National Minimum Wage in South Africa: Impact on Financial Product Expenditure by Low Income Households

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Abstract

This paper investigated the effect that the new national minimum wage could have on financial product expenditure by low-income households. The odds of expenditure on financial products were modelled using logistic regression. The models were constructed using data from the Income and Expenditure Survey 2010/2011. Additionally, household income decile movements were estimated. Together with the logistic models, these estimates were used to determine the number of low-income households that will be more likely to purchase financial products.

Keywords: logistic, regression, minimum, wage, low-income, financial, products.

1 Introduction

The National Minimum Wage Panel (2016) has proposed a new national minimum wage (NMW) for South Africa (SA). The impact of this legislation could be far reaching. Accordingly, this paper investigated one potential consequence - an increase in spending on financial products by low-income households.

Firstly, we looked at the experience in foreign countries to determine the likely effects of a NMW. We see that, if implemented correctly, a NMW could reduce poverty and inequality whilst still having a negligible effect on employment. Additionally, a NMW generally increases real income for low-income workers.

We then looked at the current situation in SA. High levels of inequality and poverty call for policy changes and it is obvious that the current sectoral minimum wage (SMW) is seriously flawed. Ultimately, a NMW is needed and we can expect similar results to those in other countries.

Next, we estimated the effect of the NMW on household income. Using a sample of 25 328 households, we calculated the number of low-income households expected to move up at least one income from work decile. Ultimately, based on the calculations we can expect between 7 136 and 5 792 of the low-income households to move up at least one decile.

The movement results do not necessarily imply an increase in the spending on financial products. Hence, we modelled the expenditure on financial products, using logistic regression models, to determine its relationship with income from work. We found a positive relationship between income from work deciles and the odds of expenditure on financial products. Ultimately, the models suggest that all the low-income households that moved up an income from work decile will be more likely to purchase financial products.

2 Effects of a Minimum Wage

2.1 Minimum Wage in Foreign Countries

The minimum wage systems of countries including India, China, Brazil, Colombia, United States (US) and the United Kingdom (UK) were investigated. These systems differ in many ways such as by the level of wage set, complexity, compliance and whether they are national or sectoral (Broecke *et al.*, 2015).

For example, India has a very complicated minimum wage system. According to Broecke *et al.* (2015), India's NMW acts as a non-binding recommendation to regional governments resulting in a SMW system with over 1000 different rates. This system is likely difficult to administer which may explain India's serious non-compliance problem. Evidently, 88.3% of urban, female agricultural workers in the Haryana state are not paid the minimum wage (Rani and Belser, 2012). Although not all workers experience such low levels of compliance, this figure indicates the extent of the problem.

Both the US and UK have NMW systems. Furthermore, Rani and Belser (2012), states that in 2008 only 2.6% and 1.3% of workers were paid below minimum wage in the US and UK respectively. These high compliance rates may be due to the simplicity of NMW systems but other factors should also be considered. For example, due to greater resources available to enforce legislation, we should expect higher compliance in developed countries.

Additionally, NMW systems were introduced in Brazil and Colombia in 1984 and in Chile in 1973. Overall, in Latin America, non-compliance was at 45% in 2007 (Rani and Belser, 2012). Evidently, low compliance is generally more prevalent in less developed countries. These examples show how minimum wage systems can differ significantly between countries. Ultimately,

the features of a minimum wage system affect the overall impact on employment, income, poverty and inequality.

2.1.1 Employment

Numerous studies (Mudronova, 2016; Chletsos and Giotis, 2015; Broecke *et al.*, 2015; Isaacs, 2016) have found that, in both developing and developed countries, changes in the minimum wage do not have significant effects on overall employment. In both the UK and US, Mudronova (2016), found that a minimum wage had little or no effect on employment. Additionally, a large meta-analysis, performed by Linde Leonard *et al.* (2014), had similar results. The meta-analysis looked at 16 studies on the minimum wage in the UK and found no overall negative employment effects. These studies suggest if minimum wage legislation is implemented correctly it can have minimal effects on employment.

It is important to note that some studies did find adverse employment effects but this is generally a result of setting the wage floor too high. Additionally, when unemployment effects do occur, women, youth, lower skilled workers and smaller firm workers are most likely to be affected (Seekings and Nattrass, 2016). Particularly, a study by Fang and Lin (2013) claims China experienced disemployment effects. Additionally, young adults and other vulnerable groups were the worst off. This was after a 200% increase in the minimum wage from 2004 to 2012. This suggests that an excessively high minimum wage can have negative impacts on employment, particularly for vulnerable groups.

