

# Southern Africa Labour and Development Research Unit



## New Evidence on Subjective Wellbeing and the Definition of Unemployment in South Africa

*by*

*Neil Lloyd and Murray Leibbrandt*

## About the Author(s) and Acknowledgments

Neil Lloyd - SALDRU, University of Cape Town, South Africa

Murray Leibbrandt - Director, SALDRU, University of Cape Town, South Africa

Neil Lloyd acknowledges the financial support of the National Research Foundation and the National Income Dynamics Study.

Murray Leibbrandt acknowledges the Research Chairs Initiative of the Department of Science and Technology and National Research Foundation for funding his work as the Research Chair in Poverty and Inequality

## Recommended citation

Lloyd, N., Leibbrandt, M. (2013). New evidence on subjective wellbeing and the definition of unemployment in South Africa. A Southern Africa Labour and Development Research Unit Working Paper Number 94. Cape Town: SALDRU, University of Cape Town

---

ISBN: 978 1 920517 35 9

© Southern Africa Labour and Development Research Unit, UCT, 2013

Working Papers can be downloaded in Adobe Acrobat format from [www.saldru.uct.ac.za](http://www.saldru.uct.ac.za).  
Printed copies of Working Papers are available for R15.00 each plus vat and postage charges.

Correspondence to:

Brendan Maughan-Brown, PhD

Southern Africa Labour and Development Research Unit (SALDRU), University of Cape Town

Private Bag, Rondebosch, 7701, Cape Town, South Africa

E-mail: [brendan.maughanbrown@gmail.com](mailto:brendan.maughanbrown@gmail.com)

Telephone: +27-21-650-5695

Orders may be directed to:

The Administrative Officer, SALDRU, University of Cape Town, Private Bag, Rondebosch, 7701,

Tel: (021) 650 5696, Fax: (021) 650 5697, Email: [brenda.adams@uct.ac.za](mailto:brenda.adams@uct.ac.za)



# **New evidence on subjective wellbeing and the definition of unemployment in South Africa**

N. Lloyd<sup>1</sup> and M. Leibbrandt<sup>2</sup>

---

SALDRU Working Paper Number 94  
University of Cape Town  
May 2013

## **Abstract**

Access to new nationally-representative, individual-level panel data from South Africa has allowed for the revalidation of Kingdon and Knight's (2006) discussion on the definition of unemployment. This paper investigates subjective wellbeing as a measure of comparison between labour market statuses. It finds that on the grounds of subjective wellbeing the non-searching unemployed (or 'discouraged') are significantly worse-off than the not-economically-active. Moreover, evidence suggests that with regard to the relationship between life satisfaction and labour market status, the 'discouraged' have 'hit rock bottom'. This paper therefore advocates for the inclusion of the non-searching unemployed in the labour force and the use of a broad definition of unemployment, on the grounds that rational individuals would not self select into a lower state of wellbeing.

---

<sup>1</sup>Neil Lloyd acknowledges the financial support of the National Research Foundation and the National Income Dynamics Study.

<sup>2</sup>Murray Leibbrandt acknowledges the Research Chairs Initiative of the Department of Science and Technology and National Research Foundation for funding his work as the Research Chair in Poverty and Inequality

## Introduction

The definition of unemployment continues to be a debated topic; especially in countries, such as South Africa, where both strict and broad measures of unemployment continue to be high. South Africa recorded a strict unemployment rate of 25.2% and broad unemployment rate of 36.7% in the first quarter of 2013 (Statistics SA, 2013). For a long time such unemployment rates appeared unrealistic, or even impossible, but since the financial crisis of 2008, many other countries are too experiencing such high levels of unemployment. Given the recent levels of unemployment in both the developing and developed world, and concerns over the impact of high youth unemployment (currently at 52.9% for ages 15-24), the debate surrounding who is and who is not unemployed has never been more pertinent.

A 2006 paper by Kingdon and Knight changes the approach taken in answering this question. They ask: are the searching and non-searching unemployed a similar or dissimilar group of people based on their relative happiness. This differs substantially from the prior research which primarily focuses on probability of transition into employment. However, the South African data underpinning Kingdon and Knight's key findings is now twenty years old and South Africa has undergone considerable economic and social change during this time. This paper therefore revisits this argument. It attempts to reproduce the finding that the non-searching unemployed are just as 'unhappy' as the searching unemployed, whilst adding to the literature in three ways. Firstly, Kingdon and Knight (2006) make use of the SALDRU 1993 Household Survey, which is now twenty years old and unrepresentative of the modern day South Africa. Data from the 2008 and 2010/2011 National Income Dynamics Study (NIDS) is used in this study. Secondly, the longitudinal nature of the NIDS data adds to the study by allowing an examination of the direction of causality. Finally, the data provided by NIDS is individual level data – a vast improvement over the household-level life satisfaction data used by Kingdon and Knight in their original study.

The paper begins with a revision of Kingdon and Knight's (2006) original argument and findings, as well as a brief overview of the surrounding literature. Thereafter, it discusses the key variables and data used in this paper, focusing on the *life satisfaction* variable. The analysis begins with a set of summary statistics and transition matrices – of which one is used to address the problem of reverse causality. The discussion of causality is central to this debate and the position taken in this paper is reinforced by means of a probit model. Finally, the paper replicates the findings of Kingdon and Knight by means of an ordered-logit model.

The findings reinforce the position of Kingdon and Knight (2006). We confirm the notion that the non-searching are distinct from the not-economically-active with regard to subjective wellbeing. However, it also finds that they may be a distinct group from the searching unemployed. The non-searching are found to be significantly worse-off than both of these groups with regard to life satisfaction; hence warranting the title 'discouraged' and inclusion in the labour force.

