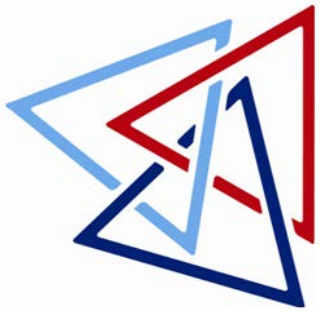

Youth unemployment and reservation wages in Cape Town, South Africa

Kezia Lilenstein and Jeremy Seekings

Abstract

The high level of youth unemployment in South Africa has prompted investigation surrounding whether youth are holding reservation wages in excess of what they can expect to earn in the labour market, thereby 'pricing' themselves out of the market for employment. This paper examines arguments for this theory using data from Cape Town, South Africa. The focus is getting an appropriate measure of the actual reservation wage that features in labour-market decision-making by youth. This paper finds that self-reported reservation wages are unrealistically high for a substantial proportion of the sample when compared with what youth are predicted to earn in the labour market. However, this does not translate into diminished likelihood of employment for these youth. Further analysis indeed reveals that self-reported reservation wages are likely to be too high when compared with the wage at which youth are willing to undertake employment in reality. This is, at least in part, due to the way respondents interpret the question. In addition, self-reported reservation wages may fail to capture the nuances involved in reservation wage formation, in particular job taste considerations made when deciding whether to accept work. This supports the case for constructing a more accurate measure, i.e. of revealed reservation wages, in determining whether reservation wages indeed are unrealistic. When revealed reservation wages of youth are compared with predicted wages, a very small percentage of the youth in the sample are found to be holding unrealistic reservation wages. Therefore, evidence from the CAPS data, utilizing supplementary reservation-wage-inducing questions as well as additional interviews, does not support the claim that unrealistic reservation wages are contributing to the unemployment problem in Cape Town, South Africa. Furthermore, this analysis provides evidence against the standard use of self-reported reservation wage data in the examination of the relationship between reservation wages and employment outcomes.

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Youth unemployment and reservation wages in Cape Town, South Africa

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1. Introduction

The unprecedented surge in global youth unemployment rates underlies the fear that this is a 'lost generation' which will for the rest of their lives experience persistent disadvantages in the labour market and a depressed standard of living (Hur, 2012). There has been a steady rise in global youth unemployment since 2007, with 13% of youth unemployed in 2014 (ILO, 2014). This figure was significantly higher in countries most severely affected by the financial crises, sometimes reaching over 50%.

While this is of world-wide concern, the alarm is heightened in South Africa, which faces one of the highest youth unemployment rates in the world. The International Labour Office (ILO) generally defines youth as those between 15 and 24. Using this classification, 49% of South African youth were unemployed in 2014, making up 26% of total unemployment, using the official or 'strict' measure of unemployment. The youth unemployment rate increases to 64% using the 'broad' definition of unemployment, which includes youth who have not taken active steps look for work in the past month (Stats SA, 2014). In South Africa, however, it has been suggested that a wider age bracket in defining youth is more appropriate to account for the fact that many South Africans are enrolled in education until relatively late in life (Mlatsheni & Rospabé, 2002). The National Youth Development Agency Act of 2008 (Republic of South Africa, 2009) defined 'youth' as those aged between 15 and 35 years of age. By this definition unemployed youth make up 66% of total unemployment in South Africa (Stats SA, 2014). Although levels of youth unemployment in comparable developing countries are high, they are significantly lower than in South Africa. In sub-Saharan Africa as a whole approximately 12% of the youth are unemployed. This number increases to around 14% in Latin America and the Caribbean, 24% in North Africa and 29% in the Middle East, but remains considerably under the South African rate (ILO, 2013). The unemployment problem in South Africa does not confine itself to youth. With its broad unemployment rate at 36% (Stats SA, 2014), South Africa is facing one of the highest unemployment rates in the world. This makes the identification of causes and solutions to unemployment issues of particular importance in South Africa.

There are a number of reasons why employment prospects may be decidedly worse for youth than for adults. From the firm's perspective, there is an additional risk associated with hiring youth because they are 'untested' in the market and lack prior experience (Burns et al., 2010a) and South African wage differentials fail to account for the extra risk associated with hiring inexperienced

workers (National Treasury, 2011). Mlatsheni and Ropabé (2002) argue that the main reason for the differences in employment levels between youths and adults is due to the lack of experience of the former. This is heightened by the particularly strong emphasis South African employers place on job experience (Burns et al., 2010a). Youth also have less ability to find and apply for work or to signal to employees their ability to perform in the workplace (Burns et al., 2010a). The costs associated with job search may be particularly prohibitive to youth, given that they have a lower expected payoff from job-search because of perceived or real lower likelihood of finding work. The importance of social networks in finding work is a well-documented phenomenon and a large number of studies have shown the importance of these networks in finding work in South Africa (including Burns et al., 2010b; Dinkelman, 2004; Dinkelman & Pirouz, 2002; Standing et al., 1996) and for youth in particular (Holzer, 1986b). Adults have accumulated more social capital than younger individuals and are therefore in a better position to make use of these networks to secure employment. Exacerbating this is the fact that the people to whom young people are connected are themselves less likely to be employed.

Finally, and importantly for this paper, youth unemployment may be what is sometimes called 'voluntary'. Moser (1986) finds that the propensity to voluntarily leave work decreases with age. This may be due to increased emotional maturity or to the bigger opportunity cost associated with higher wages and likelihood of dependents as age increases. It may also be the case that youth are inadvertently 'voluntarily' failing to enter employment. Standard economic theory posits a positive relationship between reservation wage and unemployment duration. This is because jobs offering wages lower than the individual's reservation wage are refused. Therefore, reservation wages will increase unemployment duration if they are higher than the wages of the available job offers in the labour market. This may be exacerbated for youth if they lack sufficient knowledge of the labour market in order to realistically predict their earnings. Youth may therefore be refusing work at wages which are in line with what they can realistically expect to earn in the labour market, given their individual characteristics and thus may be 'pricing' themselves out of the labour market because of a lack of sufficient information.

The relationship between unrealistic youth reservation wage and employment outcomes have been examined outside of South Africa, with conflicting results found. These will be discussed in section 2.2. In South Africa, this relationship has only been examined for the labour force as a whole (Nattrass & Walker, 2005), where no evidence of a link between unrealistic reservation wage and unemployment was found. However, restricting analysis to youth may yield different results if the quality of information used to construct their reservation wages differs from that of the adult population. While one paper does restrict their sample to youth (Rankin & Roberts, 2011), they only examine the extent and correlates of youth with unrealistic reservation wages, and not the relationship of this measure with unemployment.

This paper therefore attempts to address this gap in the South African literature. It uses data from the Cape Area Panel Study (CAPS), therefore the analysis is restricted to Cape Town, South Africa. The paper provides evidence as to whether youth unemployment is linked to unrealistically high reservation wages. In this case, 'unrealistically high' is defined by having reservation wages in excess of predicted wages, or the wage which youth are predicted to earn in the labour market, given their individual characteristics. This analysis uses the self-reported reservation wage measure, or the lowest reported wage at which an individual would be willing to accept full-time work.

This analysis is extended by addressing additional problems surrounding self-reported reservation wages in the international and South African literature. We interrogate the reliability of the conventional method of assessing reservation wages. Although the link between reservation wages and employment have been studied extensively, the majority of the empirical work (and, to our knowledge, all South African work of this nature) uses self-reported the reservation wage as its measure. There are a number of reasons why this measure may fail to accurately capture the labour market decisions made by youth (discussed in section 2.3). Kingdon & Knight (2001) find that a high proportion of unemployed South Africans hold unrealistic reservation wages and argue that the unreliability of the self-reported reservation wage measure may be the cause. This paper assesses whether this is the case by examining the extent to which the self-reported reservation wage closely resembles hypothetical labour market decisions made in the data. These are decisions whether to accept or reject hypothetical job offers at a given wage. The answers given to these hypothetical job offers may be consistent or inconsistent with the self-reported reservation wage measure. For example, an individual may report that the lowest monthly wage at which they would be willing to accept work is R2000, which is their self-reported reservation wage. However, when asked whether they would accept a job for R1500 per month, their answer may or may not be in line with this self-reported reservation wage. In fact, we show that 68.8 percent of youth show some inconsistency between the answers to these hypothetical job offers and their self-reported reservation wage.