2.1.2 Income, Poverty and Inequality

The National Minimum Wage Panel (2016), states that low wages, inequality and high levels of poverty in SA are all connected. Consequently, it should be possible to use a minimum wage, not only to reduce inequality, but also to alleviate poverty by increasing the wages of low-income workers. Evidently, a minimum wage has been shown to reduce inequality and poverty in both developed and developing countries (Mudronova, 2016).

For example, Mudronova (2016), explains that most of the increase in inequality in the US from 1979 to 1988 was due to a decrease in the real value of the minimum wage. Similarly, the implementation of a NMW, from 1998 to 2010, helped reduce wage inequality in the UK. During this time low-income workers experienced a 50% increase in real wages (Mudronova, 2016). This suggests that a minimum wage is an effective tool in fighting inequality and poverty in the developed world. Similar experiences can be found in developing countries.

Coleman (2013), claim that SA can learn a lot from Brazil, where effective policies (including a NMW) have helped reduce poverty, inequality and unemployment. A 15% decrease in inequality is largely due to a 130% increase in the NMW from 2000 to 2013 (Isaacs, 2016). It is important to note that the NMW was not implemented in isolation. This suggests that it will take more than an effective NMW to solve SA's problems. Furthermore, negative experiences in other countries should also be considered.

In Colombia, particularly high increases in the minimum wage from 1984 to 2001 actually decreased family income for the lower percentile. It also increased income for wealthier families (Arango *et al.*, 2004). Hence, setting the wage floor too high can result in counter-intuitive effects of increasing inequality.

The case of Colombia can act as a warning to South Africa. However, there is sufficient evidence to motivate the use of a minimum wage as a tool to fight poverty and inequality, while still having a negligible impact on employment.

2.2 Minimum Wage in South Africa

South Africa is burdened by significant levels of poverty, inequality and unemployment. According to the National Minimum Wage Panel (2016), in 2016 SA had a Gini coefficient of between 0.66 and 0.7 indicating extremely high levels of inequality. Additionally, the panel claims that 51% of South Africans live below the poverty line of R1036.07 per month.

High unemployment rates are an obvious contributor; however, they do not fully explain these significant levels of poverty and inequality. Isaacs (2016), states that wage inequality accounts for 68% of SA's overall inequality. Additionally, the current SMW system doesn't ensure that currently employed citizens, even those covered, won't live in poverty. Consequently, Mudronova (2016) states that over half of full-time employees are considered working poor. These are individuals who earn wages that cannot meet their own or dependant's basic needs.

Evidently, there is a serious need to address these issues. By the experience in other countries, a NMW appears to be an effective tool in combating some of them. However, it is important to note that a NMW is unlikely to reduce unemployment and should, therefore, be implemented in conjunction with other policies.

2.2.1 Current Minimum Wage System

When designing NMW legislation it is important to consider the current SMW and its effects. Currently in SA, your occupation, province, experience level, firm size as well as the number of hours you work can determine your minimum wage and legislation does not cover all workers (Broecke *et al.*, 2015). Moreover, the wage floors for each sector were all introduced at different times (Bhorat *et al.*, 2013). This has ultimately led to an incredibly complicated system with low compliance and efficiency.

The extent of non-compliance was investigated by Bhorat *et al.* (2012). They estimated the overall compliance rate to be 55%. The security sector was the worst off, where only 20% of covered workers received the minimum wage. These results are significant as the effectiveness of any legislation depends on how well it is being enforced. Therefore, South African policy makers should look at ways of addressing this serious non-compliance problem.

In terms of employment, the majority of recent literature concludes that previous minimum wage legislation has had negligible effects. According to Bhorat *et al.* (2013), minimum wages had no significant effect on employment but did decrease the weekly hours for workers in the retail, domestic, forestry, taxi and security employment sectors. However, they did find that increases in real hourly income offset any decreases in weekly hours in all sectors. Retail, domestic and security actually experienced an increase in real monthly income. It is important to note some contradicting studies, including Hertz (2005) who found significant unemployment effects for South African domestic workers. Hence, new minimum wage legislation should aim to minimize potential adverse effects on employment, especially for workers in the more vulnerable sectors.

2.2.2 New National Minimum Wage

In response to the current situation, the National Minimum Wage Panel (2016), has recently proposed a new NMW of R20 per hour. This amounts to approximately R3440 per month (assuming 40 hour work weeks and 4.3 weeks per month). Accordingly, Deputy President Cyril Ramaphosa recently announced the legislation will take effect in May 2018.

