]

Where X is the explanatory variable, and the expectation of Y is presented as \( Y = E(Y_i = 1|X_1) \) representing the success category in the dependent variable Y. Gujarati (2009) indicates that equation 1 can be presented as follows:

\[
Y_i = \frac{1}{1 + e^{-Z_i}} 2
\]

Then making z the subject we get, \( Z = \beta_0 + \beta_1 X_1 \) t which further can be presented as equation 3 below.

\[
Y_i = \frac{1}{1 + e^{-Z_i}} = \frac{e^z}{1 + e^{-z}} 3
\]

Thus \( Z_i \) ranges between \(-\infty \) to \( +\infty \) while \( Y \) ranges between 0 and 1 as is expected with probability. Also \( Y_i \) is nonlinear in relation to \( Z_i \). Meaning that the model adopted and adapted into the generic model would therefore be as follows;

\[
Y_i = \beta_0 + \sum \beta_i X_i, 4
\]

Findings and Discussion

The result of the binary logistic regression are presented in this section starting with the descriptive statistics of independent variables and the variable coding of the categorical variables used in the regression model. The categorical variables in the regression model are province which are 9 in total, and Limpopo is used as the base category. WC is for western cape, EC is for Eastern Cape, NC is for the Northern Cape, FS is for the Free State, KZN is for KwaZulu Natal, GP is for Gauteng province and MP is for Mpumalanga. The other categorical variable also used in the regression model is Race or population group which has the following categories, black, coloured, Indian/Asian and white which is used as the base category. The last categorical variable is gender with male as 1 and females as the base or reference category.

Table 2: Categorical variables coding

<table>
<thead>
<tr>
<th>Province</th>
<th>Frequency</th>
<th>Parameter coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC</td>
<td>812</td>
<td>1.000</td>
</tr>
<tr>
<td>EC</td>
<td>1499</td>
<td>0.000</td>
</tr>
<tr>
<td>NC</td>
<td>405</td>
<td>0.000</td>
</tr>
<tr>
<td>FS</td>
<td>540</td>
<td>0.000</td>
</tr>
<tr>
<td>KZN</td>
<td>1831</td>
<td>0.000</td>
</tr>
<tr>
<td>NW</td>
<td>626</td>
<td>0.000</td>
</tr>
<tr>
<td>GP</td>
<td>1799</td>
<td>0.000</td>
</tr>
<tr>
<td>MP</td>
<td>839</td>
<td>0.000</td>
</tr>
<tr>
<td>Limpopo</td>
<td>1278</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Parameter coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>8312</td>
<td>1.000</td>
</tr>
<tr>
<td>Coloured</td>
<td>639</td>
<td>0.000</td>
</tr>
<tr>
<td>Indian/Asian</td>
<td>151</td>
<td>0.000</td>
</tr>
<tr>
<td>White</td>
<td>527</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender head</th>
<th>Frequency</th>
<th>Parameter coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>5125</td>
<td>1.000</td>
</tr>
<tr>
<td>Female</td>
<td>4504</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Calculations by the Author
Table 3 provides the coefficients of the logistic regression. The dependent variable as explained in tables one has two categories, those with a salaried employment and those without. The ones in a salaried employment was coded as a 1 meaning they represent the success category. The following section discusses the results as presented in table 3 with proper reference to the coding presented in table 2.

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender (1= Male)</td>
<td>-.498***</td>
<td>.044</td>
<td>127.516</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Age of household head</td>
<td>.032***</td>
<td>.002</td>
<td>424.542</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>White head of HH</td>
<td>.327***</td>
<td>.105</td>
<td>9.668</td>
<td>1</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>Black/African HH</td>
<td>-.288**</td>
<td>.133</td>
<td>6.868</td>
<td>1</td>
<td>.030</td>
</tr>
<tr>
<td></td>
<td>Indian/Asian HH</td>
<td>-.109</td>
<td>.205</td>
<td>281</td>
<td>1</td>
<td>.596</td>
</tr>
<tr>
<td></td>
<td>Limpopo province</td>
<td>.139</td>
<td>.020</td>
<td>8</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>WC province</td>
<td>-.584***</td>
<td>.112</td>
<td>27.061</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>EC province</td>
<td>.152*</td>
<td>.081</td>
<td>3.550</td>
<td>1</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>NC province</td>
<td>-.298**</td>
<td>.126</td>
<td>5.567</td>
<td>1</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>FS Province</td>
<td>.123</td>
<td>.107</td>
<td>1.317</td>
<td>1</td>
<td>.251</td>
</tr>
<tr>
<td></td>
<td>KZN Province</td>
<td>-.366***</td>
<td>.077</td>
<td>22.514</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>NW Province</td>
<td>-.028</td>
<td>.102</td>
<td>.076</td>
<td>1</td>
<td>.782</td>
</tr>
<tr>
<td></td>
<td>Gauteng Province</td>
<td>-.545***</td>
<td>.077</td>
<td>49.515</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Mpumalanga Province</td>
<td>-.004</td>
<td>.093</td>
<td>.002</td>
<td>1</td>
<td>.965</td>
</tr>
<tr>
<td></td>
<td>Household size</td>
<td>-.115**</td>
<td>.010</td>
<td>142.710</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>-.113***</td>
<td>.153</td>
<td>52.631</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: Table 3: Logistic regression results