Some of the problems with the self-reported reservation wage data are addressed by constructing a revealed reservation wage measure. This uses the data from the hypothetical job offers to construct an augmented reservation wage measure which takes into account the wages at which jobs where accepted or rejected. On the assumption that the revealed reservation wage does a better job at capturing the true reservation wage of the CAPS youth, we then examine the extent to which the revealed reservation wage is in line with predicted wage, as well as the implications for employment.

This paper is constructed as follows: Section 2 provides literature on: 2.1) why youth unemployment is a significant issue; 2.2) the link between reservation wage and unemployment and 2.3) measurement error in reservation wage construction. The methodology and discussion of the data follows in sections 3 and 4, respectively. In Stage I, Section 5 presents results using the self-

reported reservation wage data, including descriptive statistics of the labour market, an examination of reservation wage correlates and an analysis of the extent to which youth are holding unrealistic reservation wages. The relationship between this measure and youth employment outcomes is then examined. In Stage II, Section 6 investigates the reliability of conventional reservation wage data by contrasting the self-reported measure with answers given by respondents to a range of hypothetical job offers. Inconsistency between these data is used as an indication of the extent to which self-reported wages accurately reflect the reservation-wage decision-making processes. The underlying reasons for these inconsistencies are then examined using a small sample of additional interviews with CAPS panel members. Responses to hypothetical job offers are used to construct a revealed reservation wage, which is compared with predicted wages. The extent to which youth are holding unrealistic reservation wages, using the revealed reservation wage measure, is then examined.

2 Literature review

2.1 Why is youth unemployment important?

Youth unemployment is of concern because of both its immediate effects and its potential long-term negative effects on labour force participation and earnings. In addition to the immediate loss of labour income, unemployment amongst the young has been found to be negatively correlated with mental health, although confounding of unemployment and poverty is of concern (Fryer, 1997). In Europe, studies have found this correlation exists only for less educated youth (Schaufeli, 1997) and with depression in particular (Hammarström & Janlert, 1997). A meta-analysis of psychological links with youth unemployment has found that there is correlation between youth unemployment and anxiety, psychosomatic symptoms, subjective well-being and self-esteem (Paul & Moser, 2009). An analysis of the risk of crime in relation to youth unemployment in Australia shows a correlation between youth unemployment and fraud, homicide and motor vehicle theft (Narayan & Smith, 2004), and property and violent crimes in the USA (Britt, 2006). A meta-analysis of the relationship between crime and youth unemployment for 63 countries (including South Africa) shows a significant correlation between youth unemployment and crimes like homicide and major assault (Wood, 2006). This is of particular concern in South Africa, where the already high and violent crime levels have been linked to social exclusion (Pelser, 2008).

There are also well-documented long-term economic consequences of youth unemployment. In the UK, studies have found that periods of unemployment early in an individual's working life increase the likelihood of subsequent periods of unemployment (Burgess et al., 2003; Gregg, 2001; Narendranathan & Elias, 1993). Long-term productive capacity, and therefore employment prospects, may also be impaired as the patterns of behaviour learned when young are likely to persist (O'Higgins, 2001). Studies from the USA and UK find that unemployment spells decrease earnings in subsequent years (Jacobson et al, 1993; Nickell et al., 2002, respectively). Gregg and Tominey (2004) find particularly long-lasting effects of male youth unemployment, with

unemployment spells experienced at ages 16 to 23 found to reduce labour earnings by 13 to 21% per year of unemployment at age 42. Others authors find that the decreased wage effects of youth unemployment may persist for between 5 and over twenty years (Bell & Blanchflower, 2010; Kahn, 2010; Kletzer & Fairlie, 2003).

2.2 Reservation wages and youth unemployment

The reservation wage, or lowest wage at which an individual will accept work, is an important concept in theoretical models of job search, labour supply and labour market participation (see, for example, Mortensen, 1986, Mortensen and Pissarides, 1999, and Pissarides, 2000). Theoretically, reservation wages have a direct effect on unemployment duration in that job offers at wages less than reservation wage are rejected.

An extensive literature exists exploring the relationship between reservation wages and unemployment duration (Kasper, 1967; Keifer & Neuman, 1979; Rodríguez & Gutiérrez, 2008). Many studies compare reservation wages with predicted wages, with several focussed on youth and/or South Africa in particular. Holzer (1986) was one of the first to focus on youth unemployment, using data on wage differentials between Black and White youth in the USA from the 1979 and 1980 panels of the National Longitudinal Survey (NLS) New Youth Cohort. He found that, while Black youths had reservation wages which are comparable to White youths, they were high in relation to their subsequent market wage, the effect of which was increased spells of unemployment for Black youth of around 17%.

However, when Petterson (1998) replicated this analysis using additional years of panel data, he found that, while reservation wages between Black and White youth did differ, there was no evidence of any relationship between high reservation wages and duration of unemployment. Rather, Petterson argues that reported reservation wages did not in reality capture youth's actual labour market decision-making processes. He argued that the information captured by the utilised reservation wage question was of a fair wage rather than a minimum acceptable wage. Individuals who are likely to be at the lower end of the income distribution are more likely to feel that the wages that they earned are unfair. The unemployed are likely to set their reservation wages above previous wages earned if they feel their previous wages undervalued their contribution. Empirical studies have found this to be the case, with the unemployed at the lower end of the wage distribution setting reservation wages higher than wages they previously earned (Holzer, 1986; Jones, 1988). This theory of measurement error in self-reported reservation wage questions is scrutinised in Section 2.3.

Brown and Taylor (2011) used panel data drawn from the British Household Panel Survey (BHPS) to explore the extent to which individuals in Britain had realistic reservation wages, given their human capital and the prevailing economic climate. While the study was not focussed on youth, they found that 18 to 24 year olds were most likely to have reservation wages falling outside of

their predicted market wage. However, in contrast to Holzer's (1986) findings in the US and prevailing job-search theory, they found that having reservation wages *in excess of* predicted wages was positively associated with the likelihood of future employment.

A series of studies have examined the relationship between reservation wages and predicted wages in South Africa. These papers come to conflicting results regarding the extent to which unemployed individuals and youth in particular have realistic reservation wages. Kingdon and Knight (2001) used data from both the 1994 October Household Survey (OHS94) and a national household survey conducted in 1993 by the South African Labour Research Unit (SALDRU) to examine whether there was a mismatch between reservation wages and predicted wages of the unemployed (given their individual characteristics). They found that around 50% of unemployed individuals had reported reservation wages higher than their predicted wages and that around 30% of the unemployed had reservation wages that exceeded their predicted wages by more than 40%.

They also found that the gap between reservation and predicted wages was larger in rural areas. This is consistent with the hypothesis that a lack of information can lead to unrealistic labour market expectations. Alternatively, this difference may be due to a locational effect which sees rural individuals respond to the reservation wage question with an urban job in mind. This calculation of their reservation wage for an *urban* job may therefore take into account transport or relocation costs which urban individuals may have less need to factor in. Kingdon and Knight also found a very low correlation between reservation wages and predicted wages in individuals with low levels of education and in those who had never worked before, which may provide further evidence that a lack of information (either through education or labour market experience) may contribute to unrealistic labour market expectations. The overall conclusion of Kingdon and Knight's research, however, is that self-reported reservation wages are unreliable. For example, error in interpretation of the self-reported reservation wage question may explain why reservation wages exceeded predicted wages. (This issue is addressed in section 2.3.)

Nattrass and Walker (2005) performed a similar study using data from the 2000/2001 Khayelitsha/Mitchells Plain Survey (KMP) from Cape Town. The authors use a Heckman selection approach to predict wages for all respondents and compare this with their stated reservation wage. The authors then examine whether individuals who have reservation wages higher than predicted wages are less likely to be employed. They find, similarly to Brown and Taylor (2011) that an excess of reservation wage over predicted wage was positively associated with finding employment and conclude that unrealistic reservation wages were not a contributing factor to unemployment. This finding is discussed further in section 5.4.

Rankin and Robert's 2011 paper is the only South African study of this kind to focus on youth specifically. They used the 2006 South African Young Persons Survey (which, despite its name, was concentrated in selected areas in only three of South Africa's nine provinces, Gauteng,

Limpopo and KwaZulu-Natal); the survey targeted individuals aged 20 to 34. They are the first to include a firm size dimension in their model; this is done to account for varying wage offers made by firms of different sizes, following arguments (using US data) that, regardless of country, firms employing larger numbers of individuals pay higher wages (Oi and Idson, 1999). Rankin and Roberts (2011) argue that, although youth reservation wages may be in line with what youth with comparable characteristics are earning in the labour market, the actual availability of work in South Africa must be taken into account when using predicted wages. If large-firm work is unavailable to youth, only those wages earned in small firms can be compared to the reservation wages of the unemployed, so that one assesses the extent to which they are realistic about *available* job opportunities.

