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Does Meeting Expectations of Relative Income Improve Well-Being?

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DOES MEETING EXPECTATIONS OF RELATIVE INCOME IMPROVE WELL-BEING?

By

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   In recent years economists began studying subjective well-being thoroughly, and often find a
certain set of variables affect subjective well-being. Relative income is one variable which is
regularly found to strongly influence subjective well-being in many different settings around the
world. This study investigates whether or not meeting one's expectations for relative income
change affects subjective well-being by taking advantage of individual level panel survey data
from South Africa. A fixed effects model is used to eliminate unobservable fixed effects and
estimate the effect of moving from the 'met expectations' category in time period one, to 'below
expectations' or 'above expectations' in time period two. Falling below expectations
significantly reduces subjective well-being in comparison to meeting expectations. Exceeding
expectations improves subjective well-being compared to meeting expectations. Meeting our
relative income expectations is nearly as important as being healthy, and exceeding those
expectations almost doubles the benefit.

Does meeting expectations of relative income improve well-being?

1. Introduction

"The aim of public policy should be to maximize people's happiness." – Richard Layard

Economists have studied individual well-being since at least 1776, when Adam Smith published *The Wealth of Nations*. He argued that free trade and capitalism were better than other economic systems because they would increase the wealth of all, thus making people better off (Butler, 2011). In this context 'better off' means higher levels of utility. A person with greater potential for consumption and access to more options is likely to be happier than a person with limited choices and no money. Due to the unmeasurable nature of utility economists often use income and GDP as proxies (Sarracino, 2013). Income and GDP are objective, easily measured, and inferences can be made about utility if people optimize their decision making (Frey & Stutzer, 2002). However, two flaws make income, GDP, or other pecuniary measures unreliable for inferring utility: humans are imperfect decision makers and utility can be derived from more than just the consumption of goods (Thaler, 2015; Kahneman & Krueger, 2006). Some economists have turned to studying subjective well-being as a way to approximate utility, because it contains information about utility derived from consumption, experiences, and decision-making processes (Frey & Stutzer, 2002; Zotti, Speziale, & Barra, 2016). Subjective well-being (SWB) is an ordinal measure gathered by directly asking someone how satisfied or happy they are with their lives. SWB is an ultimate goal in life for many people, and they strive to maximize for its own sake (Frey & Stutzer, 2002). The United States Declaration of Independence states the 'pursuit of happiness' is an unalienable right, equal to life and liberty. This demonstrates the importance placed on

individual well-being in the U.S. and the long-standing assumption in western thought that human beings strive toward happiness.

SWB is predictably affected by many factors including wealth measures, community characteristics, and demographic characteristics. Recent work shows relative income is a particularly important component in the SWB function (Knight, Song, & Gunatilaka, 2009; Posel, 2014; Shifa & Leibbrandt, 2018). The effect of relative income has two components: internal effects and external effects (Clark, Frijters, & Shields, 2008). Internal effects stem from comparisons to one's own past income and expected future income (Clark et al., 2008; Shifa & Leibbrandt, 2018). External effects stem from the comparison of oneself to a group of others (Clark et al., 2008). Reference groups often differ from person to person due to cultural, regional, municipal, and personal factors (Clark et al., 2008; Knight & Gunatilaka, 2010). To understand how relative income affects SWB it is important to include both the internal and external effects in SWB models, as they are likely independent of one another and can affect SWB differently.

Perceived relative income is a straightforward way of accounting for external effects. An individual's evaluation of their relative income necessarily includes the reference group they compare themselves to, removing the risk that the reference group income chosen by the researcher is incorrect (Clark et al., 2008). Perception of relative income is also more strongly correlated with SWB than objective measures of relative income (Posel, 2014; Shifa & Leibbrandt, 2018). By including a perceived relative income term, I can measure the external effects of relative income.

Prior studies have confirmed expectations of future income affect SWB (Clark et al., 2008; Shifa & Leibbrandt, 2018). Expecting to move into a high income category relative to one's reference group causes dissatisfaction with current circumstances, leading to lower SWB (Shifa &

Leibbrandt, 2018). It has yet to be explored, however, how SWB is affected if those expectations are met, exceeded, or not met. It is possible that meeting or outperforming expectations improves SWB. Intuitively, living up to one's own expectations is likely to bring about more satisfaction than if one fails to meet those expectations. It is also possible, however, SWB is not affected by meeting or exceeding expectations. No effect would indicate the internal effects of relative income, or comparisons to one's past, are unimportant. If meeting or exceeding expectations affects SWB more than perceived relative income, then internal effects may be more important than external effects.

I find meeting relative income expectations increases SWB, compared to failing to meet expectations. The effect is comparable to being in good health. This provides evidence that meeting one's expectations is important for SWB because health status is a well-established determinant of SWB (Bhuiyan & Szulga, 2017; Brown, Woolf, & Smith, 2012; Knight et al., 2009). The effect from exceeding expectations, compared to meeting expectations, is nearly as large. It is important for well-being that individual's meet their economic expectations, and the benefit is nearly doubled by surpassing those expectations.

The effect of current perceived relative income is much larger than the effect of meeting expectations, supporting previous findings which show relative income is an important determinant of SWB. It also suggests the comparison of oneself to others is more important than living up to or exceeding one's own past expectations of relative income. In other words, these results indicate external effects are more important than internal effects. Thus, policy-makers focused on improving the SWB of their citizens may be better served by focusing on diminishing the tangible signs of income inequality. For example, taxing conspicuous consumption or working

to implement a progressive tax system would be more effective than creating tax credits or other means of trying to raise individual incomes.

2.1 Subjective Well-Being in Economics

In the last 20 years economics literature focusing on SWB and its determinants has increased dramatically. A search of the EconLit database for the term "subjective well-being" constrained to the period between 1970 and 1999 produces 40 results, while the same search limited from 2000 to 2018 produces 1,850 results. Easterlin's 1974 paper was noted by many, and indeed is often cited in SWB studies, but the increase in academic interest did not come until 25 years later. Frey & Stutzer (2002) attribute the increase in SWB work done by economists to a 1997 symposium focused on SWB as a meaningful measure that might complement money centric and utility models.

Many researchers agree that SWB is a useful measure of well-being that can be used in policy evaluation (Boarini, Comola, de Keulenaer, Manchin, & Smith, 2013; Frey & Stutzer, 2010). Relying on the individual involved for an estimate of their own well-being is a straightforward concept, and SWB scores credibly reflect how satisfied someone is with their life (Frey & Stutzer, 2010). It is now widely accepted income is only part of what determines SWB, and other factors may be more important (Clark et al., 2018; Shifa & Leibbrandt, 2018; Di Tella & MacCulloch, 2006). Income relative to others, income relative to the past or future, employment status, community status, and social relationships are some of the important variables affecting SWB. As discussed in section 2.4, many of these determinants affect SWB in similar ways across the world, but some determinants are culturally specific.

2.2 SWB: Reliability and Validity

It is important to note that SWB is an observed variable designed to approximate the latent variable of interest, true well-being. Several studies show that SWB correlates strongly with measures that are assumed to reflect true well-being (Boarini et al., 2013; Kahneman & Krueger, 2006; Frey & Stutzer, 2002; Di Tella & MacCulloch, 2006). Among these correlates are expression of positive emotion, authentic smiling (Duchenne smiling), specific patterns of brain activity, hormone levels, and ratings made by both friends and strangers. SWB data is also predictive of suicide, sociability, extroversion, quality of sleep, and SWB scores of close relatives (Boarini et al., 2013; Di Tella & MacCulloch, 2006; Kahneman & Krueger, 2006). Some research finds unemployment and new disabilities cause significant and lasting changes in SWB (Boarini et al., 2013; Di Tella & MacCulloch, 2006; Kahneman & Krueger, 2006). Subjective measures in general are commonly criticized because people are not believed to be good impartial self-evaluators, but self-reported health is predictive of mortality which suggests self-evaluations can be accurate (Ardington & Gasealahwe, 2014). On balance, the evidence demonstrates that SWB reports do indeed capture information about people's well-being (Di Tella & MacCulloch, 2006; Frey & Stutzer, 2002).