The panel will use various additional mechanisms to help increase the effectiveness and compliance of the new legislation. This includes a non-compliance hotline, increased number of labour inspectors and a 2-year adjustment period (National Minimum Wage Panel, 2016). This is an important aspect of the legislation as, explained above, the current SMW has a high non-compliance rate and proved to be very ineffective.

Furthermore, the panel considered the impact of the NMW on poverty and employment and specifically looked at the effect on the youth, small businesses and more vulnerable sectors. They believe that this new legislation would maximise benefit to the poor, raising their real income, while having a negligible effect on employment (National Minimum Wage Panel, 2016).

3 Demand for Financial Products

An increase in real income will increase the affordability of all products for low-income workers. In other words, these workers will have more money to spend on all products including financial products. However, this does not necessarily mean that workers will increase their spending on financial products. They may use their additional income on other items such as food or shelter. The effect of the NMW on financial product expenditure will ultimately depend on how workers choose to spend their additional income.

Using the expenditure tables provided by Statistics South Africa (2012), we may be able to gain some insight into how South Africans spend their money. We see that expenditure on insurance and financial services make up 11.3% of overall expenditure. This can be broken down into 2%, 5.7%, 0.9% and 1.4% on dwelling, health, transport and other insurance respectively and 1.3% on financial services. Comparing these values to those of the lower income households we see they are lower for every category except other insurance (Statistics South Africa, 2012).

Not much more can be derived from the tables. Hence, the rest of this paper aims at further investigating expenditure on financial products by low-income households.

4 Methodology and data

4.1 The Income and Expenditure Survey

The most recent Income and Expenditure Survey (IES) 2010/2011 was used to investigate household expenditure on financial products. The IES is a detailed survey of over 25 000 households (Statistics South Africa, 2015). The classification of individual consumption by purpose (COICOP) codes are used by the IES to record household expenditure on numerous items. The codes used to identify expenditure on financial products can be found in Table 7 in the appendix.

According to Statistics South Africa (2012:26), "The scope of the Master Sample (MS) is national coverage of all households in South Africa and the target population consists of all qualifying persons and households in the country." Additionally, household sample weights have been constructed by Statistics SA that include a non-response and probability of selection adjust-

ments. These weights were not used in this investigation, which will affect the extrapolation of any results to the entire country. In other words, even though the sample covers the whole of SA, without the weights, it is not necessarily a representative sample.

The quality of the IES data is important and according to Statistics South Africa (2012:36), to ensure the data's quality, "the data were verified as well as edited and checked for consistency according to the predetermined editing rules."

4.2 Logistic Regression

Logistic regression was used to model binary response variables. These variables take on value 0 if the household did not spend money on financial products and 1 if they did. The groups of products modelled were: all financial products, all insurance products, funeral policies and stokvels. These models can be used to determine the odds of household expenditure on the different groups of financial products. Additionally, the potential explanatory variables of household expenditure are described in Table 9 of the appendix.

Models were compared using AIC values and adherence to model assumptions were tested using a technique developed by Esarey and Pierce (2012). This technique involves the use of both a heat map plot and heat map statistic to assess the adequacy of a logistic regression model. Additionally, the model's variance inflation factors were checked to ensure no multi-collinearities were present.

4.3 Estimating Effect of NMW

The IES data was used to estimate the effect of the NMW on household income. Specifically, we looked at the explanatory variable 'workIncomeDecile'.

Table 1 shows the ranges for each of this variable's deciles. The additional '0' factor represents households that did not receive any income from work.

To estimate the effect of the NMW we must calculate the expected number of households that will move to a higher income from work decile. Using the IES data, for each household we can already determine:

1. The number of salary/wage earners
2. The amount of income from work at the time of the survey

Table 1: Income ranges for workIncomeDecile

Factor Level	Range (in Rs per year at March 2011 prices)	Number of households	Ave. per Income Earner	Ave. per Household
0	[0]	7 509	0	0
1	(0, 5 232]	1 786	2 468.89	2 692.84
2	(5 232, 12 306]	1 785	7 557.32	8 734.31
3	(12 306, 19 742.80]	1 775	13 360.82	15 882.44
4	(19 742.80, 30 218]	1 790	19 323.55	24 667.21
5	(30 218, 43 216]	1 779	27 038.23	36 142.16
6	(43 216, 63 874]	1 789	36 712.21	52 554.48
7	(63 874, 93 340.60]	1 769	49 859.74	77 284.01
8	(93 340.60, 150 370.60]	1 782	69 348.17	117 915.24
9	(150 370.60, 272 689.20]	1 782	107 854.91	196 644.56
10	(272 689.20, 3 944 105]	1 782	236 530.67	465 761.01