## Literature review

Prior to Kingdon and Knight's (2006) work on South African unemployment the international literature surrounding the unemployment debate centred around two main arguments. The first argument, the 'discouraged worker' hypothesis, suggests that the searching status of the unemployed is exogenously determined by economic conditions (see also Finegan, 1978). This line of reasoning attempts to separate the notions of endogenously and exogenously determined non-searching behaviour. Only if it can be shown that the non-searching unemployed halted their searching activities because of exogenously determined factors such as high search costs or a low perceived probability of success would one want to consider them unemployed, as opposed to not-economically-active (see also Dinkelman and Pirouz, 2002).

Kingdon and Knight (2006) separate this line of reasoning into two hypotheses, the 'taste for unemployment' hypothesis (endogenously determined non-searching behaviour) and the 'discouraged worker' hypothesis (exogenously determined non-searching behaviour). Evidence from Blundell *et al* (1998), Tachibanaki (1991), Kuch and Sharir (1978) and Ondeck (1978) suggests that, in developed countries at least, adverse economic conditions significantly reduce the number of searching unemployed. This confirms the notion of a 'discouraged worker' effect. However, Finegan (1981) finds that 'most workers whose labour-force participation is influenced by the discouraged worker affect (i.e., whose participation varies pro-cyclically) are never reported as discouraged workers, while many who are discouraged did not become so as a result of general economic conditions'.

The second argument looks to differentiate the unemployed and not-economically-active on the basis of their probability of transition into employment. If an underutilization of the labour force is the primary concern with regard to unemployment, then an assessment of the probability of transition into employment would be an indication of such underutilization. The works of Clark and Summers (1979), Flinn and Heckman (1983), Gonul (1992), and Jones and Riddell (1999) fall in this tradition. However, Kingdon and Knight (2006) indicate that such tests often fail when unemployment is high. Moreover, this literature mainly consists of studies of North American and European economies, and at the time of Kingdon and Knight (2006) utilized longitudinal datasets for which there were no South African equivalents<sup>3</sup>.

Therefore Kingdon and Knight (2006) adopt a similar approach to this last group in South Africa, but without longitudinal data. They compare the characteristics of the searching and non-searching unemployed, but avoid the probability of transition premise. Moreover, they go beyond a comparison of household and individual characteristics between labour market statuses, as given by Dinkelman and Pirouz (2002). Instead they offer three new arguments on which to make the case that the non-searching unemployed are indistinguishable from the searching unemployed and therefore belong in the labour force. The first of these is a comparison of poverty rates; the second, a comparison of satisfaction levels; and the third, the relative impact on local wages.

---

<sup>3</sup>Dinkelman (2004) is one study on the definition of unemployment in South African which makes use of longitudinal data (although, the data is not nationally representative). The findings serve mainly to reinforce the link between search activities and labour market outcomes and the household determinants of search activities.

Kingdon and Knight present evidence for both the first and third argument in support of the 'discouraged worker' effect. They find that the non-searching unemployed are significantly more deprived than the searching; which, assuming an individual would not choose to be more deprived, sheds doubt on the 'taste for unemployment' hypothesis. On the third account they find that the number of non-searching unemployed has a significant impact on local wage determination. However, it is their second argument that forms the focus of this paper. Kingdon and Knight (2006) make use of self-reported life satisfaction data to compare the subjective wellbeing of the searching and non-searching unemployed. If the assumption holds that an individual would not voluntarily choose to be 'unhappy', it follows that a significant difference between the satisfaction of those who choose to be outside of the labour force (the not-economically-active) and those who want to work, but are not actively searching for work could identify two distinct groups. They find that on average the non-searching unemployed are as dissatisfied as the searching unemployed in comparison to the not-economically-active. On this basis they once again argue for the 'discouraged worker' hypothesis and the inclusion of the discouraged in the labour force.

Kingdon and Knight's analysis of the SALDRU 1993 life satisfaction data is not without its short comings. The first of these, and possibly the most important, is that the life satisfaction variable they use is a household level variable. The variable is derived in the response to the question: 'taking everything into account, how satisfied is this *household* with the way it lives these days?'. Hence, it does not directly capture the relationship between life satisfaction and labour market status of the relevant individual. Similarly, the household's searching and non-searching unemployment rate has to be used in the models as opposed to individual labour market status. A second limiting factor in Kingdon and Knight's (2006) analysis is the use of cross-sectional data. Beyond the restrictions this puts on the econometrics techniques that can be used, it prevents a clear study of the direction of causality. Kingdon and Knight depend on the works of Winkelmann and Winkelmann (1998) and Clark (2003) to dismiss the concern over reverse causality. Winkelmann and Winkelmann (1998) show that those who enter a state of unemployment report a negative change in satisfaction and those who exit report a positive change in satisfaction, as one would expect were there to be no concern for reverse causality. Finally, the SALDRU 1993 dataset, although extremely important, is now a fairly poor representation of the modern South Africa.

This study addresses each of the aforementioned short comings. The NIDS longitudinal dataset, used here, currently consists of two waves from 2008 and 2010/2011. It therefore allows for a more contemporary analysis of the topic, as well as an interesting look into the pre- and post-financial-crisis South Africa. The longitudinal nature of the data allows for a more accurate look at the direction of causality within the South African context, and because NIDS is an individual level dataset, allows for a more accurate link between life satisfaction and labour market status.

## Data & summary statistics

As previously mentioned the data used in this analysis is that of the 2008 and 2010/2011 waves of the National Income Dynamics Study, an individual level longitudinal survey of South Africa (Brown *et al.*, 2012). The sample used is that of working-aged adults (ages 15-64) who report a level of life satisfaction. This definition coincides with that reported by Statistics South Africa in their Quarterly Labour Force Survey, which in turn upholds the ILO definition. The NIDS dataset includes 14 112 working-aged adults who completed the adult questionnaire in wave 1 and 16 197 working-aged adults who were successfully interviewed in wave 2 (this includes temporary sample members). This number excludes proxy members in the dataset as proxy interviewees were unable to answer life satisfaction questions. Of the balanced working-aged panel of 11 388 individuals 9 628 successfully answered the life satisfaction question in both waves. Of the wave 1 working-age sample 77% were successfully re-interviewed; thus, there is a reasonably high attrition rate amongst this sub population. However, this rate corresponds closely to the total attrition rate of 19% - excluding individuals who died or moved 'out of scope' (Brown *et al.* 2012, 22).