Rankin and Roberts find that, while reservation wages were for the most part in line with the (higher) wages offered by larger firms, there was a clear mismatch with those offered by smaller firms. While 20% of youths had reservation wages higher than the predicted large firm wage offers, 50% had reservation wages exceeding predicted wage offers from smaller firms, where work is most likely to be available. The fact that those who had more experience working in small firms tended to have more realistic reservation wages, supports the theory that youths lack adequate knowledge of the state and diversity of the labour market to predict earnings accurately. This is further supported by Rankin and Robert's finding that the misalignment between reservation wages and predicted wages declines with age and tertiary education.

2.3 Measuring reservation wages

Although reservation wages have been studied extensively, the majority of empirical work use self-reported reservation wage as its measure. Although the wording of reservation wage questions differ, they are similar in that they rely on the respondent's ability to understand and accurately report an answer to the very specific question being asked. There are a number of reasons why survey data gathered from self-reported reservation wages may be unreliable.

Individuals may imagine themselves in a bargaining situation when faced with reservation wage questions (Kingdon & Knight, 2001). They may therefore respond with higher amounts than the minimum that they are actually willing to accept for full-time work. This is because it is likely that the only situation in which they have been asked what wage they would accept is in one with a bargaining context. Therefore, when faced with actual wage offers individuals may in reality be willing to accept less than the amount stated in surveys.

The way reservation wage questions are placed, phrased or framed in surveys may also have significant impact on the answers received. Survey data is inherently subjective and the placement of the reservation wage question within the survey may influence answers given. This is because respondents attempt to give answers that are consistent with previous answers given in the survey. Additionally, the answers given to prior questions may memories or attitudes which influence the

answers given to future questions (Bertrand & Mullainathan, 2001). Reservation wage questions often come amidst a battery of questions on the respondent's labour market status and aspirations. If the surveyor is not careful about ordering, questions on a reservation wage could become confounded with what the respondent feels they would like or deserve to earn in the labour market. The wording of the reservation wage question is also important in order to elicit a valuable response. Nattrass (2002) found that only 39% of their unemployed sub-sample of respondents to the 2000/2001 Khayelitsha Mitchell's Plain (KMP) survey gave consistent answers over two differently worded reservation wage questions. These questions were 'What is the absolute lowest monthly take-home wage that you would accept for any work (if you were unemployed at the time)?' and 'What is the absolute minimum take-home monthly wage below which you would not be prepared to work in any job (taking into account your desired hours of work)?'. Possibly the framing of the questions (one in the negative, one in the positive) confused respondents, or respondents did not have a definitive reservation wage.

The way a question is framed plays a role in that open and closed ended questions are likely to elicit different responses. The respondent can either be asked what the lowest amount they would accept is, or be asked if they would accept specific amounts for full time work. Holzer (1996b) compares reservation wages of Black and White youth in the USA using both closed and open ended questions. The closed-ended questions included the time it would take to travel to work and salary started at $2.50, increasing in $0.50 intervals until the job was accepted. He found that reservation wages elicited from closed-ended questions were more consistent with previously received wages than those gathered from open-ended questions. It is possible that open-ended questions may cause respondents to confound the wage they expect and the wage they consider to be the minimum acceptable wage. The fact that, in the USA, Black youth had greater discrepancies between open-ended reservation wages and received wages may indicate that they were more likely to confound expected and reservation wage. Alternatively, Black youth may have higher amounts of expectational error regarding their wages.

An additional problem with standard reservation wage questions is that differences in job type are often ignored in the question phrasing. An unemployed worker may be more willing to accept work opportunities in his or her field of interest. Most surveys (especially outside of the USA) do not specify the kind of job in the reservation wage question. Some surveys do use a two-tiered system, first asking what type of work the respondent is looking for and then asking what the minimum wage they would accept for this work (Holfer & Murphy, 1994). Intuitively, job type is crucial in eliciting accurate reservation wages. Menial or undesirable jobs require higher salaries in order to incentivise individuals to take them, compared with more desirable work. This is known as the compensating differential, or amount that an individual requires in order to be incentivized to take less desirable work. Holzer (1996) found that job type was important is explaining reservation wage inconsistencies. Youth were more willing to accept factory or supermarket work than dishwashing or cleaning work at the same wage.

Nattrass (2002) also found inconsistencies between self-reported reservation wage and specific job offer questions. Almost 60% of their unemployed sub-sample from Cape Town said they would accept a public works job at a wage lower than their stated reservation wage. Other studies have also found that job type matters in determining youth reservation wage. Borus (1982) used the National Longitudinal Survey of Youth Labour Market Experience (NLS) to review the rate of acceptance of seven hypothetical job offers asked at a number of different wage rates. Jobs types ranged from washing dishes and working as a cashier to placement on various government programs. He found that job acceptance differed across job types, even when the wage rate remained the same. Specifically, he found sex and race differentials in willingness to work. Young women were more willing to take supermarket jobs while men were more likely to take national park and factory work. Racial minorities appeared less likely to take the work in government programs than White youth.

If the self-reported reservation wage question is failing to adequately capture youth reservation wage, this may over- or under-report the extent to which reservation wages are found to be out of line with their predicted wage. Measurement error in the self-reported reservation wage question will be addressed in Section 6, where comparisons between the conventional and the revealed reservation wage are performed.

3 Methodology

The aim of this paper is to investigate the extent to which youth unemployment is a result of unrealistic wage expectations in South Africa, as well as to investigate the reliability of conventional reservation wage measures. This analysis occurs in two stages:

3.1 Stage I

This stage involves using the conventional reservation wage measure to assess the extent to which youth are holding reservation wages in excess of what they can realistically expect to earn in the labour market. Following this, the relationship between unrealistic reservation wages (in other words, reservation wages in excess of predicted wages) and employment status is assessed.

Wages are predicted using a Heckman Maximum Likelihood model, in order to compare them with self-reported reservation wages. This model was selected in order to correct for sample selection bias in the wage equation. The key problem in using simple OLS to predict wages is that this method does not take into account the characteristics determining participation. As those in employment tend to have higher wages than those who are unemployed or not in the labour force would have (if employed), this will introduce upward bias from results. Heckman (1979) showed that this can be approached as an omitted variable problem, and that accounting for this omitted variable would solve the sample selection bias present.

The Heckman Maximum Likelihood model entails running an initial probit to predict the employment outcome of respondents, given their individual characteristics. Selection into employment is given by the selection equation, in the form of the probit equation (1), below:

$$E_i^* = z_i\gamma + u_{2j} \qquad (1)$$

- $E_j = 1$ if $E_i^* > 0$, and $E_j = 0$ otherwise.
- $\text{Prob}(E_j = 1|z_i) = \Phi(z_i\gamma)$ and $\text{Prob}(E_j = 0|z_i) = 1 - z_i\gamma$.

Where E_i^* is the difference between the market wage and the reservation wage, and it is assumed that employment outcome E_j is therefore only observed if wages are greater than reservation wage, or $E_i^* > 0$. When this is the case, individuals are selected into employment, and vice versa. On the right hand side of equation (1), z is a vector of explanatory variables and γ is a vector of unknown parameters, with u the error term. The hypothesis for the selection stage is that per capita household income, health status, having a child and having a female or male pensioner in the household all determine employment but not wages once employed. Other covariates included are gender, race, age, literacy and numeracy test scores, English as the youth's home language and education variables (reasons given in section 5.3.1).

In the second stage, wages are adjusted by the inverse mills ratio (lambda) to correct for selection into employment. The wage equation takes the form:

$$w_j^* = x_j\beta + u_{1j} \qquad (2)$$

Where w_j^* is the wage, $x_j\beta$ are observed explanatory variables and u_{1j} is the error term. All covariates used in the selection equation are used, except those specifically mentioned as excluded (per capita household income, health status, whether the youth has a child and whether there is a female or male pensioner in the household). Reasons for use of these variables are also given in section 5.3.1. This methodology generates a predicted wage for all CAPS respondents, irrespective of their labour market status.