To perform the calculation we require the following assumptions:

1. The NMW will only affect income from work.

2. All low-income workers work the same number of average weekly hours.

3. There are on average 4.3 work weeks per month.

4. All low-income workers earn at least the minimum wage.

5. Workers do not earn additional wages for overtime.

6. The annual effective wage/salary inflation rate between 28 February 2017 and 1 May 2018 is 7.42%.

To account for inflation, the minimum wage will be discounted back from 1 May 2018 prices to 1 March 2011 prices. However, the most recent average monthly earnings data is available for February 2017. Hence, the need for an inflation rate assumption. The average monthly earnings was R18 687 in February 2017 and R12 262 in February 2011 (Statistics South Africa, 2011, 2017). This amounts to 7.42% per annum average earnings inflation. Using this rate, the minimum wage in March 2011 prices is estimated to be R12.09 per hour.

As a consequence of these assumptions, the NMW can only cause household income from work to increase. Additionally, the assumed average hours worked will be varied to gain a better understanding of the potential effect of the NMW. Ultimately, we have the following formula to determine household income after the NMW is introduced:

$$MAX(Current\,Income, n * h * 12.09 * 4.3 * 12),\ where:$$

- n is the number of salary/wage earners in the household.
- h is the assumed number of average weekly hours.

5 Results

5.1 Income from Work Decile Movements

Table 2 below shows the results of the household movement estimation process. There are 14 645 low-income households (in deciles 0 - 4) and 7 136 households in deciles 1-4. Overall, we can see the number of households expected to move up at least one income deciles is 5 792 if we assume a 45, 40 or 35 hour average work week and 4 315 if we assume 30 hours. More specifically, we can see the expected number of movements between each decile pair. For example, if we assume a 40 hour work week, 131 households are expected to move from decile 1 to decile 6. Some decile pairs were omitted as no movements were expected between them for any weekly hours assumption.

Furthermore, notice that some households do move up a significant number of deciles. Specifically, assuming 45, 40 or 35 hours, one household moves from decile 1 to 9. Overall, only a small number of households are expected to have such large increases in income. For example, if we assume a 45 hour work week, only 17 households move up more than 5 deciles.

Table 2: COICOP Codes Used to Define Binary Response Variables

		Movements assuming average hours worked is:			
Decile Before	**Decile After**	**45**	**40**	**35**	**30**
1	3	0	0	0	1 642
1	4	1 642	1 642	1 642	0

Continued on next page

Table 2 – continued from previous page

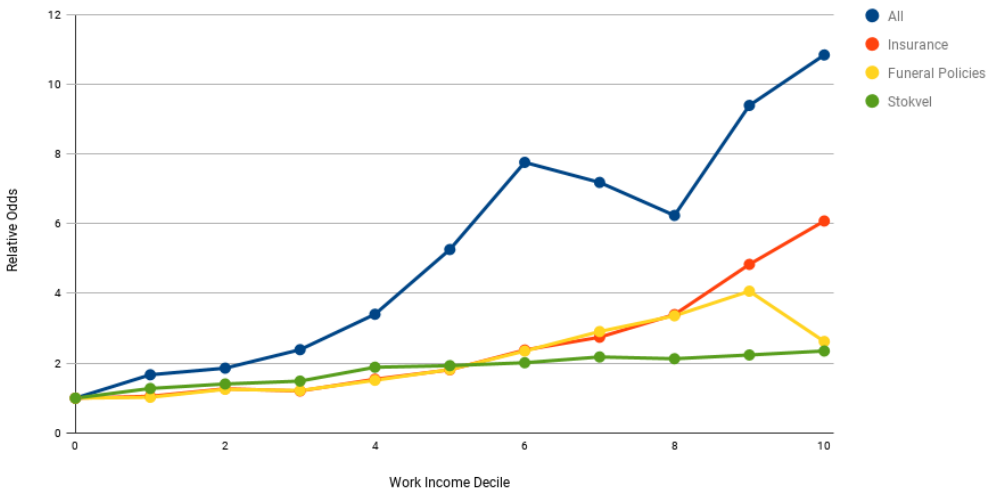
1	5	0	0	0	131
1	6	131	131	131	11
1	7	11	11	12	1
1	8	1	1	0	1
1	9	1	1	1	0
2	3	0	0	0	1 539
2	4	1 539	1 539	1 539	0
2	5	0	0	0	218
2	6	218	218	218	24
2	7	24	24	28	4
2	8	4	4	0	0
3	4	1 477	1 477	1 477	0
3	5	0	0	0	267
3	6	267	267	267	27
3	7	27	27	29	2
3	8	4	4	2	2
4	5	0	0	0	403
4	6	403	403	403	38
4	7	38	38	42	4
4	8	5	5	1	1
		5 792	**5 792**	**5 792**	**4 315**

5.2 Models of Expenditure on Financial Products

Logistic models were successfully fitted for the following groups: all financial products and debt obligations (All), all insurance products (Insurance), funeral policies and stokvels. The model fitting process identified numerous significant explanatory variables for each of the groups.