The primary variable of interest is that of perceived life satisfaction. The variable is derived from adults' answers to the following question, 'Using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied", how do you feel about your life as a whole right now?'. This question follows sections in the adult questionnaire relating to labour market status, education, health, and income; in fact, it is one of the last sections covered, followed only by biometric measurements and a numeracy test (only in 2008). Thus, the answers given should be equally biased by considerations of employment status, income and health. It is important to note that the variable of interest is a measure of life-satisfaction and not happiness. For the purposes of comparison, it is the same definition used in Winkelmann and Winkelmann (1998). The majority of work done by Clark uses data from the British General Health Questionnaire (GHQ) and is constructed by combining a series of answers relating to mental health (see Clark and Oswald, 1994)<sup>4</sup>.

Table 1 offers a brief set of summary statistics for the sample. It reports mean satisfaction levels for both waves of data, each treated as a separate cross-sectional dataset. It divides the sample into four labour statuses: employed, not-economically-active, searching unemployed and non-searching unemployed (otherwise referred to as discouraged). NIDS has defined these categories according to the conventions of the International Labour Organisation (Brown, *et al.*, 2012). In particular, the non-searching unemployed (or discouraged) are defined as those who are not employed, want to work, but have not actively looked for a job in the past four weeks. In addition, the table includes subsets of the searching and non-searching in an attempt to identify distinct groups amongst African-male cohorts and the youth labour force. The interest in the youth labour force relates to recent political and economic concerns regarding the impact and growth of youth unemployment in South Africa.

---

<sup>4</sup> It could be argued that the variable derived from the NIDS survey is a more obvious proxy for individual utility as question relates directly to satisfaction and is not derived from questions relating to mental health and state of mind (Posel, 2012). For a detailed discussion of the NIDS's satisfaction variable see Posel (2012).

**Table 1. Average life satisfaction and proportion dissatisfied amongst working-aged adults (ages 15-64) in 2008 and 2010/2011.**

		<b>2008</b>	<b>2010/2011</b>
<b>Employed</b>	Mean	5.793 (0.0818)	5.499 (0.118)
	% dissatisfied	0.269 (0.0153)	0.335 (0.0209)
	<b>N</b>	<b>5250</b>	<b>4042</b>
<b>Not-Economically-Active</b>	Mean	5.505 (0.105)	4.760 (0.107)
	% dissatisfied	0.359 (0.0170)	0.487 (0.0185)
	<b>N</b>	<b>4542</b>	<b>6530</b>
<b>Unemployed</b>	Mean	5.159 (0.137)	4.410 (.)
	% dissatisfied	0.395 (0.0222)	0.530 (.)
	<b>N</b>	<b>1657</b>	<b>1187</b>
<b>Unemployed-African Male</b>	Mean	4.942 (.)	4.244 (.)
	% dissatisfied	0.445 (.)	0.560 (.)
	<b>N</b>	<b>512</b>	<b>413</b>
<b>Unemployed-Ages 15-24</b>	Mean	5.514 (.)	4.520 (.)
	% dissatisfied	0.342 (.)	0.474 (.)
	<b>N</b>	<b>573</b>	<b>447</b>
<b>Unemployed-Ages 25-34</b>	Mean	5.155 (0.221)	4.452 (.)
	% dissatisfied	0.393 (0.0382)	0.540 (.)
	<b>N</b>	<b>567</b>	<b>373</b>
<b>Discouraged</b>	Mean	4.991 (0.163)	3.933 (.)
	% dissatisfied	0.434 (0.0278)	0.636 (.)
	<b>N</b>	<b>845</b>	<b>635</b>
<b>Discouraged-African Male</b>	Mean	4.378 (.)	3.445 (.)
	% dissatisfied	0.544 (.)	0.745 (.)
	<b>N</b>	<b>160</b>	<b>198</b>
<b>Discouraged-Ages 15-24</b>	Mean	5.175 (.)	3.935 (.)
	% dissatisfied	0.415 (.)	0.624 (.)
	<b>N</b>	<b>289</b>	<b>237</b>
<b>Discouraged-Ages 25-34</b>	Mean	4.568 (.)	3.768 (.)
	% dissatisfied	0.502 (.)	0.659 (.)
	<b>N</b>	<b>228</b>	<b>157</b>

Source: Own calculations using NIDS wave 1 and 2.

Notes: Wave specific cross-sectional weights used for each wave, as well as corrections for survey design. Standard errors are reported in parentheses.

The first, and most immediate, observation from the above table is that average satisfaction amongst all unemployed (searching and non-searching) individuals is significantly lower than that of either employed or not-economically-active individuals. A second immediate observation is that all cohorts experienced a drop in average satisfaction between waves 1 and 2. Posel (2012) suggests that this is largely driven by the African adults where just over half of subsample reported a lower satisfaction level in 2010/2011. This may relate to changing economic conditions between 2008 and 2010/2011, as a result of the 2008 Global Financial Crisis. Of interest however, is the fact that even employed and not-economically-active individuals reported on average a decline in satisfaction during this period. Hence, the decline in satisfaction during this period need not only relate to cyclical unemployment, but to broader factors relating to employment conditions and remuneration. However, to restate, these figures represent two cross-sections and not a balanced panel.