People must conceptualize well-being consistently to extract meaningful information from SWB changes over time. In other words, if each number on a 10-point SWB scale does not represent the same level of SWB from one measurement to the next, then studying SWB changes over time using the 10-point scale will not contain meaningful information. Evidence shows, however, that people do tend to stick with their definition of well-being as time progresses (Boarini et al., 2013; Frey & Stutzer, 2002). Examining how a person's SWB changes from one time period to the next can provide useful information.

Comparisons between two people, however, are not feasible. Consider a situation where Person A and Person B's well-being is exactly the same. Person A may conceptualize well-being differently than Person B and report a higher level of SWB on 10-point scale. The potential for differences in perception makes comparisons between individuals or small groups impossible. When examining aggregate SWB, however, this issue is less concerning. As samples grow large optimists and pessimists tend to cancel out, and SWB scores converge on a number that is representative of the population's actual well-being (Boarini et al., 2013; Di Tella & MacCulloch, 2006). It is also unlikely that significant portions of a nation's population would change how they conceptualize a 10-point SWB scale (Di Tella & MacCulloch, 2006).

2.3 Types of SWB

There are at least two types of SWB: emotional well-being and life satisfaction (Kahneman & Deaton, 2010). Emotional well-being captures information about a person's daily emotions and tends to fluctuate in the short term (Kahneman & Deaton, 2010). Most surveys focus on life satisfaction, which asks people to reflect on their life as a whole. This type of SWB is a more comprehensive and stable indicator of well-being (Kahneman & Deaton, 2010). Life satisfaction accounts for the effects income has on well-being as well many other factors such as health, education, social relationships, social status, and economic status (Ebrahim, Botha, & Snowball, 2013; Kahneman & Krueger, 2006; Kahneman & Deaton, 2010). Examining SWB can lead to new insights about well-being beyond what is capable with traditional indicators alone (Odermatt & Stutzer, 2017).

2.4 Determinants of SWB

Over the last two decades many researchers sought to determine what belongs in SWB functions (Bhuiyan & Szulga, 2017; Brown et al., 2012; Hinks & Gruen, 2007). Often, there are conflicting results. Some variables may influence SWB in one place, and not another. This is partially due to the fact that there is no universal SWB function. The important determinants of SWB can change with region, culture, or time. Other variables, like relative income, have been found to influence SWB in every part of the world.

There are many non-economic variables that affect SWB. Knight, Song, & Gunatilaka (2009), Bhuiyan & Szulga (2017), and Soukiazis & Ramos (2016) among others find a parabolic relationship between age and SWB, with SWB declining as an individual approaches middle-age and then increasing into old age. Increasing responsibility and stress that comes with growing into adulthood is likely to blame for the negative effect, and the positive effect into old age may be caused by increasing religious involvement, less time working, and people's kids becoming independent (Bhuiyan & Szulga, 2017; Knight & Gunatilaka, 2010; Soukiazis & Ramos, 2016). Marriage tends to improve SWB when compared to being single, divorced, or widowed (Helliwell, 2003; Knight et al., 2009; Posel, 2014). As expected, good health also improves SWB (Knight et al., 2009; Posel, 2014). Health status is one variable that seems to significantly impact SWB regardless of time or place (Bhuiyan & Szulga, 2017; Brown et al., 2012; Møller, Cramm, & Nieboer, 2012; Helliwell, 2003). There are mixed results on the effect gender has on SWB. Knight finds that women in China consistently report higher SWB than men (Knight & Gunatilaka, 2010; Knight et al., 2009). Other studies find gender irrelevant (Brown et al., 2012; Møller et al., 2012). Other non-economic variables that improve SWB include trust in public institutions and representatives, religiosity, personal relationships, and perceptions of safety in an individual's neighborhood (Bhuiyan & Szulga, 2017; Helliwell, 2003; Knight & Gunatilaka, 2010).

Economic variables that determine SWB include measures of absolute income, relative income, and employment. In 1974, Easterlin observed that while people's absolute income was increasing their SWB levels remained the same, which came to be known as the Easterlin Paradox (Easterlin, 1974). He speculated that people adapt to their incomes and do not meet their expectations of upward mobility, causing a low SWB score. Many others find evidence that relative income, or income rank, affects SWB much more than absolute income (Bhuiyan & Szulga, 2017; Clark et al., 2008; Hinks & Gruen, 2007; Knight & Gunatilaka, 2010). Furthermore, Posel finds perceived relative income rank matters more than actual rank (Posel, 2014). SWB is also improved if someone's current income is higher than their past income (Bookwalter & Dalenberg, 2010; Clark et al., 2008; Knight & Gunatilaka, 2010; Posel, 2014). When appropriate controls are included, the significance of effects from unemployment on SWB is ambiguous (Brown et al., 2012; Ebrahim et al., 2013; Hinks & Gruen, 2007; Helliwell, 2003; Moeller et al., 2012; Soukiazis & Ramos, 2016). Other variables like governmental assistance programs, possession of a phone, satisfaction with the local health clinic, and economic growth improve an individual's SWB (Deaton, 2008; Knight et al., 2009).

The absence of increasing SWB in the US and other developed nations can be explained by including relative income terms in the SWB model (Di Tella & MacCulloch, 2006; Clark et al., 2008). Aggregate SWB in developed countries has remained stable despite income continuously rising because people compare themselves to each other, and to themselves temporally (Clark et al., 2008). People often compare themselves to reference groups of others at the local, provincial, national, or even international level depending on the person and the community (Knight et al., 2009). People who believe their income ranks toward the bottom of the reference group typically reports lower SWB scores. Liu & Wang (2017) tested the importance of relative income

experimentally and found informing participants where their prize ranked significantly altered satisfaction with earned income versus only informing participants of the absolute amount earned (Liu & Wang, 2017). While people are quick to adapt to increases in income they may not adapt at all to the effects of their relative income ranking (Di Tella & MacCulloch, 2006).

People also compare their current incomes to their past income and future expected income (Frey & Stutzer, 2010; Clark et al., 2008). Making more income now improves well-being (Knight & Gunatilaka, 2010). High aspirations for future income, however, decrease well-being (Frey & Stutzer, 2010; Shifa & Leibbrandt, 2018). In other words, a person with high aspirations feels poor relative to their future self.

The literature demonstrates a wide variety of variables affect SWB. Relative income, health, religiosity, and age belong in most SWB models. Depending on the region, variables like race, gender, education, employment, absolute income, and quality of community also should be included. These are not comprehensive lists, and other variables exist which may affect SWB for some groups of people.

2.5 SWB in South Africa

Numerous studies have found that South Africa differs in some ways from other nations, and these differences must be accounted for when modeling SWB. Hinks and Gruen find in South Africa self-employment decreases SWB, unlike most other developed countries (Hinks & Gruen, 2007). They explain this is because most self-employed South Africans face undesirable conditions, low pay, and instability (Hinks & Gruen, 2007). SWB also depends on race (Ebrahim et al., 2013). Even after controlling for standard SWB determinants whites regularly report higher SWB scores than Africans (Posel, 2014). South African women also tend to report lower SWB

score than their male compatriots (Ebrahim et al., 2013). Helliwell (2003) and Knight et al. (2009) find education has no direct effect on SWB in some countries, but Ebrahim et al. (2013) finds evidence in South Africa that education does improve SWB.