Figure 1 shows the odds, relative to the '0' factor level, of households spending money on the 4 different expenditure groups. There appears to be an increase in relative odds, for the lower deciles, for all the groups. These results suggest a positive relationship between expenditure and work income and will be explained in more detail in the subsections below.

Figure 1: Relative Odds of Work Income Decile
(Using Decile 0 as a Reference Group)



5.2.1 All Financial Products

Table 3 gives the relative odds, their corresponding 95% confidence intervals and p-values for the All model. These relative odds are illustrated by the

blue line in Figure 1. Furthermore, p-values show the statistical significance of the relative odds. For example, the p-value of the relative odds in decile 1 is small (< 0.05). This suggests a movement from decile 0 to decile 1 would result in a statistically significant increase in the odds of expenditure.

Looking at the p-values, we can see that all the relative odds are statistically significant. This suggests that movement from any decile will result in a change in the odds of household expenditure on financial products.

Table 3: Relative Odds of Work Income Deciles for All Financial Products (Using Decile 0 as a Reference Group)

Decile	Odds	2.5%	97.5%	p-value
1	1.67	1.4553	1.9164	< 0.0001
2	1.8594	1.6123	2.1445	< 0.0001
3	2.3895	2.0535	2.7805	< 0.0001
4	3.4045	2.889	4.012	< 0.0001
5	5.2603	4.3588	6.3481	< 0.0001
6	7.7581	6.2154	9.6838	< 0.0001
7	7.183	5.6337	9.1585	< 0.0001
8	6.2374	4.7914	8.1199	< 0.0001
9	9.3903	6.4206	13.7334	< 0.0001
10	10.837	6.1241	19.1769	< 0.0001

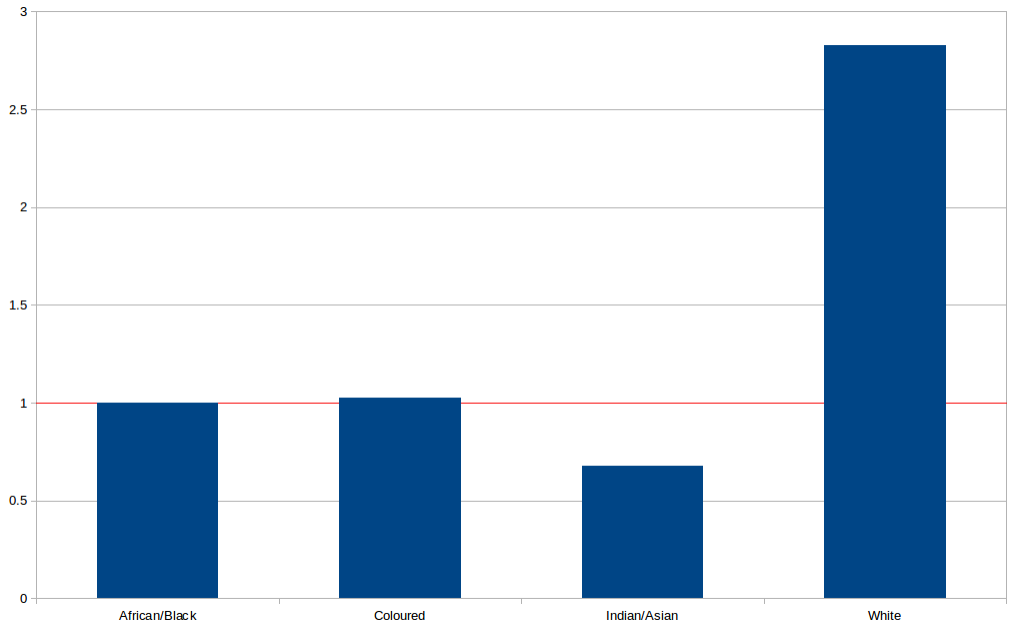
For the lower income deciles, we see an increase in relative odds. For example, if the NMW causes a household to move from income decile 2 to 3, the odds of that household purchasing a financial product will increase. Furthermore, notice that the relative odds decrease from decile 6 to 7 and again from 7 to 8. The relative odds in these deciles are still higher than for the lower deciles (1 to 5). In other words, households moving from the lower

deciles to decile 7 or 8 will still experience an increase in odds.