Predicted wages generated by the Heckman model (equations 1 and 2) are then compared with self-reported reservation wages in order to ascertain the extent to which youth hold realistic reservation wages. This is done by creating a dummy variable equal to 1 if reservation wage (RW) exceeds predicted wage (PW). If reservation wage exceeds predicted wage, youth are described as holding unrealistic reservation wages, or reservation wages in excess of what they can expect to earn in the labour market. While the extent to which reservation wages exceed predicted wages differ amongst youth, no distinction is made in creating this dummy variable. This variable is then regressed against a set of observable characteristics to determine which youth characteristics are associated with unrealistically high reservation wages. Finally, the RW>PW dummy variable is used

as an explanatory variable in the employment equation (1) to evaluate whether the presence of 'unrealistic' reservation wages is correlated with the probability of employment.

To account for youth who are working multiple jobs, wages are calculated based only the first job worked and not subsequent forms of employment. Further, wages are calculated at an hourly rate in order to take wage differentials between full and part time employment into account. A dummy for full-time work is included in the outcome stage of the Heckman equation in order to capture whether full-time work is associated with higher or lower hourly wages when compared with part-time work.

3.2 Stage II

This stage analyses the extent to which conventionally-used self-reported reservation wages (like those used in Stage I) accurately capture the reservation wages used by youth in their actual decision-making processes. This is done using two sources of data: hypothetical job offer questions in the existing CAPS data, as well as five additional interviews conducted with previous CAPS respondents. First, differences between the wages accepted and rejected through hypothetical job offers and the self-reported reservation wages are examined in order to determine the extent of inconsistency between the two measures. For example, the survey asks whether youth would accept a job as a domestic worker at the monthly wage of R1000 in Wave 5. If the youth responds that they would accept this hypothetical job offer, they have revealed that they would be willing to engage in full-time work for at least R1000 a month. On the other hand, when asked directly what their reservation wage is, they may respond with an answer which is consistent or inconsistent with the answer given to the hypothetical job offer. If their self-reported reservation wage is R2000, this is inconsistent with them accepting R1000 for the hypothetical job offer. The data from the hypothetical job offers is used to augment the self-reported reservation wage in order to construct a revealed reservation wage (RRW), which takes into account monetary amounts accepted or rejected under the job offers. This revealed reservation wage is compared with predicted wage (similarly to Stage I, above) in order to assess the extent to which youth are holding unrealistic reservation wages, using this new measure.

Secondly, possible reasons for discrepancies between these job offers and self-reported reservation wages are examined using the five additional CAPS interviews. The interview sample was selected from Site C in Khayelitsha. Respondents were selected if they had not moved out of the area and if they reported not working and that they would like to find work; the first five available youth were interviewed. Interviews were conducted in English or Xhosa according to the respondent's preference, with the aid of a Xhosa translator. Although not generalizable to the sample, these interviews were used to determine, on a very small scale, (a) the extent to which respondents understood the self-reported reservation wage question and (b) the thought process underpinning the rejection of job offers, especially at wages higher than the self-reported reservation wage. This provides some understanding of the nuances surrounding reservation wage formation and the

extent to which this may affect results from Stage I. In addition, the interviews shed light on questions to be asked in subsequent surveys in order to elicit a more accurate measure of reservation wage.

4. Data

The data used in this analysis are from three waves of the Cape Area Panel Study (CAPS), undertaken in 2002-2009. It is a longitudinal study of the lives of youths and young adults in metropolitan Cape Town as they undergo the multiple transitions from adolescence to adulthood.[1]

The initial sample was of 4752 individuals aged 14-22 at the time of the first wave in 2002. The fifth and final wave was conducted in 2009, by which time the remaining participants were 20-30 years old. Non-responses reduced the size of the panel to 3927 in Wave 2; 3531 in Wave 3; 3439 in Wave 4 and 2915 in Wave 5. All data analysis has been weighted using sample design and both household and young-adult non-response weights. In order to maximise the available sample size, all analysis uses the unbalanced panel unless otherwise stated. Specific sections utilize the panel nature of the data and therefore by definition confine analysis to youth appearing only in the relevant waves. The balanced panel between Wave 1 and Wave 5 yields 2 915 respondents.

In addition to including data at school and community level, the survey asked detailed questions providing information on, amongst other things, schooling, sexual health, family support and labour market participation. Questions concerning the labour market included the surrounding employment prospects, reservation wages and job search in every wave.

Questions specific to reservation wages take two forms. In every wave, all participants were asked "What is the absolute lowest take-home wage that you would accept for any permanent, fulltime work?" with some slight variation in phrasing in Wave 1. In Waves 2 to 5, additional questions were asked regarding whether participants would accept a number of hypothetical jobs at different wages (for further explanation of how these are constructed, see Stage II).

These two types of questions give access to (a) a continuous self-reported, conventional reservation wage in Waves 1 to 5 and (b) a revealed reservation wage that is constructed from acceptance or rejection of hypothetical jobs at various wages in Waves 2 to 5. The self-reported reservation wage is used in the analyses in Stage I, while the revealed reservation wage data will be used to test the consistency of the conventional, self-reported reservation wage data in Stage II. All questions containing Rand values are adjusted for inflation, with Wave 5 (2009) as the base year.

[1] CAPS started as a collaborative project of the Population Studies Center in the Institute for Social Research at the University of Michigan and the Centre for Social Science Research at the University of Cape Town (UCT). Other units involved in subsequent waves include UCT's Southern African Labour and Development Research Unit and the Research Program in Development Studies at Princeton University.

It should be noted that data taken from the self-reported reservation wage question in Waves 2 and 3 appear to be inflated due to changes in the order of the questions in these waves[2] and are therefore excluded from the analysis that follows.

5. Results: stage I

In Stage I, we present descriptive statistics of self-reported reservation wage and labour market status, disaggregated by individual characteristics (Section 5.1). Following this, we assess the factors influencing reservation wage formation in Section 5.2. Section 3 uses the conventional self-reported reservation wage measure to assess the extent to which youth are holding reservation wages in excess of what they can realistically expect to earn in the labour market. Following this, the relationship between unrealistic reservation wages (in other words, reservation wages in excess of predicted wages) and employment status is assessed in Section 5.4.

5.1 Descriptive statistics

Table 1 gives the mean self-reported reservation wage in real terms across racial groups, gender and employment status in Waves 1, 4 and 5. The bottom half of the table show results for different labour market states, of segments, of the youth. The way of segmentation is particular to this analysis because of the nature of the sample used in the paper. The youth in the sample are separated into one of five mutually exclusive labour market states: Employed; Employed and Enrolled in Education; Only Enrolled in Education; Unemployed; and Not Economically Active (NEA), which in this case excludes those who are studying. It is reasonable to separate those who are studying from those who are NEA due to the high proportion of youth engaged in the former activity. This separation leads to very low levels of youth who are NEA, which is to be expected. Similarly, it is arbitrary to include those that are studying only in either the Employed or Studying category. Students who have part-time employment while working may have increased labour market knowledge, leading to more accurate labour market expectations. Similarly, studying while working may increase perceived self-worth and therefore influence reservation wage. For these reasons, all five labour market states are evaluated separately.

This table shows that mean White youth reservation wages are more than double those of African youth and significantly and consistently higher than those of Coloured youth. Coloured individuals also report higher reservation wages, on average, than African youth. Young men consistently have higher average reservation wages than young women, in all likelihood reflecting the male wage premium observed in South Africa.[3] Those employed, studying or both report higher reservation wages than those unemployed or not economically active. This is to be expected, as those youths who are working while enrolled in education may take into account the opportunity cost of leaving

[2] See Lilenstein, 2015 for more thorough analysis of reservation wages in Waves 2 and 3 of the CAPS data.
[3] See, for example, Bhorat (2009); Bhorat & Goga (2010) and Casale & Posel (2011).

their current situation when setting their reservation wage, rather than just report the minimum that they would be willing, in general, to work for. (Note that the terms "enrolled in education" and "studying" are used interchangeably throughout this paper.)

Table 1. Mean (real) self-reported reservation wage (Cape Town area)

	Wave 1	Wave 4	Wave 5
Aggregate	2 205	2 715	3 583
African	1 688	2 194	2 965
Coloured	2 009	2 632	3 393
White	3 828	4 603	7 125
Male	2 370	2 872	4 007
Female	2 053	2 568	3 181
Only Employed	2 375	2 866	4 038
Employed & Enrolled in Education	3 334	4 596	5 159
Only Enrolled in Education	2 176	3 148	5 832
Unemployed	1 723	1 811	2 228
NEA (excl. enrolled in education)	1 678	1 918	2 548

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. All wage data was deflated using monthly CPI data, with November 2005 the base month.