Some relative income variables affect SWB differently in South Africa as well. For instance, the negative effect from low relative income is overpowered by the benefits that come from living in a neighborhood with more wealthy people because of access to things like public transportation (Bookwalter & Dalenberg, 2010). Also, many South Africans have lower income than their parents, causing some to feel like they have not improved in economic rank (Piraino, 2015). If these South Africans also expected their income rank to improve then negative perceptions about current income rank would compound, leading to lower SWB scores (Frey & Stutzer, 2010; Clark et al., 2008).

2.6 Meeting Expectations

The literature supports many SWB determinants, but the effects from someone meeting or not meeting their expectations remain under-studied. People naturally strive to achieve familial, career, income, social, or spiritual goals throughout their lives (Hinks & Gruen, 2007; Frey & Stutzer, 2002). These goals often change over the course of one's life as they adapt to other aspects their lives (Frey & Stutzer, 2002). The realization, or not, of some expectations likely affects an individual's SWB.

This study focuses on one important expectation: the meeting, exceeding, or failing to meet expectations for relative income position. People may construct lofty or low goals for their relative income position due to cultural influences or personality, but expectations are a tempered estimate of where the individual realistically thinks they will be at the specified time. Understanding how

meeting or not meeting expectations for relative income affects SWB will deepen our understanding of how SWB scores are formed and how relative income impacts SWB.

I control for the external of effects of relative income by using the perceived relative income question from the NIDS. The question asks someone where they rank in South Africa, which means they necessarily compare themselves to others (in this case with a prompt to use the entire nation as a reference group). This perceived relative income term accounts for the external effects of relative income because the respondent only considers their relative income compared to others, not compared to one's past or future (Clark et al., 2008). Whether someone has met or exceeded their expectations captures the internal effects of relative income. Each individual is asked where they expect to rank in two years. In two years they are asked where they rank. The difference is used to determine whether they exceed, met, or fell below their expectations. They are not directly asked if they met their expectations or not. Assuming they do not drastically change how they conceptualize a 6-step economic ladder representing the income distribution in South Africa, the independent variable of interest measures the effect of living up to expectations set by oneself. This comparison necessarily measures internal effects, or the effects associated with internal past and future reference points (Clark et al., 2008).

I expected perceived relative income to affect SWB more than meeting or exceeding relative income expectations because of the nature of discounting past and future time periods. The results support this hypothesis and suggest the external effects of relative income are more important than the internal effects. This has implications for public policy aimed at increasing SWB, especially the SWB of those people in lower economic classes. Improving perceptions of economic rank is likely a more efficient way to raise SWB than cash transfers. Both meeting and

exceeding expectations of relative income increase SWB, however, suggesting that personal achievement and goal completion is still important.

3.0 Data

A panel data with certain qualities is necessary to study this question. The ideal survey collects information about where the respondent expects to rank in terms of relative income at a future time, and then collects information about where the same respondent ultimately ranks at the specified time. In South Africa, the government sponsors a large survey to track poverty and well-being which meets these critical criteria. The National Income Dynamics Study (NIDS) is the first national individual level panel study in South Africa. It tracks the same people over time, asking them hundreds of questions pertaining to their lives and livelihoods. Survey administrators and respondents meet for several hours to complete the relevant questionnaires. I exploit the high quality of this data to examine what happens when someone meets, exceeds, or does not meet their expectations for relative income change.

The National Income Dynamics Survey (NIDS), conducted by the Southern Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town, provides an excellent opportunity to study the effects of meeting or not meeting relative income expectations. NIDS possesses four characteristics which make it a good dataset: it is a panel dataset with at least two time periods to control for individual fixed effects, it contains observations at the individual level, it contains a large sample size, and it includes many variables containing information about the most important drivers of SWB.

The NIDS began in 2008 and five waves have been published (NIDS 2008, 2010, 2012, 2014-15, 2017). SALDRU selected the original sample by dividing South Africa into 400 units

and drawing 10,367 households. 31,144 individuals were successfully interviewed from 7,296 of the eligible households. After removing around 3,000 individuals who were non-residents approximately 28,000 South Africans remained. The sample design ensured the 28,000 person sample was nationally representative of South Africa's population. Attrition over the first four waves led to SALDRU including a top-up sample in wave 5. The top-up sample is a group of about 2,000 individuals added to the dataset in order to increase the number of white, Indian, and high-income individuals. It is designed to correct for sample attrition and preserve the nationally representativeness of the dataset. I do not include any members of the top-up sample because they only have one observation and cannot be included in a fixed effects regression.

3.1 Sample

The sample for this study is limited to the 9,170 individuals that were sixteen years or older in wave four and answered the SWB question in waves four and five. Individuals were also dropped if they did not answer the necessary relative income questions, including the question from wave three that asks "…what step [of the income ladder] will you be on in two years?" which is used to construct the variable measuring whether one exceeds, meets, or does not meet their expectations. There are some systematic differences between those who were dropped and those kept in the sample. The people dropped from the sample were younger, more male, and more white than my sample. This is mainly due to young people, white people, and men dropping out of the survey. If SWB or meeting and exceeding expectations are correlated with age, gender, or race then my results may be biased.

3.2 Potential Bias

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Due to sample attrition there is a risk of bias in the estimated coefficients. The people who did not meet the criteria for inclusion in this study (or quit participating in NIDS surveys altogether) were different from those who were included in the sample. Table 1 shows a breakdown by race of the people included and excluded from the sample used in this study. The 'dropped' group tended to include more white individuals, more males, and younger people, illustrated by Table 2. The literature contains mixed results, but there is evidence that each of these demographic variables sometimes correlates with SWB (Knight & Gunatilaka, 2010; Helliwell, 2003; Ebrahim et al., 2013; Bhuiyan & Szulga, 2017). If any of these characteristics affect SWB for South Africans then the estimates will be biased.

Table 1.

Adults Dropped from Sample by Race (Wave 4)

Race	In Sample	Dropped	Total
African	7,567	7,640	15,207
Coloured	1,294	1,717	3,011
Asian/Indian	94	255	349
White	215	975	1,190
.	0	16,650	16,650
Total	9,170	27,237	36,407

Adults Dropped from Sample by Race (Wave 5)

Race	In Sample	Dropped	Total
African	7,567	8,788	16,355
Coloured	1,294	1,914	3,208
Asian/Indian	94	269	363
White	215	1,015	1,230
.	0	16,650	16,650
Total	9,170	28,636	37,806

In order to address the possibility that sample attrition caused biased estimates I ran the models with a new sample I generated. The new dataset was created using information available about the people who were dropped, as well as the people in the sample. Variables like age,

race, and gender are known for many individuals were not interviewed in waves 4 and 5 but participated in past waves. The 'dropped' group consists of those people in addition to individuals who were interviewed in waves 4 and 5 but could not be included for other reasons. I used the mean values of the dropped group for each variable, in combination with the correlations and standard deviations of the variables for the included sample, to generate a new random sample. I then used that data set to run my SWB models. If any notable changes occurred in the regression results using the generated sample it would suggest sample attrition biased the original results. No notable differences exist between the actual results and the results using the generated sample. Based on this test, there is no evidence sample attrition biased the results.

Table 2.