We can now use the household movement estimates calculated in section 5. The total number of household that experience an increase in odds will be 5 792 if we assume a 45, 40 or 35 hours and 4 315 if we assume 30 hours. This is because all movements from lower quantiles will result in a significant increase in the odds.

Figure 2, shows how the odds differ between population groups. There is no significant difference between Black/African and Coloured households. The odds of Indian/Asian households are significantly lower and the odds of White households are significantly higher compared to Black/African households. The models identified various other significant explanatory variables including province, the gender of household head, other sources of income and household size.

Figure 2: Relative Odds of Population Groups
(Using Black/African as a Reference Group)



5.2.2 All Insurance Products

The insurance model can be interpreted in the same way as above. Although, looking at Table 4, notice that decile 1's relative odds are insignificant (p-value 0.3728). This implies that a movement from decile 0 to decile 1 will not result in a significant change in the odds of expenditure on insurance products. However, this will not affect the results as, under the movement estimation assumptions, no households will move from decile 0.

Movements from deciles 1, 2, 3 and 4 are significant. Hence, we have the same number of households experiencing an increase in the odds of purchasing insurance products as for the All model above. That is between 5 792 and 4 315 households.

Table 4: Relative Odds of Work Income Deciles for All Insurance Products (Using Decile 0 as a Reference Group)

Decile	Odds	2.5%	97.5%	p-value
1	1.0529	0.9401	1.1792	0.3728
2	1.2678	1.131	1.4212	0.0017
3	1.2052	1.0725	1.3544	< 0.0001
4	1.5424	1.3713	1.7348	< 0.0001
5	1.8119	1.6072	2.0427	< 0.0001
6	2.379	2.0989	2.6965	< 0.0001
7	2.7461	2.3999	3.1422	< 0.0001
8	3.3951	2.9183	3.9497	< 0.0001
9	4.8342	3.9992	5.8434	< 0.0001
10	6.0774	4.6963	7.8648	< 0.0001

5.2.3 Funeral Policies

Looking at Table 5, we see that movements from lower deciles (besides 0) are all significant. Hence, once again we have the same number of low-income households experiencing an increase in the odds of purchasing funeral policies as for the All and Insurance models.

An interesting aspect of this model is the decrease in odds from decile 9 to 10. This can be seen clearly in Figure 2, where the yellow line representing the odds for funeral policies, decreases after decile 9.

Table 5: Relative Odds of Work Income Deciles for Funeral Policies (Using Decile 0 as a Reference Group)

Decile	Odds	2.5%	97.5%	p-value
1	1.0246	0.9158	1.1463	0.6713
2	1.2539	1.1209	1.4027	0.0001
3	1.2176	1.0859	1.3653	0.0008
4	1.5118	1.3478	1.6958	< 0.0001
5	1.8198	1.6198	2.0446	< 0.0001
6	2.3499	2.0875	2.6452	< 0.0001
7	2.9086	2.5748	3.2857	< 0.0001
8	3.3606	2.9629	3.8116	< 0.0001
9	4.0655	3.5505	4.6553	< 0.0001
10	2.6236	2.2655	3.0384	< 0.0001

5.2.4 Stokvel

Table 6, shows that all the relative odds for the stokvel model are significant. Hence, the total number of households that experience an increase in odds

of investing in a stokvel will be between 5 792 and 4 135 - the same as for the above models.

Stokvels and funeral policies are included in the bundle of products for the All model. Hence, the increase in odds for all financial products can be partly explained by the increase in odds for these products. Additionally, funeral policies are included in the bundle of products used for the Insurance model. Hence, they also contributed to the increase in odds for all insurance products.

Table 6: Relative Odds of Work Income Deciles for Stokvels
(Using Decile 0 as a Reference Group)

Decile	Odds	2.5%	97.5%	p-value
1	1.2776	1.0658	1.5316	0.0081
2	1.4062	1.177	1.6801	0.0002
3	1.4886	1.2393	1.7881	< 0.0001
4	1.8859	1.5785	2.2531	< 0.0001
5	1.9314	1.6092	2.3183	< 0.0001
6	2.0148	1.6761	2.4219	< 0.0001
7	2.1804	1.8168	2.6166	< 0.0001
8	2.1297	1.7631	2.5724	< 0.0001
9	2.2374	1.8342	2.7292	< 0.0001
10	2.3515	1.853	2.9841	< 0.0001

6 Conclusion

The new NMW legislation could have some serious adverse effects. However, it is apparent that the minimum wage panel has considered all the aspects

and implications of a NMW. They have created legislation that will limit any adverse consequences. In other words, the NMW will likely have a positive effect on poverty and inequality whilst having no significant impact on employment. The most important effect, for this paper, is that the NMW will most likely increase the real wages for low-income workers in SA.