Gender was coded as 1 for males and 0 for females. The results show that males are less likely to be in employment with a salary compared to females in the sample. This is contrary to expectation however it may be a reflection of the females that were involved. The chance is that these females are the head of their households and where the female is a head of household, the mostly likely reason is that they are the bread winner or independent. The P-value for gender was 0.000 meaning that gender is a significant predictor of the dependent variable. The odds ration for of being in employment for men is 0.608 less than that of females. The negative coefficient on the gender implies that for males there is a lesser chance compared to females.

Age a discussed in the literature review component has a positive and significant coefficient. The positive coefficient implies that the older one gets, the more likely they are to have a job. A unit change in age changes the odds of being in a salaried employment by 1.032. This is in agreement with the Human capital theory, the life cycle hypothesis and the mincerian function, although here age is not squared as the model is not on earnings but employment status (Liu et al., 2014; Mncayi & Dunga, 2019; van Aardt, 2012). The P-value for age in the regression is 0.000 which is significant at the 1% level of significance implying that age is a significant predictor of employment status. This is in agreement with the literature where age has been used to predict employment status of head of household (Dunga & Sekatane, 2014). In South Africa different age groups are fairly different in the labour market. SATSSA (2019) fourth quarter labour force survey reported that those in the age group of 15 to 24 years had the lowest percentage of employment rate at 11%. The 25 to 34 years old age group had as high as 61.7% employment rate while the 35 to 44-year-old had a 47.7% employment rate. The other age group is 45- to 54-year-olds with 61.9% and the 55- to 64-year-olds with a 40.4% employment rate (STATSSA, 2019).

The population group which is also referred to as race is also significant in the predicting of employment status or having work with paid remuneration. The coefficients were largely significant. Limpopo was used as the reference category and all the provinces besides the eastern cape show a negative coefficient meaning they had a less probability of having a household in salaried employment compared to Limpopo. The eastern cape had a higher probability than Limpopo with a positive coefficient and odds that are greater that 1. This could be a result of the related populations that were used in the survey. Although Gauteng was expected to have a higher chance of employed people the population of Gauteng and the number of participants involved in the survey reduced the odds due to its higher unemployment to population ratio.

Size of the household has a negative coefficient and a significant P-value. The only explanation one can draw from this is that the head of household may not be in employment which one of the members in the household may be in employment to support the household. Thus the higher the number of people in the household the higher the likelihood of the head being unemployed. This is paradoxical as bigger household are expected to cost more to run and hence would be expected to have a working head of household. The results of this study therefore needs a deeper interrogation especially to interrogate the nature of sampling and the type of people involved in the survey.

Testing the significance of the model as a whole proved that the model as a whole was a good specification with an Omnibus test that was significant at the 1% level of significance as is reported in table 4.
The Omnibus test is normally used in logistic regression models to check the correctness of the model and the variables used in the prediction of the dependent variable. It is basically measured against the base model which is the logistic regression model without the explanatory variables and the Omnibus test checks if there is an improvement to the base model after including the independent variables.

### Conclusion

The hypothesis of the paper was that variables such as age, province, race or populations group and gender are important in explaining the employment status of the head of household. With the a binary logistic regression model the hypothesis was confirmed. The results of the logistic regression shows that age, race, age the province and household size are all significant predictors of whether the head of household was in a salaried employment during the Covid-19 pandemic. Employment status of the head of household is a very important contribution to a households welfare. The study investigated the household factors that would predict the probability of a head of household to be in salaried employment. The results found that all the variable included in the model are significant predictors of employment is a salaried job. the uniqueness of the results is in the gender where females are found to be more likely to be in salaried employment. The results also show that during covid-19 there were unique circumstances that determined employment in a salaried employment. The majority of the jobs that remained were those in essential services like food and health provision. The nature of jobs in health services and food processing may explain why there were more females with salaried employment than males. A majority of the people in health services are females. In the food processing the share between males and females may be equal. Thus the results of this analysis gives an insight into the employment situation that existed and may continue to exist after the lockdowns. The extent to which this situation may have affected household dynamics is not determined.

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This is a single author and hence the author has read and agreed to the published version of the manuscript.

### References


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