Wave 4 - T-test results

	Sample	Dropped	Sample Mean	Dropped Mean	Diff	St. Error	P value
Age	9170	10551	39.14	36.35	2.79	0.245	0.000
SWB Score	9170	5885	5.59	5.49	0.09	0.039	0.019
Gender (2=female)	9170	10587	1.62	1.50	0.12	0.007	0.000
Per capita Household Income	9170	7238	2204.69	2508.66	-303.98	121.75	0.013
Perceived Relative Income (1-low. 5-high)	9062	5769	3.50	3.49	0.01	0.017	0.489

Wave 5 – T-test results

	Sample	Dropped	Sample Mean	Dropped Mean	Diff	St. Error	P value
Age	9170	11950	41.41	36.01	5.400	0.242	0.000
SWB Score	9170	6064	5.50	5.53	-0.03	0.041	0.506
Gender (2=female)	9170	11986	1.62	1.50	0.12	0.007	0.000
Per Capita Household Income	9170	7581	2698.91	2603.95	94.96	164.07	0.563
Perceived Relative Income (1-low , 5-high)	9005	5875	3.43	3.46	-0.03	0.017	0.090

3.3 Sample Characteristics

NIDS measures SWB by asking individuals, "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 is designed to elicit a score based on overall life satisfaction rather than someone's current emotional state. Figure 1 shows the sample's mean well-being by race in each year. There is little change in SWB from 2014 to 2017. For non-white individuals there is no change, and white individuals experience a small decrease. In both years whites' SWB is higher than non-whites.

Figure 1. Mean SWB by Race
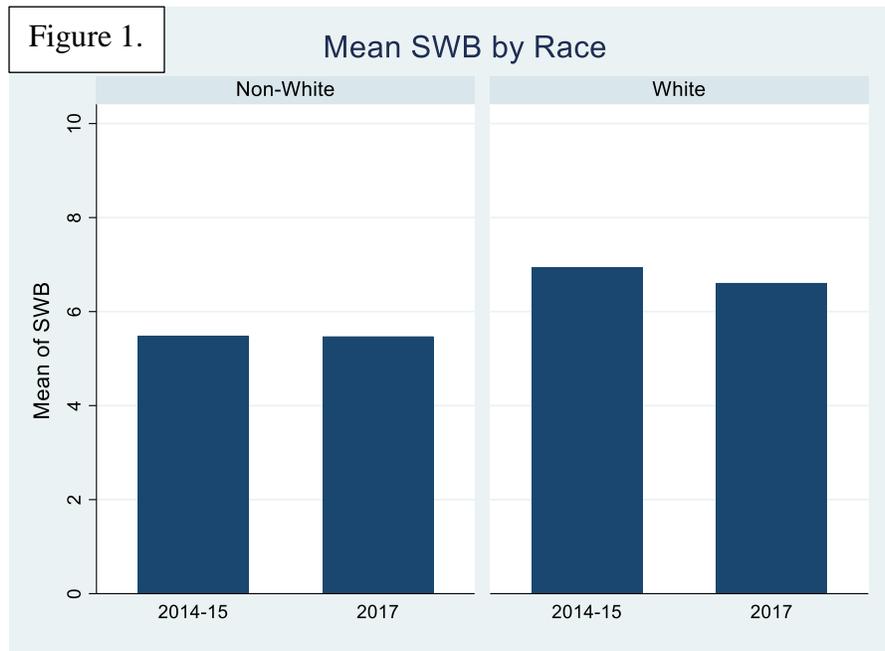
As Figure 1 illustrates, SWB varies by race in South Africa. Figure 2 shows how the distribution of SWB responses differ between whites and non-whites in each wave. Non-whites consistently report lower SWB scores than whites. In 2014-15, 33.6% of non-whites and 12.1% of whites report a SWB score of four or less. In 2017, the proportion of whites reporting four or less increases to 16.3% but remains lower than non-whites' 35.3%. To account for these differences, I estimate models for the entire sample, and models broken down by race.
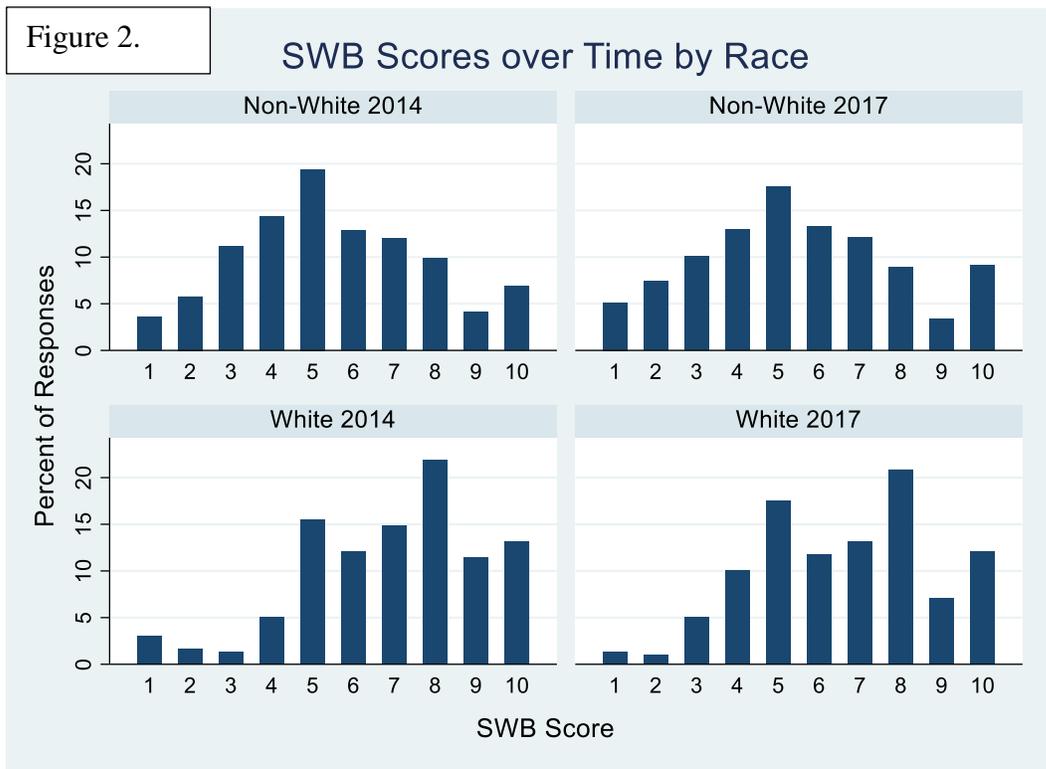
Figure 2. Distribution of SWB scores by race. White South Africans tend to report higher SWB on a scale from 1 – 10.

The variables indicating whether someone met, exceeded, or failed to meet their expectations of relative income standing are constructed using two questions about economic rank. One question asks respondents to imagine a six-step ladder with the first step being the poorest South Africans and then asks them to place themselves on that ladder. Respondents are also asked

Figure 3.