Table 2 provides insight into the labour market outcomes for the CAPS youth. Standard economic theory posits a positive relationship between reservation wage and unemployment duration. This is because jobs offering wages lower than the individual's reservation wage are refused. Therefore, reservation wages will increase unemployment duration if they are higher than wages the individual can realistically be expected to earn in the labour market. Table 2 gives labour force statistics for the sample in Wave 1, disaggregated by race, gender and age. The final two Columns provide unemployment rates and sample size for each group. Those youths who report being employed or unemployed are coded as in the labour market, including those who are studying while employed. The unemployment rate is therefore calculated as per the formula below:

$$\frac{Unemployed}{Unemployed + Employed + Studying\&Employed}$$

On aggregate, 57% of youth are only studying and 6% of youth both employed and studying; these are to be expected due to the 14-22 age bracket in this wave. A very low percentage of youth are NEA (as defined) at this age (3%). This table indicates that more youth are unemployed (18%) than only employed (16%) and the aggregate unemployment rate is 45%. What is clear from this table is that African youth in the sample are the least likely to be involved in employment, with the large majority either only studying (71%) or unemployed (17%) in Wave 1. African youth are also not likely to be working and studying at the same time. This indicates that African youth leave educational institutions with low levels of direct labour market experience relative to youth in other race groups. Coloured youth are more likely to be working or unemployed and less likely to be studying than either of the other two races. This indicates that Coloured youth tend to leave school

or other educational institutions in search of work. Of those Coloured youth not in school, 22% were in employment while 21% were unemployed in Wave 1.

White youth have substantially smaller unemployment rates than either African or Coloured youth as the majority of White youth are studying. White youth also show substantially higher levels of both working and studying than either of the other race groups: 30% compared with only 1% and 6% of African and Coloured youth, respectively. The fact that almost a third of White youth had some labour market experience while studying may bear significance for their likelihood of finding employment after completing their studies. White youth have by far the lowest unemployment rate, with a rate of 5% compared with 73% and 43% for African and Coloured youth, respectively. This is in line with numerous South African labour market studies which show large race differentials in unemployment rates[4], which can be expected due to differences in human capital accumulation because of long-term effects of race-based employment discrimination policy during Apartheid.

Gender differences are less pronounced than race differentials, with men moderately more likely to be working and less likely to be NEA than women, as can be expected due to the possible onset of motherhood at this age. Men have lower unemployment rates than women, by approximately 9 percentage points. Age profiles are intuitive, with youth aged 19 to 22 more likely to be employed and less likely to be studying than youth aged 14 to 18. Overall, unemployment rates are 10 percentage points lower in the 19-22 age bracket compared with the 14-18 bracket.

Table 2. Labour force participation rates: wave 1 (Cape Town area)

	Only Employed	Employed & Enrolled in Education	Only Enrolled in Education	Unemployed	'NEA' (excl. enrolled in education)	Total	Unemp. Rate	N
Aggregate	16.1	6.3	56.5	18.1	3.0	100	44.7	2 913
African	5.4	0.8	71.2	16.7	5.8	100	72.7	1 327
Coloured	21.8	5.6	49.6	20.9	2.2	100	43.2	1 433
White	9.1	29.7	59.0	2.2	0.0	100	5.3	153
Male	18.7	6.2	56.3	16.8	1.9	100	40.3	1 319
Female	13.5	6.4	56.7	19.3	4.1	100	49.2	1 594
Age 14-18	3.5	5.7	78.5	10.0	2.2	100	52.0	1 785
Age 19-22	35.2	7.1	23.1	30.4	4.3	100	41.8	1 128
N	379	126	1 767	528	113			

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. Restricted to the balanced panel i.e. individuals appearing in both Wave 1 and 5. 3. Those employed, unemployed and employed & studying are included in the labour market. The unemployment rate is calculated by the formula (Unemployed/[Employed + Studying & Employed])

[4] See for example Kingdon & Knight (2004); Klasen & Woolard (2009)

5.2 Determinants of self-reported reservation wages

The following section aims to provide insight into the determinants of the self-reported reservation wage measure for the CAPS youth. This analysis of reservation wage formation provides information on whether self-reported reservation wages are correlated with individual characteristics in the way in which we expect them to be.

Table 3 presents a set of regressions on the log of reservation wage, using pooled data across Waves 1, 4 and 5. Regression 1 includes the full sample of youth within and outside of the labour force. Regressions 2 to 6 separate youth into their relative labour market status. Following the literature[5], race, gender, age and its square as well as education variables have been included as these variables have been found to significantly impact South African reservation wages. Dummy variables for whether a youth is currently studying or working are included as both these variables are likely to increase reservation wages. This is because working youth may factor in the opportunity cost associated with leaving their current position, or increase reservation wages to at least the level of their current wage. Furthermore, youth who are studying will require higher levels of wages to be encouraged to take on the opportunity cost of leaving their studies. Log of per capita household income (inflation adjusted) is also included as it is likely that youth living in wealthier households are less likely to accept low wages out of desperation than those living in poorer households (Nattrass & Walker, 2005). High per capita household income may also adjust youth expectations towards higher wages.

Looking at the full sample (Column 1), gender, race, age and education are all seen to impact reservation wages as expected. Male youth have higher reservation wages than female youth, as do White youth compared with African youth. Contrary to Nattrass and Walker (2005), who examined adults of all ages, no difference is found between Coloured and African youth. Reservation wages increase with age, which is to be expected, but at a decreasing rate. As previous authors have found, increased years of education as well as attaining a matric or tertiary education all increase reservation wage. As hypothesised, youth who are working or studying display increased reservation wages. Household per capita income also increases reservation wage, suggesting that youth in wealthier households are less desperate to find work and are willing to hold out for higher wage offers. Alternatively, youth living in relatively richer households may have inflated expectations regarding what they can realistically expect to earn in the labour market. The primary difference between regressions 1 to 6 is the decreased importance of race and gender in determining reservation wages for the unemployed. For the unemployed, education and household per capita income are the primary significant determinants of reservation wage.

[5] See Klasen & Woolard (2009); Natrrass & Walker (2005)

Table 3. Determinants of (log) reservation wages

(Log) Reservation Wage	1. Full Sample	2. Only Employed	3. Employed & Studying	4. Only Studying	5. Unemployed	6. NEA
Male	0.134***	0.124***	0.199**	0.135***	0.086*	0.304***
	[0.018]	[0.027]	[0.067]	[0.033]	[0.034]	[0.085]
White	0.269***	0.186**	0.306*	0.340***	0.314*	0.590
	[0.048]	[0.064]	[0.139]	[0.083]	[0.128]	[0.326]
Coloured	0.047	0.019	0.100	0.068	0.046	0.046
	[0.029]	[0.041]	[0.110]	[0.045]	[0.049]	[0.108]
Age	0.136***	0.101	0.249	0.030	-0.043	-0.031
	[0.029]	[0.062]	[0.180]	[0.078]	[0.062]	[0.151]
Age Squared	-0.002***	-0.001	-0.004	0.001	0.001	0.000
	[0.001]	[0.001]	[0.004]	[0.002]	[0.001]	[0.003]
Years of Education	0.079***	0.072***	0.024	0.114***	0.064***	0.127**
	[0.008]	[0.015]	[0.053]	[0.015]	[0.012]	[0.039]
Matric	0.158***	0.119*	0.339*	0.141	0.139**	0.136
	[0.028]	[0.046]	[0.154]	[0.081]	[0.045]	[0.115]
Tertiary Education	0.271***	0.240**	0.620**	0.077	0.174*	-0.085
	[0.047]	[0.078]	[0.233]	[0.107]	[0.080]	[0.375]
Currently Working	0.090***	-	-	-	-	-
	[0.021]	-	-	-	-	-
Currently Studying	0.178***	-	-	-	-	-
	[0.024]	-	-	-	-	-
HH PC Income (log)	0.119***	0.200***	0.135**	0.065**	0.118***	0.071
	[0.013]	[0.021]	[0.052]	[0.023]	[0.022]	[0.046]
Wave 4	-0.057	-0.112*	-0.033	0.036	-0.077	-0.121
	[0.036]	[0.051]	[0.121]	[0.060]	[0.048]	[0.122]
Wave 5	0.215***	0.225***	0.102	0.316***	0.150**	0.348*
	[0.036]	[0.050]	[0.121]	[0.088]	[0.058]	[0.139]
Constant	3.691***	3.663***	2.752	4.870***	6.074***	5.869***
	[0.313]	[0.749]	[1.837]	[0.721]	[0.727]	[1.388]
R Squared	0.287	0.275	0.320	0.263	0.127	0.261
Obs.	10163	3323	501	3242	2766	337

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. Household income has been inflation adjusted to Wave 5 level. 3. *** p<0.01, ** p<0.05, * p<0.1. 4. Numbers in [ ] are standard errors. 5. Base Race group is African. 6. Regressions are for the pooled Wave 1, 4 and 5 sample of youth.