Subsequently, the effect of the NMW on low-income household income from work was estimated. The calculation required various assumptions. Specifically, the average hours worked per week was varied, using an assumption of 45, 40, 35 and 30 hours. Ultimately, we found that between 5 792 and 4 135 households would move up at least one income from work decile.

Amongst these households, we see a small number of them move up a large number of deciles (i.e more than 5). Specifically, we see some households move up 8 deciles. It is unlikely that the NMW would have such a drastic effect on household income. This is ultimately a result of the assumptions made to estimate the movements and we should consider any results with the accuracy of these assumptions in mind.

This estimated increase in household income suggests financial products will become more affordable for low-income households. However, this does not necessarily mean the households will spend their additional income on financial products. The logistic regression models aimed to investigate this distinction and we found a positive relationship between income from work and expenditure on financial products. Specifically, according to the model of all financial products movements from the low-income deciles will result in a significant increase in the odds of expenditure. This implies that between 5 792 and 4 135 low-income households will be more likely to purchase financial products due to the NMW. This amounts to between 40% and 28% of the

low-income households.

The models for all insurance products, funeral policies and stokvels give us an idea of which products low-income households will spend their money on. The models imply, as above, between 5 792 and 4 135 of households will be more likely to purchase insurance, funeral policies and/or invest in stokvels. We should, therefore, see an increase in purchases of these products as a result of the NMW.

However, the relationship between income and expenditure is not always positive for the higher income deciles. For funeral policies, there is a decrease in relative odds from decile 9 to 10. This may be because higher income earners tend to substitute them for more comprehensive life insurance products. However, the exact reason for this is beyond the scope of this paper and does not affect the results for low-income households.

Additionally, according to the model of all products, White households are most likely to purchase financial products followed by Black/African and Coloured households. Subsequently, Indian/Asian households are least likely to purchase financial products. This relationship highlights that income from work is not the only significant factor in determining expenditure on financial products.

Ultimately, these results suggest that the new NMW will increase the number of purchases of financial products by low-income households. However, as the IES sample weights have not been used we cannot simply extrapolate the results to the entire country. Nonetheless, the sample does cover the entire population and we should expect similar results in South Africa as a whole. The survey was also conducted in 2010/2011 and so changes in consumer behavior should be taken into account.

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A Additional material

Table 7: COICOP Codes Used to Define Binary Response Variables

Insurance

12521010	Insurance on buildings
12521020	Insurance on contents of dwellings
12521030	Package insurance
12531020	Medical insurance
12531110	Medical aid contribution Paid by household member in private institution
12531200	Insurance paid for holiday purposes (Life; luggage; medical)
12541100	Insurance for private transport
12551000	Insurance on cellphones
12551020	Funeral policies

Services and Interest

12621010	Interest on mortgage bonds
12621020	Bank charges
12621040	Interest or finance charges

UIF

53300000	Unemployment insurance fund (UIF) 12 months

Savings

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52410000	Repayment on loans and overdrafts
52421000	Contribution to pension; provident and annuity funds
52320000	Life insurance covering mortgage debt
52500000	Contributions to a stokvel

Debt

70100000	Bond loan from the bank 12 Months
70101000	Bond loan from the bank outstanding debts
70110000	Other loans 12 months
70111000	Other loans specify outstanding debts
70120000	Other Bonds - oustanding amount
70121000	Other Bonds
70200000	Motor vehicle loan from the bank 12 months
70210000	Motor vehicle loan from the bank outstanding debts
70300000	Bank overdraft 12 months
70310000	Bank overdraft outstanding debts
70400000	Other bank loans 12 months
70410000	Other bank loans outstanding debts
70500000	Furniture and appliances - 12 months
70510000	Furniture and appliances - amount outstanding
70600000	Retail stores (clothers on account or lay-bye) - 12 months
70610000	Retail stores (clothes on account or lay-bye) - amount outstanding
70700000	Loans from friends and family 12 months
70710000	Loans from friends and family outstanding debts

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70800000	Loans from money lenders 12 months
70810000	Loans from money lenders outstanding debts
70900000	Arreas on municipal bills 12 months
70910000	Arrears on municipal bills outstanding debts