Relative Income Expectations
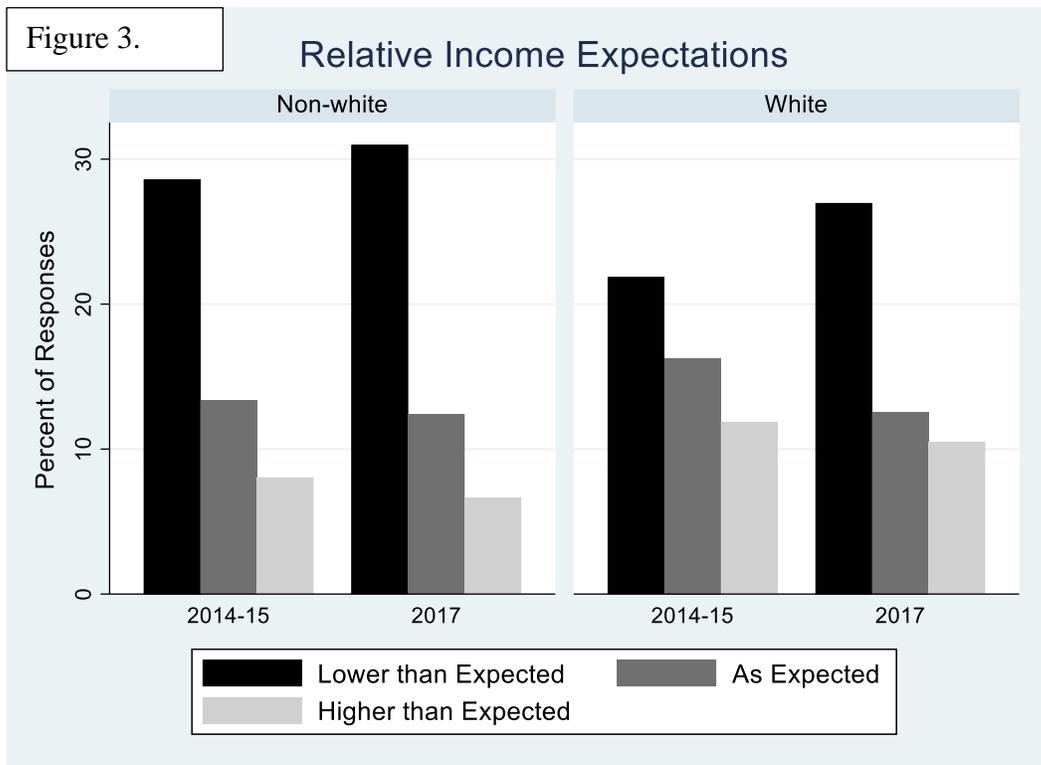
Figure 3. In both waves, most South Africans perceived their relative income as lower than they predicted in the previous wave. A higher proportion of white South Africans felt they were on the income ladder step they expected to be on, or higher.

which step they expect to be on in two years. These questions are combined to determine if someone met, exceeded, or did not meet their expectations. If an individual expects to be on step X in two years, and report they are on step X in the next wave (2 years later) they fall into the "As Expected" category. If an individual ranks themselves on a higher step in the current wave than they predicted in the previous wave they fall into the "Higher than Expected" category, and if an individual ranks themselves on a lower step than predicted they fall into the "Lower than

Expected" category. Figure 3 shows that in each wave most South Africans find themselves lower on the economic ladder than they had expected. Figure 3 also shows that non-white individuals typically have worse outcomes than white individuals. 41.63% of whites in wave four and 51.93% of whites in wave five did not meet or exceed their expectations, compared to 54.68% of non-whites in wave four and 58.93% of non-whites in wave five.

4.0 Methods

Three time periods are necessary to generate a panel dataset containing a variable indicating whether someone meets, exceeds, or does not meet their expectations for relative income change. This is because there must first be a measurement of one's expectations, then a measurement of the person's relative income position in the specified time period. A single variable showing whether someone met, exceeded, did not meet expectations can then be created by differencing the two measures. Differencing this new variable and estimating a coefficient describes what happens when a person moves from one category to another (e.g. moving from 'met expectations' in wave 4 to 'exceeded expectations' in wave 5).

4.1 : Modeling SWB

The NIDS allows for the process described in section 4.0 to be completed. I use waves 3, 4, and 5 to construct the variable described above (the only variable used from wave 3 is the individual's expectations for wave 4). Using the variable which shows whether someone met, exceeded, or did not meet their expectations in waves 4 and 5, I estimate how going from one of those categories to another impacts individual SWB. The equation being estimated is:

1. $$SWB_{it} = \beta_0 + \delta_0 w_t + \beta_1 expect_{it} + \beta_2 X_{it} + \alpha_i + \mu_{it}$$

where SWB is the self-reported well-being of individual i in wave t. W_t is a dummy variable that is equal to one in wave 5 and zero in wave 4, allowing for the intercept to shift. *Expect* is a categorical variable representing whether individual i in wave t met, exceeded, or did not meet the relative income expectations they held in wave $t-1$. X represents a vector of economic and non-economic variables that are likely to affect SWB including: age, race, marital status, education level, health status, relative income, absolute income, whether the individual can trust others in their neighborhood, the importance of religious activity in one's life, religious affiliation, whether an individual's relative income has changed since childhood, and an employment indicator. α represents the individual time-invariant error and μ represents the time-variant error.

4.1 Estimation Methods

I estimate three models: an OLS estimation of wave four as a cross section, a pooled OLS using waves four and five, and a fixed effects model with clustered standard errors on the individual. I also estimate two ordered probit models because SWB is an ordinal measure. Using OLS the regression becomes:

2. $$SWB_i = \beta_0 + \beta_1 expect_{it} + \beta_2 X_{it} + \mu_{it}$$

OLS is used for several reasons. First, it makes interpretations of the coefficients simple and intuitive. Second, many economists have found that OLS yields the same results as probit or logit models (Posel, 2014; Shifa & Leibbrandt, 2018; Soukiazis & Ramos, 2016; Knight et al., 2009). I also find no difference between the probit regressions and the OLS regressions in terms of statistical significance and direction of effect. I do not interpret the results of the probit regressions because the cuts are roughly equally spaced, implying SWB can be treated as a continuous dependent variable. The results of the probit regressions can be found in the appendix.

Using various estimation methods serves as part of the robustness check of SWB determinants to confirm coefficients remain significant and consistent across different models. In this spirit I pooled waves 4 and 5 for an OLS regression. Doing so doubles the sample size and provides the opportunity to closely examine how SWB changed for the population between waves by observing the coefficient for the wave 5 dummy variable.

Personality traits can have a large impact on variation in SWB score, so I also employ a fixed effects model to eliminate the individual time-invariant error. The model becomes:

3. $$\Delta SWB_i = \delta_0 + \beta_1 \Delta expect_i + \beta_2 \Delta X_i + \Delta \mu_i$$

Across all models there is the possibility of bias in the estimated coefficients. It is possible some variables are not included that affect SWB, correlate with whether someone met or exceeded their expectations, and vary with time. There also remains the possibility that sample attrition biases the results. As discussed in section 3.2 steps were taken to ensure this was not a major problem, but there is no way to prove the results are completely unbiased. Still, I use the fixed effects model to interpret results. The elimination of time-invariant unobservable variables makes the fixed effects method the most likely to produce causal estimates.

4.2 Variables

Individual characteristic variables include white (equal to one if an individual is white); age and age-squared; female (equal to 1 if an individual is female); married (equal to one if the individual is married); divorced or widowed (equal to one if the individual is either divorced or widowed); high school (equal to one if the individual graduated high school or completed an equivalent such as a GED); college (equal to one if an individual has a bachelor's degree); master's or doctorate (equal to one if an individual has either a master's or a doctorate degree); a measure

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of religious importance (equal to one if an individual considers religion to be an important part of their life); and as a proxy for health I include variable that indicates if the individual exercises 0-1 times per week and a variable that indicates the individual exercise two or more times per week. I use exercise frequency as a proxy for health because regular exercise is preventative of most cardiovascular disease (as well as many other diseases) and correlates strongly with overall health. I use a proxy for health in order avoid the chance that self-reported health and SWB are affected by mood or other unseen circumstances that could bias the estimation (Clark et al., 2018). I use two measures of exercise frequency because 0-1 exercise sessions per week is not enough to confer the health benefits of exercise.