The transition matrix reported below tracks the labour market status of the balanced panel between 2008 and 2010/2011. Included in this are row percentages, number of observations, and the average change in satisfaction for each cell. The diagonal, which represents those whose labour market status did not change between waves, confirms that even those who remained employed post 2008 reported a decline in satisfaction. Of interest (although the sample is small), those who remained discouraged between waves did not report such an average decline in satisfaction. Only those who entered a state of discouragement in 2010/2011 report a large drop in satisfaction – in fact, the highest average drop across all statuses in 2010/2011 is reported by individuals entering, for the first time, a state of ‘discouragement’. In comparison, across 2008 labour market statuses those who were originally discouraged experienced a lower average decline in satisfaction between waves.

**Table 2. Transition matrix of labour market status with mean change in satisfaction.**

Employment Status in 2008	Employment Status in 2011				Total
	Unemployed	Discouraged	Employed	Not-econ.-active	
Unemployed	281	103	403	553	<b>1340</b>
	21.43	6.25	32.51	45.72	<b>100</b>
<i>Mean Change</i>	<i>-0.579</i>	<i>-0.798</i>	<i>-0.257</i>	<i>-0.671</i>	<b><i>-0.531</i></b>
Discouraged	113	65	167	364	<b>709</b>
	17.52	9.61	27.16	45.72	<b>100</b>
<i>Mean Change</i>	<i>-0.674</i>	<i>0.120</i>	<i>-0.334</i>	<i>-0.408</i>	<b><i>-0.327</i></b>
Employed	272	163	2479	1069	<b>3983</b>
	6.79	3.44	68.90	20.87	<b>100</b>
<i>Mean Change</i>	<i>-1.555</i>	<i>-1.403</i>	<i>-0.518</i>	<i>-0.592</i>	<b><i>-0.626</i></b>
Not-econ.-active	376	216	520	2722	<b>3834</b>
	12.18	5.44	15.04	67.34	<b>100</b>
<i>Mean Change</i>	<i>-0.773</i>	<i>-1.463</i>	<i>-0.236</i>	<i>-0.633</i>	<b><i>-0.629</i></b>
<b>Total</b>	<b>1042</b>	<b>547</b>	<b>3569</b>	<b>4708</b>	<b>9866</b>
	<b>11.49</b>	<b>4.91</b>	<b>42.37</b>	<b>41.23</b>	<b>100</b>
	<b><i>-0.931</i></b>	<b><i>-1.130</i></b>	<b><i>-0.437</i></b>	<b><i>-0.616</i></b>	<b><i>-0.592</i></b>

Source: Own calculations using NIDS wave 1 and 2.

Notes: Panel weights as well as corrections for survey design were used in the estimation of this table. Row percentages are reported as well as the mean change in satisfaction (only panel weights were used for the satisfaction estimates).

Table 1 demonstrated that on average the discouraged were worse off than even the searching unemployed. In addition, from Table 2 we see that the transition from searching to non-searching unemployment involved a drop in satisfaction, whilst those who remained discouraged experienced little change in satisfaction between waves. In fact, those who remain discouraged may even have experienced a slight increase in satisfaction. This suggests that with regard to labour market status those individuals who would like to work but are not actively searching for a job have ‘hit rock bottom’ with regard to life satisfaction.

However, this brings into question the direction of causality. Do discouraged individuals have a tendency to give up searching because of their lower satisfaction levels and/or possible pre-disposition towards ‘giving up’; or are they less satisfied because outside factors have limited their employment prospects, thereby lowering the expected returns of search activities, and leaving them discouraged? This is another way of framing the endogenous-exogenous unemployment problem and will be discussed in detail in the following section.

### Discouragement and satisfaction: in which direction does causality lie?

As previously mentioned, Kingdon and Knight (2006) are unable to give attention to issue of causality in their paper because of the cross-sectional nature of the data at their disposal. Instead, they refer to the works of Clark (2003) and Winkelmann and Winkelmann (1998), whose work with German Socio-economic panel data does address this issue. Given that we are working with the NIDS panel data set, we are able to address such concerns. This is done both by means of simple descriptive statistics as well as a regression model. The following table replicates the transition matrix of table 2, but in place of the average change in satisfaction and row percentage, is average wave 1 satisfaction.

**Table 3. Transition matrix of labour market status with wave 1 satisfaction.**

Employment Status in 2008	Employment Status in 2011				<b>Total</b>
	Unemployed	Discouraged	Employed	Not-econ.- active	
Unemployed <i>Wave 1</i>	281 <i>4.918</i>	103 <i>4.305</i>	403 <i>5.193</i>	553 <i>5.194</i>	<b>1340</b> <b>5.082</b>
Discouraged <i>Wave 1</i>	113 <i>5.051</i>	65 <i>4.994</i>	167 <i>4.873</i>	364 <i>5.407</i>	<b>709</b> <b>5.056</b>
Employed <i>Wave 1</i>	272 <i>5.811</i>	163 <i>4.781</i>	2479 <i>5.313</i>	1069 <i>6.037</i>	<b>3983</b> <b>5.825</b>
Not-econ.-active <i>Wave 1</i>	376 <i>5.377</i>	216 <i>5.563</i>	520 <i>5.552</i>	2722 <i>5.438</i>	<b>3834</b> <b>5.508</b>
<b>Total</b>	<b>1042</b> <b>5.340</b>	<b>547</b> <b>5.007</b>	<b>3569</b> <b>5.851</b>	<b>4708</b> <b>5.401</b>	<b>9866</b> <b>5.566</b>

Source: Own calculations using NIDS wave 1 and 2.

Notes: Panel weights as well as corrections for survey design were used in the estimation of this table. Row percentages are reported as well as the mean change in satisfaction (only panel weights were used for the satisfaction estimates).