Table 4 uses a fixed effect model to control for time-invariant unobservable variables which may affect reservation wage. The effect of age is similar to that of the previous table. Obtaining a matric education increases reservation wage. Similarly, increases in household per capita income are correlated with increased reservation wage. This table also indicates that youth who find work between waves increase their reservation wage, as can be expected for reasons given previously. Exiting studies between waves is associated with a decrease in reservation wage.

While this section indicates that self-reported reservation wages are correlated with individual characteristics in the way in which we expect them to be, it has yet to shed any light on the extent to which the self-reported reservation wage measure is in-line with what youth can realistically expect to earn in the labour market. The following section aims to address this question.

Table 4. Determinants of (log) reservation wage: fixed effects

(Log) Reservation Wage	Full Sample
Age	0.276***
	[0.075]
Age Squared	-0.003**
	[0.002]
Years of Education	0.030
	[0.025]
Matric	0.152**
	[0.075]
Tertiary Education	0.187
	[0.124]
Find Work	0.111**
	[0.042]
Exit Studies	-0.123**
	[0.058]
HH PC Income (log)	0.075**
	[0.026]
Constant	2.279**
	[0.905]
R Squared (overall)	0.098
Obs.	5819

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. Household income has been inflation adjusted to Wave 5 level. 3. *** p<0.01, ** p<0.05, * p<0.1. 4. Numbers in [ ] are standard errors.

5.3 Are self-reported reservation wages realistic?

Section 5.3 aims to assess the extent to which self-reported reservation wages are unrealistic – or higher than the wages which youth are predicted to earn in the labour market.

5.3.1 Self-reported reservation wages and predicted wages

In order to explore whether youth reservation wage is in line with what they can expect to earn in the labour market, reservation wages are compared with predicted wages. If reservation wages are higher than predicted wages, these youths can be said to be holding unrealistic reservation wages and may be 'pricing' themselves out of the labour market.

Table 5. Predicted wage: Heckman maximum likelihood model

Dependent Variable:	1. Employment Selection	2. (Log) Monthly Wage Outcome
Male	0.205***	0.104***
	[0.047]	[0.027]
White	-0.229**	0.642***
	[0.104]	[0.065]
Coloured	0.523***	0.209***
	[0.061]	[0.042]
Age	1.445***	-0.234**
	[0.078]	[0.099]
Age Squared	-0.027***	0.005**
	[0.002]	[0.002]
Years of Education	-0.183***	0.097***
	[0.023]	[0.015]
Matric	0.335***	0.006
	[0.068]	[0.040]
Tertiary Education	0.270**	0.203**
	[0.123]	[0.072]
Literacy Test	-	0.010
	-	[0.016]
Numeracy Test	-	0.098***
	-	[0.016]
English Home Language	-	0.176***
	-	[0.032]
Full Time Worker	-	-0.871***
	-	[0.142]
HH Per Capita Income (Log)	0.178***	-
	[0.028]	-
Good Health	0.035*	-
	[0.020]	-
Has a Child	0.301***	-
	[0.059]	-
Female Pensioner in Household	0.048	-
	[0.069]	-
Male Pensioner in Household	0.045	-
	[0.095]	-
Wave 3	0.153**	0.197***
	[0.054]	[0.042]
Wave 4	0.143**	0.239***
	[0.054]	[0.038]
Wave 5	0.158**	0.317***
	[0.072]	[0.045]
Constant	-18.291***	10.203***
	[0.864]	[1.245]
Prob>F	0.000	0.000
Obs.	9 221	9 221

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. All Monetary variables have been inflation adjusted to Wave 5 level. 3. *** p<0.01, ** p<0.05, * p<0.1 4. Numbers in [ ] are standard errors. 5. Base Race group is African.

In Table 5, following Nattrass and Walker (2005), wages are predicted using a Heckman Maximum Likelihood model in order to account for the probability of being employed (see equations 1 and 2 in Section 3.1, above). The first stage (selection stage) is a probit model to predict employment probability, based on the set of observable individual characteristics. The second stage (outcome stage) generates predicted wages for all respondents. The hypothesis for the selection stage is that per capita household income, health status, having a child and having a female or male pensioner in the household all determine employment but not wages once employed. A 'Good Health' variable is included, which is a categorical variable taking on the values 1 to 5, with higher values corresponding to better self-reported health status. The hypothesis is that high per capita household income provides youth with money to fund transport and other costs associated with job search, which will lead to increased selection into employment for these groups. Additionally, youth who are themselves parents may be under more pressured to find work in order to support their child. Research examining the effect of pension receipt on household labour supply in South Africa has come to conflicting conclusions[6]. Literacy and numeracy test scores are included at both stages of the Heckman model as a measure of the youth's comprehension, language and numeracy skills, which may feed into the ability to effectively communicate and process information. Gender, race, age and education variables are also included, as typical of wage and employment equations in South Africa.

The Heckman Maximum Likelihood estimates for the selection and outcome stages are given in Columns 1 and 2, respectively. Wages are predicted for the full sample of CAPS youth using the coefficient estimates from Table 5, above. The predicted wages are used to create a measure of realism of youth reservation wages in the CAPS data. Where self-reported reservation wages are above predicted wages, the reservation wage is said to be out of line with what youth can realistically expect to earn in the labour market, and therefore unrealistic. This measure of unrealistic self-reported reservation wages takes the form of a dummy variable equal to one if reservation wages are higher than predicted wages (RW>PW). Figure 1 gives the summary statistics of this variable for those who were not employed (i.e. in education, unemployed or not economically active) in Wave 1, 4 and 5.

On aggregate, 17% of youth had reservation wages higher than predicted wages. Further examination indicates that African youth are most likely to hold unrealistically high reservation wages and White youth are least likely to do the same. Disaggregating by labour market status reveals that 16% of unemployed youth held reservation wages higher than their predicted wages. This is far lower than results by Rankin and Roberts (2011). In their sample (based on three South African provinces – Gauteng, KwaZulu-Natal and Limpopo), 36% of unemployed youth had reservation wages higher than predicted wages, using OLS to predict wages for the unemployed. (Their percentages were much higher when using Heckman two-stage predicted wages.) Nattrass

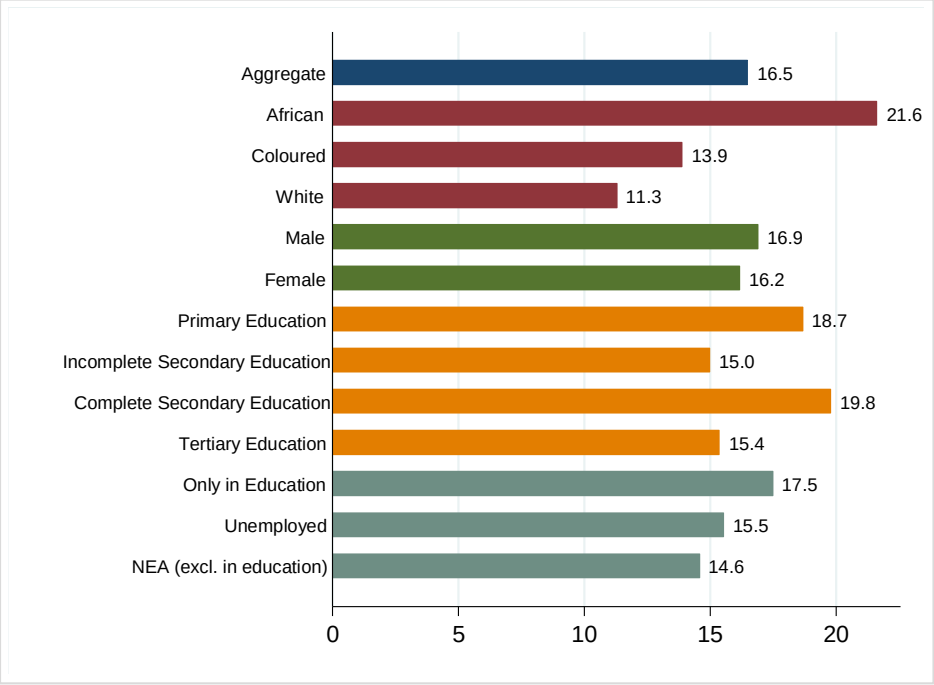
[6] See for example: Bertrand, Mullainathan & Miller (2003); Posel, Fairburn & Lund (2006); Ardington, Case, & Hosegood (2009) and more recently Abel (2013).

and Walker (2005), on the other hand, find on average that only 1% of the unemployed sample has unrealistic reservation wages. This lower percentage of individuals with unrealistic reservation wages may be due to the fact that they do not restrict their sample to youth, as this paper and that of Rankin and Roberts (2011) does.