Community measures include dummy variables indicating the individual reports they would prefer to continue living in their current neighborhood; the individual believes it is at least 'somewhat likely' that a neighbor would return their wallet if it was lost; and the individual believes it is at least 'somewhat likely' a stranger would return their wallet.

Income variables include the natural log of per capita household income; whether an individual perceives themselves to be in the middle third or top third of South Africa's income distribution (with the bottom third as the base case); variables that indicates whether the individual is in a higher or lower income category now than when they were 15; the variables of interest that show whether a person met or exceeded their expectations for relative income (with failing to meet expectations as the base category); and an indicator of unemployment which SALDRU constructs.

5.1 General Results

Table 1 shows the results from each model specification used. In all models SWB is the dependent variable. SWB is measured using a 10 point scale. Each coefficient in Table 2 can be

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interpreted as the number of points on a 10 point scale. The OLS regression using only wave 4 and pooled sample regression show many of the same results for individual characteristics. Whites are significantly better off than non-whites. Age has a parabolic effect on SWB; SWB decreases until about age 45 and then increases. The coefficient for gender shows that females in South Africa report higher SWB than their male counterparts. Interestingly, no marital status variables have significant effects in any model. The fixed effects model shows that achieving a master's or doctorate degree increases SWB dramatically, but no other education variable has an effect in any model. As expected, both religious importance and health positively affect SWB in all models.

Table 2. SWB in South Africa

	(1) OLS Wave 4	(2) Pooled	(3) Fixed Effects
Individual Characteristics			
White	0.401**	0.349***	-
Age	-0.0428***	-0.0267***	0.0143
Age Squared	0.000467***	0.000292***	0.0000395
Gender	0.134**	0.127***	-
Married	0.0487	0.121	0.0611
Divorced or Widowed	-0.0055	-0.149	0.0122
High School	-0.0407	-0.0387	-0.0404
College (4 year)	0.0324	0.110	0.354
Master's or Doctorate	0.712	0.351	1.438**
Religion is Important	0.351***	0.461***	0.278***
Exercise 0-1 Times per Week	-0.130*	-0.0444	-0.00820
Exercise 2 or More Times per Week	0.376***	0.300***	0.262***
Income Variables			
Did Not Meet Expectations of Relative Income Change	-0.0407	-0.0688	-0.190***
Exceeded Expectations of Relative Income Change	0.104	0.0668	0.168**
Log Per Capita Household Income	0.254***	0.232***	0.067
Top 1/3 Relative Income	0.814***	0.866***	0.502***
Bottom 1/3 Relative Income	-0.719***	0.789***	-0.534***
Unemployed	-0.241***	-0.196***	-0.068
Relative Income Higher now than 15 years old	0.0415	0.113***	0.101*
Relative Income Lower now than 15 years old	0.0970	0.146**	0.172*
Community Variables			

Prefer to Stay in Current Neighborhood	0.480***	0.350***	0.301***
Trust Neighbor to Return Wallet	-0.268***	-0.0866**	-0.159**
Trust Stranger to Return Wallet	-0.515***	-0.595***	-0.476***
Wave 5		-0.0923***	-0.0975
Constant	4.225***	4.034***	4.353
N	8639	17223	17223
adj. R^2	0.096	0.091	0.0466 (within)

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Many income and community measures also show similar effects between the two OLS regressions. The coefficient for absolute income shows that a 10% increase in per capita household income increases SWB by about one-fourth of a point on the 10-point scale. Perceiving oneself to be in the middle third or top third of relative income has strong positive effects on SWB as compared to perceiving oneself to be in the bottom one third. Unemployment negatively affects SWB in each regression as well. Relative income change since childhood is statistically significant only in the pooled OLS. It shows having moved down the economic ladder improves SWB, which seems unlikely to be true. Preference to continue living in one's current neighborhood increases SWB in all models, but trusting neighbors (or strangers) to return your lost wallet decreases SWB.

The fixed effects model shows many of the same results. Notable differences include unemployment, age, and meeting or exceeding relative income expectations. Age and unemployment do not affect SWB in the fixed effects model. Meeting and exceeding relative income expectations both become statistically significant and increase SWB.

5.2 Meeting or Exceeding Expectations

The variables that indicate whether an individual did not meet or exceeded their expectations for relative income are not significant in either cross-sectional model but are highly significant in the fixed effects model. Not meeting expectations decreases SWB, compared to

meeting expectations. The size of the effect is comparable to the effect of good health. In other words, meeting one's relative income expectations improves SWB as much as being healthy. As the literature view explains, good health is consistently found to be an important input in SWB functions around the world. In light of this it appears meeting expectations is an important determinant of SWB. Exceeding expectations also improves SWB, compared to meeting expectations. The size of the effect is also similar the effect good health. Preference to continue living one's current neighborhood and considering religion important are also comparable to both the effect of exceeding expectations and the effect of not meeting expectations. These two variables, like health, are often found to be significant in the SWB function.

5.3 Separate Regressions by Race

Some studies find that SWB determinants differ by race. In order to look for any differences in SWB functions by race I ran regressions using only a white sample and using only a non-white sample. The regressions using only the non-white sample are almost no different than the overall sample. This was expected since non-white individuals make up 97.8% of the combined sample. The regressions using only a white sample did not contain many statistically significant coefficients, likely because there are only 215 white individuals who meet all the criteria for inclusion. One of the two significant coefficients of the fixed effects regression was the effect of health. The magnitude of the effect was five times higher in the white only fixed effects regression compared to the non-white only fixed effects regression. This should be investigated further before conclusion are drawn because of the limited sample size, but it may indicate that white South Africans tend to value health more than non-white South Africans.

6.1 Discussion: Interpretation of Results

The OLS wave 4 model, pooled OLS model, and fixed effects model mostly agree with previous SWB studies (Posel, 2014; Odermatt & Stutzer, 2017; Clark, 2018; Shifa & Leibbrandt 2018). The variables affect SWB as expected, with a few exceptions. Notable exceptions across all models include the variables indicating trust, marriage, and divorce/widowhood. In the fixed effects model there is no effect from unemployment or age, which is also surprising (Clark, 2018; Odermatt & Stutzer, 2017).

The fact that meeting and exceeding expectations have effects comparable to health and religion supports the hypothesis that meeting or exceeding expectations is important for SWB. Interestingly, the effects are small compared to the effects of relative income. This large difference suggests that external relative income effects are more important than internal relative income effects for SWB. It could also be, however, that some unobserved variable correlated with relative income position which is not controlled for in the model and varies with time.

6.2 Anomalies

The most notable anomalies are the effects of trusting strangers and trusting neighbors. These variables are constructed from the NIDS survey question which reads, "Imagine you lost a wallet or purse that contained R250 and your contact details and it was found by someone who lives close by. Is it very likely, somewhat likely or not likely at all to be returned with the money in it?". In Table 1 the trust neighbor/stranger variables show the effects from someone answering that it was somewhat likely or very likely their lost wallet would be returned with the money in it. I expected the effect to be positive, meaning that if someone trusted their neighbors (or strangers) to return their wallet they would also report higher SWB scores. In fact, the opposite is true. In all three models the effect is negative, meaning both trusting neighbors and strangers lowers SWB. This effect persists regardless of how the model is specified with the variables I use. I also merged

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the two trust variables into one variable which did not change the effect or the significance. Additionally, changing the definition so that the trust variables would equal one only if the individual reported it was 'very likely' their wallet would be returned did not alter the effect. There are two possible explanations as to why the trust variables resulted in effects opposite of what was expected: there is an unobserved variable that changes with time and is correlated with trusting others which is driving the observed effect, or trusting others decreases SWB.