Table 3 appears to suggest that there may be a degree of reverse causality within the discouraged cohort. Those who are discouraged in the Wave 2 reported a lower Wave 1 satisfaction level on average. This is even lower for those who were either unemployed or employed in 2008, but not for those who were not-economically-active in 2008. In contrast the searching unemployed and not-economically-active in 2011 share a similar wave 1 average satisfaction. If ‘discouragement’ was an exogenous effect then one would expect the group to have the same average wave 1 satisfaction as these other cohorts. The distinction seems to suggest that there is a degree of reverse causality (or endogeneity). However, a transition matrix cannot establish this conclusion definitively. A regression analysis would be able to control for other factors which may be driving this apparent endogenous relationship.

Table 4 gives the results of a probit model, which estimates the significance of wave 1 satisfaction on the probability of being discouraged in wave 2. Life satisfaction is included in the model as a dummy variable due to the categorical nature of the variable. The dependent variable is a dummy variable of wave 2 labour market status where the non-searching unemployed are a 1 and the other three labour market states a 0. The scale of the *satisfaction* variable is reduced from 1-10 to 1-5 as a means of simplifying the output (the satisfaction level 3 is excluded as the base case).

**Table 4. Marginal effects for probit estimation of reverse causality, with a dummy variable of wave 2 labour market status as the dependent variable.**

	<b>Unconditional</b>	<b>Conditional</b>
Wave 1 Satisfaction (=1)	0.032*** (0.009)	0.015 (0.010)
Wave 1 Satisfaction (=2)	0.019** (0.008)	0.005 (0.008)
Wave 1 Satisfaction (=4)	-0.013 (0.010)	-0.006 (0.010)
Wave 1 Satisfaction (=5)	0.006 (0.011)	0.002 (0.011)
Observations	8800	8657
Pseudo R-Squared	0.0125	0.0824

Source: Own calculations using NIDS wave 1 and 2.

Notes: These estimations make use of the balanced panel together with the NIDS-prescribed panel weights. Robust standard errors are reported. Stars report levels of significance: \* for 10%, \*\* for 5%, and \*\*\* for 1% level.

The first column reports the results of an unconditional model, which shows that a reporting a satisfaction value of 1 or 2 (1-4 using the original scale) increases the probability of being discouraged in wave 2, when compared with those who report a satisfaction of 3. However, reporting a satisfaction level higher than 3 (i.e. 4 or 5) has no significant impact on the labour market outcome. This partially supports the conclusions drawn from Table 3, as it suggests that those with a lower level of satisfaction have a higher probability of being discouraged. However, upon the inclusion of socio-economic and demographic controls (given by the second column) we find that this relationship falls away (see Appendix A for the full set of marginal effects). This suggests that there is a degree of unconditional reverse causality, however there is no evidence of conditional reverse causality. It may be that the potential causal relationship observed in Table 3 is driven by endogenous factors such as

geographical location, income and household characteristics. At the end of the day, there is little evidence to suggest that a lower satisfaction increases an individual's probability of being discouraged and causation lies in the direction initially assumed.

## **'Taste for unemployment' versus 'discouraged worker' hypothesis: model and results**

Having reaffirmed Winkelmann and Winkelmann (1998), and Clark's (2003) prior conclusions with regard to causality, this paper moves on to examine more closely the relationship between employment status and satisfaction. It makes use of non-linear estimation techniques to compare the non-pecuniary costs associated with each employment status in an attempt to show that the non-searching unemployed are distinct from the not-economically-active and share similar characteristics to the searching unemployed with regard to subjective wellbeing. The dependent variable in each estimation is life satisfaction (or subjective wellbeing); however, because of the subjective and ordinal nature of the dependent variable linear estimation techniques are not appropriate.

The dependent variable, *satisfaction*, is technically an ordinal, rather than a cardinal, measure of an individual life satisfaction; hence, the use of linear (Ordinary Least Squares) estimations is not appropriate. Nonetheless, a large share of the literature appears to ignore this complicating factor and treats *satisfaction* as a continuous cardinal variable (for further discussion see Ferrer-i-Carbonell and Frijters, 2004)<sup>5</sup>. Two alternative methodologies, which do not require the assumption of cardinality or continuity, exist (Winkelmann and Winkelmann, 1998). Firstly, the *satisfaction* variable can be reduced to a binary variable of 'satisfied' and 'dissatisfied' (where 'satisfied' may translate to a satisfaction level of 5 or greater) upon which a probit/logit model can be used. Alternatively, assuming that *satisfaction* is 'interpersonally ordinal' one can make use of an ordered-probit/logit model as in Clark and Oswald (1994) (Ferrer-i-Carbonell and Frijters, 2004). In this case, collapsing the *satisfaction* variable from a scale of 1-10 to a scale of 1-5 simplifies the estimation. This paper makes use of an ordered-logit model, with *satisfaction* variable of scale 1-5. The employment status variable is reported as a set of dummy variables, with not-economically-active as the base case; this for ease of comparison between the discouraged and not-economically-active. Below are reported the marginal effects for each employment dummy. Given the use of the ordered-logit model, the results are reported for each possible dependent variable outcome; in this case, the values 1 through 5.

Included in the model are individual and household level socio-economic and demographic controls (see Appendix B for the full set of marginal effects). The income variable used is the log of real per capita household income. Other studies, such as Winkelmann and Winkelmann (1998) use total household income; however, because of the vast range of household sizes in NIDS the use of per capita household income was deemed more appropriate. Per capita income was estimated simply as household income divided household size. In addition the income variable was deflated to constant September 2008

---

<sup>5</sup>Linear (OLS) estimation techniques generally report the same set of significant independent variables; however, the interpretation of OLS coefficients is not appropriate given the ordinal and categorical nature of the *satisfaction* variable. Thus, despite their appeal and ease of interpretation, OLS estimations are not used.

prices. The household level variables include number of children and elderly in the household, as well as household size. The individual characteristics controlled for are age, age-squared, gender, subjective health (see Ferrer-i-Carbonell and Frijters, 2004), a dummy variable for religious involvement, education dummies, population group, as well as provincial and geographical dummy variables (for example urban informal). The inclusion of both age and age-squared variables corresponds to the findings of Clark et al (1996) regarding a U-shaped relationship between satisfaction and age. Moreover, age 'is used as a proxy for cohort effects or unobserved social status and health deterioration' (Ferrer-i-Carbonell and Frijters, 2004:646).