This gives some evidence towards the hypothesis that youth, in particular, do lack sufficient knowledge of the labour market in order to correctly predict expected earnings and thus form realistic reservation wages. The difference between results found by Rankin and Roberts (2011) and this paper may be due to differences in the samples used. While this paper uses data from Cape Town, Rankin and Roberts used data from Gauteng, Kwazulu-Natal and Limpopo and only include African youth in their sample, therefore the high proportion of unemployed youth with unrealistic reservation wages found may also be due to race effects. When restricting the sample of unemployed only to African youth, this paper finds that 20% of the unemployed held unrealistic reservation wages. Although this has increased compared with the entire unemployed sample, it is still well below the Rankin and Roberts (2011) rate of 36% (using OLS) and 76% (using a Heckman model).

These results suggest that a substantial proportion of the CAPS youth hold unrealistic reservation wages when using the self-reported measure. While the descriptive statistics suggest that race, level of education and labour market status are correlated with unrealistic self-reported reservation wages, the following section utilises regression analysis in order to examine the types of youth who are most likely to be holding unrealistic reservation wages.

Figure 1. Unrealistic self-reported reservation wages by individual characteristics: waves 1, 4 and 5 (Cape Town area)



Notes: 1. All proportions have been weighted using sample design, attrition and post-stratification weights.

5.3.2 Determinants of unrealistic self-reported reservation wages

This section aims to assess the characteristics of youth which are associated with holding unrealistically high self-reported reservation wages. The dummy variable created in the previous section (equal to 1 if self-reported reservation wages exceed predicted wages) is used as dependent variables in the regression analysis that follows. In Table 6, this regression is run first for the sample of youth who are not employed (Columns 1 and 2) – in other words unemployed, only studying or NEA - and then for the unemployed only (Column 3). Variables included are gender, race, age and the various education variables previously used as all of these may impact the accuracy of reservation wage expectation. Additionally, a variable indicating whether the youth has ever held a job is included. This is to determine whether youth with any measure of work experience differ from those with no labour market experience. If the labour market knowledge theory is correct, these youths should be more realistic in their reservation wage formation.

Column 1 and 2 run different specifications for the sample of not employed youth. Column 1 indicates that youth who had a matric education or who were enrolled in education tended to be unrealistic when setting their reservation wages. One possible confound is the way in which education is measured in most studies. Generally (and in this paper), a measure of completed education is used rather than current enrolment. This means that a movement, for example, from post-matric unemployment into first year university will not appear as a change in completed education, even though 'expected' education (based on enrolment) increases from 12 to 15 years. Therefore, conventional education measures may be discounting the fact that youth may rely on expectations of completed education in forming their labour market expectations.

To determine whether differences in obtained and expected education lead youth to hold unrealistic reservation wages, Column 2 repeats the Column 1 regression, including a variable quantifying the difference between these two educational measures. If this coefficient is positive and significant, it means that unrealistic reservation wages are, in part, due to differences in between educational obtainment and educational expectations. These results show that the education difference score is positive and significant as a determinant of unrealistic reservation wages. The variables indicating that the youth obtained matric and that the youth was enrolled in education are still positive and significant but with magnitudes reduced. This indicates that the mismatch between education obtained and expected is a correlate of unrealistic reservation wage in youth, but that other factors associated with studying and gaining education are also important. If youth are basing their reservation wages, in part, on expected educational outcomes, this is some indication of a possible 'pricing out' of the market – certain youth are holding reservation wages above their predicted wages due to inflated ideals of what they can earn in the market place given current educational attainment. Of course, it is yet to be seen whether this translates into negative employment outcomes for these youth. The significance of the matric variable in Column 2 may be due to the particular importance placed on obtaining a matric education in South Africa. There is a strong rhetoric around completion of Grade 12 as essential to future success, pushed by

government, schools and parents. This may cause youth to overestimate the returns that matric education will provide in the labour market.

Table 6. Determinants of unrealistic self-reported reservation wages: average marginal effects Waves 1, 4 & 5

Dependent Variable: RW>PW Dummy	1. Full Sample: Specification 1	2. Full Sample: Specification 2	3. Unemployed
Male	0.010	0.010	0.018
	[0.011]	[0.011]	[0.013]
White	-0.114***	-0.118***	-
	[0.033]	[0.033]	-
Coloured	-0.055***	-0.056***	-0.042**
	[0.016]	[0.016]	[0.016]
Age	0.114***	0.106***	0.049*
	[0.017]	[0.017]	[0.026]
Age Squared	-0.002***	-0.002***	-0.001*
	[0.000]	[0.000]	[0.001]
English Home Lang.	-0.034	-0.038*	-0.040
	[0.021]	[0.021]	[0.029]
Education Difference Score	-	0.025**	-
	-	[0.011]	-
Education	-0.021***	-0.019***	-0.019***
	[0.005]	[0.005]	[0.005]
Matric	0.063***	0.048**	0.044**
	[0.019]	[0.020]	[0.022]
Tertiary Education	0.058*	0.065**	-0.019
	[0.032]	[0.032]	[0.051]
Literacy Test	-0.000	-0.000	0.008
	[0.006]	[0.006]	[0.007]
Numeracy Test	-0.005	-0.007	-0.042***
	[0.008]	[0.008]	[0.010]
Ever Held a Job	-0.036**	-0.037**	-0.026*
	[0.015]	[0.015]	[0.015]
Only Enrolled in Education	0.109***	0.074***	-
	[0.016]	[0.020]	-
NEA (Excl. Studying)	-0.008	-0.008	-
	[0.026]	[0.026]	-
HH PC Income (log)	0.021**	0.021**	0.011
	[0.007]	[0.007]	[0.008]
Wave 4	-0.025	-0.026*	-0.028
	[0.016]	[0.015]	[0.019]
Wave 5	0.054**	0.054**	0.034
	[0.021]	[0.020]	[0.022]
Prob>F	0.000	0.000	0.000
Obs.	5 951	5 951	2 507

Notes: 1. All proportions have been weighted using sample design and non-response weights. 2. All monetary amounts have been adjusted for inflation to the Wave 5 level. 3. *** p<0.01, ** p<0.05, * p<0.1. 4. Numbers in [ ] are standard errors. 5. Base Race group is African. 6. Base group for labour market status is Unemployed.

Other results from Table 6 indicate that White and Coloured youth are less likely to be unrealistic than their African counterparts. As expected, youth who have held some form of work in their lives are less unrealistic than youth who have never held a job. This supports the view that labour market experience increases the likelihood of realistic labour market expectations. Youth with higher household per capita income are more likely to be unrealistic, as predicted. Results run only for the sample of unemployed (Column 3) are similar, with the exception that household per capita is no longer a significant determinant of unrealistic reservation wages. In addition, a higher numeracy score is also associated with decreased likelihood of holding unrealistic reservation wages. Note that White youth were excluded from this regression due the small sample size of unemployed White youth.

This analysis has provided a measure of the both the extent to which self-reported youth reservation wages are realistic and what characteristics are associated with this. In order for the hypothesis that youth unemployment is partially driven by these unrealistically high reservation wages to be supported, the presence of unrealistic reservation wages should be associated with a decreased likelihood of employment for unemployed youth. The following section attempts to establish whether this is the case.

5.4 The possible effect of unrealistic self-reported reservation wages on employment

Thus far, we have analysed both the extent to which self-reported reservation wages are out of line with predicted wages, and the individual characteristics associated with holding unrealistic reservation wages. However, we have yet to shed light onto the extent to which holding unrealistic reservation wages is associated with employment outcomes for youth. The following section aims to address this question.