Table 8: COICOP Codes Used to Define Explanatory Variables

Employer Contributions

52422000	Employer contribution to pension; provident and annuity fund
51973000	Medical aid contribution Contribution by employer in private institutions

Income

50100000	Income from work
50331000	Old age pensions
50332000	Disability grants
50333000	Family and other allowances
50333100	Care Dependency Grant
50333200	Foster Care Grant
50333300	Grant-In-Aid
50333400	War Veteran's Grant
50333500	Other assistance from government
50400000	Income from persons currently not HH members

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50510500	Good and services received by virtue of occupation
50519000	Income not elsewhere specified
50519100	Income from Other sources
50600000	Imputed rent on owned dwellingI 7% PerYear of Dwelling

Income in-kind

51200000	Free Water
51300000	Free Sanitation
51400000	Free Electricity
51520000	Value of discounted fares for educational purposes
51530000	Value of discounted fares for non educational purposes
51730000	Textbooks for public institutions - Grant
51740000	Textbooks for private institutions - Grant
51770000	Other; specify - Grant(eg junior laptops; training and adult education) for public institutions
51780000	Other; specify - Grant (eg junior laptops; training and adult education) for private institutions
51801000	Pre-primary education in public institutions - Grant
51802000	Pre-primary education in private institutions - Grant
51803000	Primary education (includes literacy programmes for students too old for primary school) in public institutions - Grant
51804000	Primary education (includes literacy programmes for students too old for primary school) in private institutions - Grant
51805000	Secondary education (includes out-of-school secondary education

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	for adults and young people) in public institution - Grant
51806000	Secondary education (includes out-of-school secondary education for adults and young people) in private institution -Grant
51807000	Tertiary education Education not definable by level (excluding driving and music lessons; sport etc) in public institutions - Grant
51808000	Tertiary education Education not definable by level (excluding driving and music lessons; sport etc) in private institutions - Grant
51809000	Vocational training in public institutions - Grant
51810000	Computer certification public schools - Grant
51811000	Other (including language classes) in public institutions - Grant
51812000	Excursions (field trips) in public institutions - Grant
51813000	Vocational training in private institutions - Grant
51814000	Computer certification private schools - Grant
51815000	Other (including language classes) in private institutions - Grant
51816000	Excursions (field trips) in private institutions - Grant
51817000	Other tuition fees for public institutions - Grant
51818000	Other tuition fees for private institutions - Grant
51910000	Schools boarding fees in public institutions - Grant
51920000	Teachers training and technical colleges; technikons boarding fees in public institutions - Grant
51930000	Universities boarding fees in public institution - Grant
51940000	Schools boarding fees in private institutions - Grant
51950000	Teachers training and technical colleges; technikons boarding fees in private institutions - Grant

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51960000	Universities boarding fees in private institution - Grant
51971000	Day-care mothers; creches and playgrounds in public institutions - Grant
51972000	Day-care mothers; creches and playgrounds in private institutions - Grant
51990000	Income in kind

Table 9: Potential Explanatory Variables

Variable Name	**Description**	**Type**	**Range**
workIncome	Money income from work (Coicop: 50100000)	Continuous	0-14 308 772
workIncomeDecile	Income from work decile, including a level for no income from work	Categorical	0-10
otherIncome	Money income from all other sources except for work	Continuous	0-14 308 772
otherIncomeDecile	Income from other sources decile, including a level for no income	Categorical	0-10

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Variable Name	Description	Type	Range
inKindIncome	All income besides money and employee contributions.	Continuous	0-14 308 772
employerCont	Employer contribution to pension, provident and annuity fund and medical aid scheme	Continuous	0-14 308 772
incomeDecile	The decile in which the households income falls	Discrete	1-10
province	The province in which the household is located	Discrete	1=Western Cape 2=Eastern Cape 3=Northern Cape 4=Free State 5=KwaZulu-Natal 6=North West 7=Gauteng 8=Mpumalanga 9=Limpopo
settlementType	Type of settlement	Discrete	1=Urban formal 2=Urban informal 4=Traditional area 5=Rural formal

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Table 9 – continued from previous page

Variable Name	Description	Type	Range
hSize	Number of individuals in the household	Discrete	1-21
genderOfHead	Gender of the households head	Dicrete	1=Male 2=Female
popGrpOfHead	Race of the households head	Discrete	1=African/Black 2=Coloured 3=Indian/Asian 4= White
personsSupported	Number of individuals outside of the households supported by the household	Discrete	0-7