**Table 5. Marginal effects of labour market status on life satisfaction**

Satisfaction Value	(1)	(2)	(3)	(4)	(5)
Searching Unemployed	0.013* (0.007)	0.009* (0.005)	-0.002* (0.001)	-0.010* (0.005)	-0.009* (0.005)
Non-Searching Unemployed	0.044*** (0.010)	0.028*** (0.007)	-0.009*** (0.002)	-0.033*** (0.008)	-0.030*** (0.007)
Employed	-0.005 (0.006)	-0.003 (0.004)	0.001 (0.001)	0.004 (0.005)	0.004 (0.004)
Observations	26884				
Pseudo R-Squared	0.0715				

Source: Own calculations using NIDS wave 1 and 2.

Notes: These estimations make use of a pooled dataset of both wave 1 and 2 cross-sectional datasets (including wave 2 Temporary Sample Members). Cross-sectional post-stratified weights were used in all estimations. Standard errors were adjusted for serial correlation and heteroskedasticity, by clustering at the individual level. Stars report levels of significance: \* for 10%, \*\* for 5%, and \*\*\* for 1% level.

There is no significant difference between the life satisfaction probability structure of the employed and not-economically-active. Individuals in these two states seem to report similar levels of satisfaction. On the other hand, the results suggest that there is a significant difference between the subjective wellbeing of the non-searching unemployed and not-economically-active as well as for the searching unemployed and the not-economically-active. In fact, the difference is even stronger for the non-searching unemployed than for the searching unemployed. For example, at the mean of the independent variables, a discouraged individual has a 4.4% higher probability of reporting a satisfaction level of 1. As one would expect, the probability of such an individual reporting a satisfaction of 5 is 3% lower than any not-economically-active individual. Neither of these probabilities is as strong in the case of the searching unemployed; although, they are significant at a 10% level. Appendix C gives separate marginal effects for each wave. The significantly lower satisfaction of the non-searching unemployed, given above, is observed in both waves (although it is stronger in wave 2), whilst the searching unemployed only appear to be significantly worse off in wave 1. In wave 2 the employed are better off than the not-economically-active.

An alternative view of the output from the ordered-logit model is a probability matrix in which each cell reports the probability of attaining a specific y-variable outcome (Long and Freese, 2006). By setting the value of each labour market dummy to either 1 or 0, one is able to attain the probability of achieving each *satisfaction* outcome given a specific labour

market status (including not-economically-active), conditional on the other independent variables. All other independent variables are assumed to hold their mean value. Table 6 reports these probabilities. As expected, they tell a similar story to Table 5. The probability of an individual reporting a satisfaction level of 3 (which represents 5 or 6 on the original scale) is the about 30% for all labour market statuses. However, the discouraged have a higher probability of reporting a value of 1, and lower probability of reporting a 5. This relationship holds, but is weaker, for the searching unemployed.

**Table 6. Probability matrix of labour market status on life satisfaction: Reported as percentages**

Satisfaction Value	(1)	(2)	(3)	(4)	(5)
Not-Economically-Active	15.88	22.93	30.64	19.84	10.72
Searching Unemployed	17.25	23.80	30.32	18.82	9.82
Non-Searching Unemployed	20.65	25.54	29.25	16.55	8.01
Employed	15.36	22.57	30.73	20.24	11.09

Source: Own calculations using NIDS wave 1 and 2.

This suggests that there is a distinct difference between the subjective wellbeing of the non-searching unemployed and not-economically-active, holding other factors constant. These results therefore agree with ‘discouraged worker effect’ put forward by Kingdon and Knight (2006). Moreover, they agree that on the grounds of subjective wellbeing the non-searching unemployed are on average worse-off than the not-economically-active and form a distinct group from the not-economically-active. These results go further to suggest that the non-pecuniary costs associated with being a discouraged individual outweigh those associated with any other state including being an active searcher. The non-searching unemployed appear to be distinct from (and less satisfied) than their searching counterparts on the basis of subjective wellbeing.

## Conclusion

Kingdon and Knight (2006) offer three new arguments on which to make the case that the non-searching unemployed belong in the labour force. This paper re-examined the second of these arguments, that the non-searching unemployed are just as ‘unhappy’ as the unemployed, using data from the National Income Dynamics Study. The results confirm Kingdon and Knight’s (2006) ‘discouraged worker’ hypothesis by showing that there are significant non-pecuniary costs associated with being a discouraged worker. Moreover, the panel data allowed for an analysis of the direction of causation, which confirmed that conditional on socio-economic status a lower satisfaction does not increase the probability of being discouraged. This suggests that the ‘discouragement’ is not an endogenously determined phenomenon. If the assumption holds that no one would choose to be ‘unhappier’ (or less satisfied), then the evidence presented here strongly supports the

'discouraged worker' hypothesis. Indeed, the non-searching unemployed do appear to be distinct from the not-economically-active on the basis of subjective wellbeing.

The evidence goes further to suggest that they are distinct from the searching unemployed. The non-pecuniary costs associated with being discouraged outweigh those of being searching unemployed. Moreover, at a cross-sectional level the non-searching state appears to be a local minimum with regard to subjective wellbeing. The life satisfaction of the not-economically-active who are outside of the labour force appears to be similar to that of the employed. This implies a world of difference between the not-economically-active and the non-searching unemployed. As in 1993, it remains true in 2010 that the discouraged should be included in the labour force. The fact that, in 2008 and 2010, this group is worse off even than the searching unemployed is worthy of further exploration elsewhere. Here, it serves to accentuate just how miserable life is for South Africa's non-searching unemployed.