6.3 Implications and Future Research

Meeting, and exceeding, relative income expectations strongly effects SWB. Cross-sectional models or models using datasets that do not measure these variables are likely to have biased estimates for relative income terms. The results these models produce when the met or exceeded expectations variables are removed show an inflated effect from relative income measures. In fact, it appears relative income terms capture the entire effect of meeting and exceeding relative income expectations when those expectation variables are omitted. It is possible past SWB studies have overestimated the effects of relative income because they could not control for the effects of people meeting and exceeding their personal expectations for relative income change. The results of this study, however, still support the idea that current perceived relative income category is one of the most important of all SWB determinants. I propose the reason current perceived relative income affects SWB much more than meeting or exceeding one's relative income expectations is because the external effects of relative income (comparison to others) matter more than internal effects (comparison to one's past or future).

The model I specified controls for the external effects of relative income by including a perceived relative income term. Perceived relative income includes all the external effects of relative income because it necessarily comes from comparing oneself to others in the current time

period. It is possible, however, an individual's perceived relative income is partially influenced by comparisons to the past or future for that individual. I am unaware of a definitive way to prove that own past income, or own future income, does not somehow factor into current perceived relative income. Thus, internal effects may have a small influence on the coefficient for perceived relative income.

There is a theoretical basis for why perceived relative income should affect SWB more than meeting or expectations, however. Perceived relative income is constructed by an individual comparing themselves others in the present, while meeting or exceeding expectations of relative income change is constructed by comparing how someone ranks to what they expected in a different time period. Last year's expectations are discounted by some discount factor less than one, whereas comparisons to others is occurring in the present and has no discount factor. In this study the expectations are two years old. There is necessarily some discount factor (small or large) that makes meeting or exceeding those old expectations less important.

Examining the internal and external effects of relative income in more depth would be worthwhile. Meeting or exceeding relative income expectations and current perceived relative income do not perfectly measure the internal and external effects of relative income. Finding ways to better measure the internal and external effects of relative income is the next step forward. Perhaps a question simply asking the individual if they think their current relative income is higher or lower than they thought it would be at this point in time is a good place to start. This is different from the variable I used in this study because it asks the individual to reflect on their life and determine in the moment if they have met or failed to meet their expectations. My variable on the other hand is constructed from two independent questions at two different points in time and circumvents the personal reflection process. The data gathered from a question explicitly

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prompting someone to reflect on their expectations, however, may provide interesting new information about the internal effects of relative income. The answers to such a question could also be compared to a variable like the one I constructed to observe how internally consistent people are when reflecting on their past. It is possible people's recollection of their past expectations are different than their actual past expectations.

Knowing how much influence on SWB comes from the external and internal effects of relative income may inform some tax policies, programs to help the poor move up the economic ladder, or other policy. External effects determine the magnitude of the negative externalities imposed by the rich on the poor, while internal effects determine the magnitude of the effects from a person comparing themselves to the past or future on SWB. The results of this study suggest that external effects are much stronger than internal effects. Thus, policies targeting the external effects of relative income are likely to impact SWB more than policies that do not focus on external effects. Taxing conspicuous consumption, such as purchasing sports cars, is one example. Another example is progressive tax structure which places higher tax burdens on the wealthy members of society. It is likely these types of policies more effectively improve the SWB of poor individuals than policies which only attempt to increase the absolute wealth of those poor individuals, like an earned income tax credit. More in-depth analysis would be useful to determine the extent to which that is true.

Further research into well-being or policy evaluation by SWB outcomes will benefit from a greater understanding of the average person's formulation of SWB. For instance, survey design and data collection often does not measure meeting or exceeding relative income expectations which may have impacted the results and conclusions of some studies. It is likely there are other details going unmeasured. Perhaps why religion is so important or why health is valued differently

by different populations. It is also possible other kinds of expectations impact SWB and are not being measured. People often hold expectations for things like marriage, number of kids, career paths, etc., and meeting or not meeting those expectations likely affect SWB greatly. Considering these factors when designing surveys, collecting data, and performing SWB studies is important going forward.

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Appendix

Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
SWB	18340	5.544	2.391	1	10
Race	18340	1.232	.583	1	4
Gender	18340	1.617	.486	1	2
Age	18340	40.275	16.83	16	110
Did not meet Expectations	18340	.593	.491	0	1
Exceeded Expectations	18340	.149	.356	0	1
Log per capita Household Income	18340	7.192	1.003	-.016	13.675
Top 1/3 Relative Income (Perceived)	18340	.029	.167	0	1
Bottom 1/3 Relative Income (Perceived)	18340	.475	.499	0	1
Unemployed	18320	.556	.497	0	1
Relative Income Higher than age 15	18340	.543	.498	0	1
Relative Income Lower than age 15	18340	.101	.301	0	1
Married	18340	.015	.12	0	1
Divorced/Widowed	18340	.04	.195	0	1
High School	18340	.325	.469	0	1
College	18340	.021	.143	0	1
Master's/PhD	18340	.002	.04	0	1
Religion is Important	18242	.922	.268	0	1
Prefer to Stay in Current Neighborhood	18298	.788	.409	0	1
Trust Neighbor to Return Wallet	17740	.321	.467	0	1
Trust Stranger to Return Wallet	17609	.174	.379	0	1
Exercise 0-1 days/week	18313	.114	.318	0	1
Exercise 2+ days/weelk	18313	.178	.382	0	1

SWB in South Africa - Probit

	Wave 4	Wave 5	Pooled
White	0.167**	0.115	0.148***
	(0.0790)	(0.0778)	(0.0554)
Age	-0.0194***	-0.00530	-0.0123***
	(0.00371)	(0.00381)	(0.00263)
Age^2	0.000213***	0.0000630	0.000135***
	(0.0000410)	(0.0000402)	(0.0000285)
Female	0.0622**	0.0525**	0.0571***
	(0.0242)	(0.0246)	(0.0172)
Did not meet Expectations	-0.0226	-0.0480*	-0.0375*
	(0.0275)	(0.0279)	(0.0195)
Exceeded Expectations	0.0485	0.00717	0.0297
	(0.0353)	(0.0386)	(0.0260)

Log per capita Household Income	0.116***	0.0859***	0.0995***
	(0.0137)	(0.0139)	(0.00973)
Top 1/3 relative income	0.365***	0.402***	0.381***
	(0.0721)	(0.0677)	(0.0492)
Bottom 1/3 relative income	-0.339***	-0.372***	-0.352***
	(0.0271)	(0.0273)	(0.0192)
Unemployed	-0.107***	-0.0745***	-0.0881***
	(0.0259)	(0.0255)	(0.0181)
Relative Income Higher now than age 15	0.0256	0.0930***	0.0557***
	(0.0247)	(0.0253)	(0.0176)
Relative Income Lower now than age 15	0.0386	0.0911**	0.0599**
	(0.0408)	(0.0384)	(0.0279)
Married	0.0220	0.0801	0.0547
	(0.0899)	(0.0919)	(0.0642)
Divorced or Widowed	-0.00685	-0.124**	-0.0714*
	(0.0603)	(0.0549)	(0.0406)
High School	-0.0180	-0.0162	-0.0208
	(0.0265)	(0.0263)	(0.0186)
College	0.0157	0.0650	0.0452
	(0.0848)	(0.0789)	(0.0576)
Master's/PhD	0.416	0.0130	0.163
	(0.314)	(0.247)	(0.193)
Religion is Important	0.162***	0.244***	0.211***
	(0.0440)	(0.0405)	(0.0297)
Prefer to Stay in Current	0.220***	0.0865***	0.153***