## Bibliography

- BLUNDELL, R., HAM, J. and MEGHIR, C. (1998). Unemployment, discouraged workers, and female labour supply. *Research in Economics*, 52(2), 103-131
- BROWN, M., DANIELS, R., DE VILLIERS, L., LEIBBRANDT, M. and WOOLARD, I. (2012). National Income Dynamics Study wave 2 user manual. *National Income Dynamics Study*.
- CLARK, K. and SUMMERS, L. (1979). Labor market dynamics and unemployment: a reconsideration. *Brookings Papers on Economic Activity*, 1, 13-72
- CLARK, A. and OSWALD, A. (1994). Unhappiness and unemployment. *Economic Journal*, 104(424), 648-659
- CLARK, A., OSWALD, A. and WARR, P. (1996). Is job satisfaction U-shaped in age? *Journal of Occupational and Organisational Psychology*, 69, 57-81.
- CLARK, A. (2003). Unemployment as a social norm: Psychological evidence from panel data. *Journal of Labour Economics*, 21(2), 323-351
- DINKELMAN, T. (2004). How household context affects search outcomes of the unemployed in Kwazulu-Natal, South Africa: A panel data analysis. *The South African Journal of Economics*. 72(3), 484-521
- DINKELMAN, T. and PIROUZ, F. (2002). Individual, household and regional determinants of labour force attachment in South Africa: Evidence from the 1997 October Household Survey. *The South African Journal of Economics*, 70(5), 865-891
- FERRER-I-CARBONELL, A. and FRIJTERS, P. (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal*, 114(497), 641-659.
- FINEGAN, T. (1978) Improving our Information on Discouraged Workers. *Monthly Labor Review*, (September), 15-25
- FINEGAN, T. (1981) Discouraged Workers and Economic Fluctuations. *Industrial and Labor Relations Review*, 35(1), 88-102
- FLINN, C. and HECKMAN, J. (1983). Are unemployment and out of the labor force behaviorally distinct labor force states. *Journal of Labor Economics*, 1(1), 28-42
- GONUL, F. (1992). New evidence on whether unemployment and out of the labor force are distinct states. *Journal of Human Resources*, 27(2), 329-361
- LONG, J. S. and FRIESE, J. (2010). *Regression Models for Categorical Dependent Variables Using Stata.2<sup>nd</sup> Edition*. Texas: Stata Press
- JONES, S. and RIDDELL, C. (1999). The measurement of unemployment: an empirical approach. *Econometrica*, 67(1), 147-162
- KINGDON, G. and KNIGHT, J. (1999). *Unemployment and wages in South Africa: A spatial approach*. Working Paper WPS/99-12, Centre for Study of African Economies, University of Oxford.
- KINGDON, G. and KNIGHT, J. (2006). The measurement of unemployment when unemployment is high. *Labour Economics*, 13, 291-315
- KUCH, P. and SHARIR, S. (1978) Added- and discouraged-worker effects in Canada, 1953-74. *Canadian Journal of Economics*, 11(1), 112-120
- LEIBBRANDT, M., WOOLARD, I. and DE VILLIERS, L. (2009). Methodology: Report on NIDS wave 1. *National Income Dynamics Study*, Technical Paper no. 1.
- ONDECK, C. (1978) Discouraged workers' link to jobless rate reaffirmed. *Monthly Labor Review*, (October), 40-42

- POSEL, D. (2012). *Self-Assessed Wellbeing: Analysis of the NIDS Wave 1 and 2 Datasets*. Working Paper 79, SALDRU, University of Cape Town.
- STATISTICS SOUTH AFRICA (2013). Quarterly labour force survey: Quarter 1. Press Statement (6 May 2013) [Available online at [www.statssa.gov.za/news\\_archive/Docs/QLFS\\_Press\\_statement\\_Q1\\_2013.pdf](http://www.statssa.gov.za/news_archive/Docs/QLFS_Press_statement_Q1_2013.pdf)]
- TACHIBANAKI, T. (1991). Labour supply and unemployment in Japan. *European Economic Review*, 35, 1575-1587
- WINKELMANN, L. and WINKELMANN, R. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica*, 65, 1-15.

## Appendix A

### Full marginal effects for probit estimation of reverse causality, with a dummy variable of wave 2 labour market status as the dependent variable.

	Unconditional	Conditional
Wave 1 Satisfaction (=1)	0.032*** (0.009)	0.015 (0.010)
Wave 1 Satisfaction (=2)	0.019** (0.008)	0.005 (0.008)
Wave 1 Satisfaction (=4)	-0.013 (0.010)	-0.006 (0.010)
Wave 1 Satisfaction (=5)	0.006 (0.011)	0.002 (0.011)
Log of Real Per Capita Household Income <sup>1</sup>		-0.068*** (0.022)
Age		0.0004 (0.001)
Age Squared		-0.00002 (0.0002)
Male		-0.005 (0.007)
Poor Health		0.006 (0.009)
Religious		0.026** (0.010)
Number of Children in the Household		-0.006** (0.003)
Number of Elderly in the Household		-0.005 (0.006)
Household Size		0.001 (0.002)
African		0.051** (0.023)
Coloured		0.048* (0.025)
Asian/Indian		0.069** (0.033)
Relationship Status		No
Education		No
Province		Yes
Geographical Location		Yes
Observations	8800	8657
Pseudo R-Squared	0.0125	0.0824

Source: Own calculations using NIDS wave 1 and 2.

Notes: These estimations make use of the balanced panel together with the NIDS-prescribed panel weights. Robust standard errors are reported. Stars report levels of significance: \* for 10%, \*\* for 5%, and \*\*\* for 1% level.

<sup>1</sup>The marginal effect for income is reported as a semi-elasticity.

## Appendix B

### Marginal effects of labour market status on life satisfaction, including all controls.

Satisfaction Value	(1)	(2)	(3)	(4)	(5)
Wave 2	0.059*** (0.004)	0.038*** (0.003)	-0.012*** (0.001)	-0.044*** (0.003)	-0.041*** (0.003)
Searching Unemployed	0.013* (0.007)	0.009* (0.005)	-0.002* (0.001)	-0.010* (0.005)	-0.009* (0.005)
Non-Searching Unemployed	0.044*** (0.010)	0.028*** (0.007)	-0.009*** (0.002)	-0.033*** (0.008)	-0.030*** (0.007)
Employed	-0.005 (0.006)	-0.003 (0.004)	0.001 (0.001)	0.004 (0.005)	0.004 (0.004)
Log of Per Capita Real Income <sup>1</sup>	-0.243*** (0.017)	-0.176*** (0.013)	0.027*** (0.004)	0.192*** (0.014)	0.200*** (0.015)
Age	0.010*** (0.001)	0.007*** (0.0007)	-0.002*** (0.0002)	-0.008*** (0.0008)	-0.007*** (0.0008)
Age Squared	-0.0001*** (0.00001)	-0.00008*** (0.00001)	0.00003*** (0.000005)	0.00009*** (0.00001)	0.00009*** (0.00001)
Male	0.006 (0.005)	0.004 (0.003)	-0.001 (0.0009)	-0.004 (0.004)	-0.004 (0.003)
Poor Health	0.053*** (0.007)	0.034*** (0.005)	-0.011*** (0.002)	-0.040*** (0.005)	-0.036*** (0.005)
Religious	-0.064*** (0.007)	-0.041*** (0.005)	0.013*** (0.002)	0.048*** (0.006)	0.044*** (0.005)
Number of Children in the Household	-0.003 (0.002)	-0.002 (0.002)	0.0005 (0.0005)	0.002 (0.002)	0.002 (0.002)
Number of Elderly in the Household	0.003 (0.004)	0.002 (0.002)	0.0005 (0.0008)	-0.002 (0.003)	-0.002 (0.003)
Household Size	-0.001 (0.002)	-0.0009 (0.001)	0.0003 (0.0003)	0.001 (0.001)	0.001 (0.001)
African	0.092*** (0.011)	0.060*** (0.007)	-0.019*** (0.003)	-0.069*** (0.008)	-0.064*** (0.008)
Coloured	-0.013 (0.014)	-0.008 (0.009)	0.003 (0.003)	0.010 (0.010)	0.009 (0.010)
Asian/Indian	-0.083*** (0.022)	-0.054*** (0.014)	0.017*** (0.005)	0.063*** (0.017)	0.058*** (0.015)
Relationship Status	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes
Geographical Location	Yes	Yes	Yes	Yes	Yes
Observations	26884				
Pseudo R-Squared	0.0715				

Source: Own calculations using NIDS wave 1 and 2.

Notes: These estimations make use of a pooled dataset of both wave 1 and 2 cross-sectional datasets (includes wave 2 TSMs). Cross-sectional post-stratified weights were used in all estimations. Standard errors were adjusted for serial correlation and heteroskedasticity, by clustering at the individual level. Stars report levels of significance: \* for 10%, \*\* for 5%, and \*\*\* for 1% level.

<sup>1</sup> Marginal effects for the long of per capita real income are reported as semi-elasticities.

## Appendix C

### Re-estimation of Table 5 for waves 1 and 2 separately

Satisfaction Value	(1)	(2)	(3)	(4)	(5)
<b>Wave 1: 2008</b>					
Searching Unemployed	0.017*	0.013*	0.0007	-0.015*	-0.015*
	(0.010)	(0.008)	(0.0005)	(0.009)	(0.009)
Non-Searching Unemployed	0.027**	0.021**	0.001	-0.024**	-0.025**
	(0.013)	(0.010)	(0.001)	(0.011)	(0.012)
Employed	0.0009	0.0007	0.000	-0.001	-0.001
	(0.008)	(0.006)	(0.0003)	(0.007)	(0.007)
Log of Per Capita HH Income	-0.204***	-0.168***	-0.030***	0.185***	0.217***
	(0.023)	(0.019)	(0.006)	(0.021)	(0.025)
Observations	12159				
Pseudo R-Squared	0.056				
<b>Wave 2: 2010/2011</b>					
Searching Unemployed	0.012	0.006	-0.004	-0.007	-0.006
	(0.010)	(0.005)	(0.004)	(0.006)	(0.005)
Non-Searching Unemployed	0.051***	0.027***	-0.018***	-0.032***	-0.027***
	(0.016)	(0.008)	(0.006)	(0.010)	(0.008)
Employed	-0.017*	-0.009*	0.006*	0.011*	0.009*
	(0.010)	(0.005)	(0.003)	(0.006)	(0.005)
Log of Per Capita HH Income	-0.268***	-0.163***	0.076***	0.182***	0.173***
	(0.025)	(0.016)	(0.008)	(0.018)	(0.018)
Observations	14725				
Pseudo R-Squared	0.093				

Source: Own calculations using NIDS wave 1 and 2.

Notes: Cross-sectional post-stratified weights were used in all estimations. Robust standard errors are reported. Stars report levels of significance: \* for 10%, \*\* for 5%, and \*\*\* for 1% level.

# southern africa labour and development research unit

---

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.



[www.saldru.uct.ac.za](http://www.saldru.uct.ac.za)

Level 3, School of Economics Building, Middle Campus, University of Cape Town  
Private Bag, Rondebosch 7701, Cape Town, South Africa

Tel: +27 (0)21 650 5696

Fax: +27 (0) 21 650 5797

Web: [www.saldru.uct.ac.za](http://www.saldru.uct.ac.za)