Neighborhood			
	(0.0282)	(0.0270)	(0.0194)
Trust Neighbor to Return Wallet	-0.137***	0.0426	-0.0435**
	(0.0272)	(0.0272)	(0.0192)
Trust Stranger to Return Wallet	-0.233***	-0.277***	-0.257***
	(0.0336)	(0.0329)	(0.0235)
Exercise 0-1 Days per Week	-0.0614*	0.0173	-0.0172
	(0.0357)	(0.0362)	(0.0254)
Exercise 2+ Days per Week	0.173***	0.0872***	0.133***
	(0.0299)	(0.0319)	(0.0218)
/			
cut1	-1.298***	-0.966***	-1.127***
	(0.144)	(0.147)	(0.102)
cut2	-0.809***	-0.471***	-0.640***
	(0.143)	(0.146)	(0.102)
cut3	-0.306**	-0.0775	-0.200**
	(0.143)	(0.146)	(0.101)
cut4	0.165	0.306**	0.225**
	(0.143)	(0.146)	(0.101)
cut5	0.687***	0.774***	0.718***
	(0.143)	(0.146)	(0.101)
cut6	1.044***	1.139***	1.079***
	(0.143)	(0.146)	(0.102)
cut7	1.438***	1.513***	1.463***
	(0.143)	(0.147)	(0.102)
cut8	1.898***	1.898***	1.883***
	(0.144)	(0.147)	(0.102)
cut9	2.163***	2.092***	2.110***
	(0.144)	(0.147)	(0.102)
N	8639	8584	17223
adj. R2			

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

SWB in South Africa - Whites

	(1) OLS Wave 4	(2) Pooled	(3) Fixed Effects
Age	0.00694 (0.0579)	-0.0126 (0.0388)	-0.130 (0.640)
Age^2	-0.0000875 (0.000581)	0.000167 (0.000382)	0.000515 (0.00319)
Female	0.563 (0.346)	0.148 (0.235)	0 (.)
Did not meet Expectations	-0.381 (0.381)	-0.187 (0.262)	-0.664 (0.404)
Exceeded Expectations	-0.157 (0.448)	-0.165 (0.315)	-0.424 (0.484)
Log per capita Household Income	0.767*** (0.210)	0.457*** (0.146)	0.479 (0.359)
Top 1/3 Relative Income	0.108 (0.585)	0.341 (0.418)	0.282 (0.641)
Bottom 1/3 Relative Income	-0.194 (0.626)	-0.671* (0.403)	-0.521 (0.559)
Unemployed	-0.463 (0.395)	-0.436 (0.270)	0.280 (0.495)
Relative Income Higher now than age 15	-0.571 (0.364)	-0.396 (0.249)	-0.233 (0.353)

Relative Income Lower now than age 15	-0.518	-0.340	0.440
	(0.490)	(0.327)	(0.523)
Married	0.576	1.363	2.228*
	(1.567)	(1.234)	(1.286)
Divorced or Widowed	0.0443	0.323	0.918
	(0.477)	(0.317)	(0.656)
High School	-0.490	-0.373	0.562
	(0.401)	(0.290)	(0.711)
College	-0.725	-0.565	0.766
	(0.621)	(0.440)	(1.322)
Master's/PhD	0.0225	-0.0990	2.975*
	(0.867)	(0.609)	(1.674)
Religion is Important	0.280	0.552	0.653
	(0.589)	(0.397)	(0.497)
Prefer to Stay in Current Neighborhood	0.485	0.233	0.0567
	(0.515)	(0.344)	(0.530)
Trust Neighbor to Return Wallet	0.138	0.468*	0.313
	(0.360)	(0.244)	(0.305)
Trust Stranger to Return Wallet	-0.152	-0.136	0.0900
	(0.413)	(0.278)	(0.387)
Exercise 0-1 Days per Week	0.429	0.377	0.196
	(0.449)	(0.294)	(0.445)

	(1)	(2)	(3)
Exercise 2+ Days per Week	1.120***	0.799***	0.967**
	(0.378)	(0.259)	(0.455)
Wave 5		-0.308	-0.110
		(0.214)	(1.109)
_cons	-1.639	1.402	5.116
	(2.331)	(1.573)	(28.91)
N	199	400	400
adj. R^2	0.115	0.099	0.041

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

SWB in South Africa - Non-Whites

	(1) OLS Wave 4	(2) Pooled	(3) Fixed Effects
Age	-0.0436***	-0.0264***	0.0156
	(0.00809)	(0.00601)	(0.0829)
Age^2	0.000480***	0.000290***	0.0000487
	(0.0000897)	(0.0000652)	(0.000477)
Female	0.121**	0.121***	0
	(0.0527)	(0.0392)	(.)
Did not meet Expectations	-0.0281	-0.0652	-0.182***
	(0.0600)	(0.0447)	(0.0645)
Exceeded Expectations	0.121	0.074	0.189**
	(0.0773)	(0.0595)	(0.0821)
Log per capita Household Income	0.246***	0.228***	0.0612
	(0.0299)	(0.0222)	(0.0447)
Top 1/3 Relative Income	0.835***	0.894***	0.504***
	(0.159)	(0.113)	(0.160)
Bottom 1/3	-0.720***	-0.788***	-0.533***

Relative Income			
	(0.0586)	(0.0433)	(0.0705)
Unemployed	-0.235***	-0.189***	-0.0694
	(0.0565)	(0.0413)	(0.0743)
Relative Income Higher now than age 15	0.0571	0.128***	0.108*
	(0.0538)	(0.0401)	(0.0582)
Relative Income Lower now than age 15	0.108	0.160**	0.170*
	(0.0897)	(0.0639)	(0.0926)
Married	0.0425	0.108	0.0517
	(0.195)	(0.145)	(0.221)
Divorced or Widowed	-0.0308	-0.188**	-0.0276
	(0.135)	(0.0947)	(0.194)
High School	-0.0294	-0.0348	-0.0507
	(0.0578)	(0.0424)	(0.120)
College	0.0311	0.106	0.301
	(0.195)	(0.137)	(0.367)
Master's/PhD	0.847	0.436	1.263
	(1.269)	(0.693)	(0.813)
Religion is Important	0.360***	0.460***	0.273***
	(0.0962)	(0.0678)	(0.0976)
Prefer to Stay in Current Neighborhood	0.476***	0.349***	0.308***
	(0.0611)	(0.0441)	(0.0634)
Trust Neighbor to Return Wallet	-0.287***	-0.101**	-0.166***

	(0.0592)	(0.0437)	(0.0642)
Trust Stranger to Return Wallet	-0.520***	-0.606***	-0.492***
	(0.0735)	(0.0537)	(0.0753)
Exercise 0-1 Days per Week	-0.144*	-0.0566	-0.00757
	(0.0785)	(0.0583)	(0.0824)
Exercise 2+ Days per Week	0.351***	0.283***	0.246***
	(0.0654)	(0.0499)	(0.0764)
Wave 5		-0.0874**	-0.0961
		(0.0359)	(0.173)
_cons	3.546***	3.206***	3.598
	(0.301)	(0.223)	(2.951)
N	8440	16823	16823
adj. R^2	0.090	0.086	0.046

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$