In order to determine whether unrealistic reservation wages impact employment, the RW>PW dummy that has been created is used as an explanatory variable in an employment outcome regression. Other variables included are those known to affect employment and wages in South Africa, namely gender, race, age, and education.[7] These variables are the same as those used in the RW>PW regression (Table 6) to determine the correlates of unrealistic reservation wage. For this reason, the RW>PW dummy is used in specification 1 of this regression (Columns 1 and 2), while the residual from the regression in Table 6 is used in specification 2 of this regression (Columns 3 and 4), in order to deal with any multi-collinearity present.

[7] See for example Kingdon & Knight (2001), Klasen & Woolard (2009), and specifically Nattrass & Walker (2005).

Table 7. Unrealistic self-reported reservation wages and employment: average marginal effects

Dependent Variable: Employment Outcome	SPECIFICATION 1: RW>PW DUMMY		SPECIFICATION 2: RW>PW DUMMY: RESIDUAL	
	1. Unemployed W1: W2 Employment Outcome	2. Unemployed W4: W5 Employment Outcome	3. Unemployed W1: W4 Employment Outcome	4. Unemployed W4: W5 Employment Outcome:
RW>PW Dummy	0.003	0.016	-	-
	[0.097]	[0.060]	-	-
Residual: RW>PW Dummy	-	-	0.000	0.002
	-	-	[0.004]	[0.003]
Male	0.120**	0.026	0.123**	0.033
	[0.053]	[0.039]	[0.053]	[0.043]
White	0.168	-	0.173	-
	[0.156]	-	[0.155]	-
Coloured	0.325***	0.076*	0.330***	0.082*
	[0.059]	[0.040]	[0.059]	[0.045]
Age	-0.069	0.043	-0.074	0.076
	[0.246]	[0.143]	[0.247]	[0.154]
Age Squared	0.001	-0.001	0.002	-0.002
	[0.006]	[0.003]	[0.006]	[0.004]
English Home Language	0.069	0.115*	0.068	0.080
	[0.078]	[0.066]	[0.078]	[0.068]
Education	0.047**	0.031	0.046**	0.032
	[0.022]	[0.019]	[0.021]	[0.022]
Matric	0.065	0.131**	0.070	0.118*
	[0.091]	[0.065]	[0.092]	[0.070]
Tertiary Education	0.196	0.008	0.201	0.038
	[0.174]	[0.146]	[0.174]	[0.159]
Literacy Test	-0.004	-0.046*	-0.003	-0.046*
	[0.032]	[0.028]	[0.032]	[0.028]
Numeracy Test	0.069	0.022	0.067	0.026
	[0.043]	[0.035]	[0.043]	[0.035]
Log Household PC Income	-0.026	0.064**	-0.025	0.060**
	[0.030]	[0.025]	[0.030]	[0.026]
Good Health	-0.020	0.015	-0.020	0.020
	[0.027]	[0.020]	[0.027]	[0.020]
Prob>F	0.000	0.000	0.000	0.000
Obs:	1 497	1 871	1 496	1 860

Notes: 1. All proportions are weighted using sample design and non-response weights. 2. Household income has been inflation adjusted to Wave 5 level. 3. *** p<0.01, ** p<0.05, * p<0.1. 4. Numbers in [ ] are standard errors. 5. Base Race group is African. 6. Base group for labour market status is Unemployed.

The panel nature of the data is exploited by evaluating employment outcomes only for those who were unemployed in the previous wave. If this regression were run as a cross section, we would not be able to distinguish whether the relationship between the RW>PW dummy and employment

stems from pre-employment values of the dummy, or changes in the prevalence of unrealistic reservation wages with the onset of employment. Column 1 and 3 evaluate the employment outcome in Wave 2 only for those unemployed in Wave 1, while Column 2 and 4 give the Wave 5 employment outcome only for those unemployed in Wave 4. All explanatory variables are for the wave preceding the outcome wave. This will enable evaluation of whether pre-existing differences in the RW>PW dummy feed into different employment outcomes for youth. Note that Columns 2 and 4 exclude White youth as there were no White youth who were unemployed in both Wave 4 and Wave 5.

The results from Table 7 indicate that the main drivers of employment for unemployed youth are gender, race and education. Very little was significant when looking at employment outcomes in Wave 5 for those unemployed in Wave 4, although this is understandable given that there was a 3-4 year time lapse between these waves. Importantly, both the RW>PW dummy and its residual are insignificant across Columns 1 to 4. This means that it appears that holding unrealistic self-reported reservation wages is not a contributing factor to youth unemployment.

Kingdon and Knight (2001) argue that, although a significant proportion of youth hold unrealistic reservation wages, this cannot be used as an argument that youth are 'pricing' themselves out of the job market. Rather, they argue that self-reported reservation wages are unreliable guides to the nature of unemployment. There are a number of reasons why this may be the case (refer back to section 2.3), including problems with question phrasing and interpretation. Kingdon and Knight posit that these reasons may be contributing to the excess of reservation wages above predicted wages. The following section investigates whether this is the case, by comparing self-reported reservation wages with hypothetical job offer questions asked in the CAPS data. Five additional in-depth interviews were also conducted with CAPS panel members in order to begin to assess the nuances behind youth reservation wage construction.

6. Results: stage II

As discussed in section 2.3, there are a number of reasons why the self-reported reservation wage measure used in the previous section may be an unreliable measure of the lowest wage at which an individual would be willing to accept work. The following section uses hypothetical job offer questions as well as five additional CAPS interviews in order to gain some understanding of the extent to which this is the case.

6.1 Descriptive statistics: hypothetical job offers

The CAPS data includes a number of hypothetical job offer questions. Respondents were asked whether they would accept the relevant job at the wage offered. These questions were not asked in Wave 1, hence this analysis is restricted to Waves 4 and 5. Table 8 provides a list of the hypothetical jobs which youth were asked whether they would be willing to accept, together with a hypothetical

wage. These range from the lowest paying domestic worker job, to the highest paying production manager job (Wave 4 only).

Table 8. Questions in CAPS surrounding hypothetical job offers

Would accept job as X at a specified wage?	Wave 4	Wave 5
Domestic Worker	R900	R1 000
Security Guard	R1 300	R1 500
General Worker	R1 500	R1 800
Machine Operator	R1 700	R2 000
Cashier at Retail Store	R2 000	R2 500
Bookkeeper	R3 000	-
Production Manager	R5 000	-

Table 9 indicates the acceptance rates of the hypothetical job offers for different cohorts of youth, restricted to those youth who were not in employment (i.e. only studying, unemployed or NEA). Acceptance of job types may differ for a number of reasons. In line with standard economic theory, jobs at salaries below true reservation wage will be rejected. Therefore, jobs at lower salaries will have lower acceptance rates than jobs at higher salaries, if the reservation wage is higher than the lowest wages on offer. Second, the job offered to the youth may have certain characteristics making it a favourable or unfavourable job type. Unfavourable jobs may require a compensating differential in order to induce youth to accept them. Favourable jobs may be taken at wages lower than the reservation wage if there are benefits to the job which will compensate for the lower salary. The compensating differential for favourable jobs will therefore be negative. Youth may also feel they are unsuited to certain jobs because they are over or under qualified or because the work does not fit with their career goals. Job taste may therefore also affect the rate at which these jobs are accepted.

Table 9 Row 1 indicates that only 31% of the unemployed sample said that they would accept the lowest paid domestic worker job at the offered wage. Furthermore, less than half (43%) would accept the security guard or machine operator job at the offered wage. This may be because of the wage offered, or because of job taste effects. For example, the domestic worker job may be undesirable to male youth because of gender stigma attached to cleaning jobs and may be undesirable to youth as a whole because it is 'unpleasant' or 'degrading' work. Lack of career growth in this position may also be a contributing factor to a positive compensating differential. Female youth consistently have higher job rate acceptance than male youth. This means that although more women than men accepted the domestic worker job, there is no indication that the differential is substantially higher in this occupation or caused by gender stereotyping.

The extent to which youth of different races and genders are willing to accept these job offers differs. African youth were far more likely to accept the lowest paying job offer than either Coloured or White youth – while 43% of African youth would accept the domestic worker job,

only 17% and 5% of Coloured and White youth said the same, respectively. In fact, African youth were most likely, and white youth least likely, to say they would accept the hypothetical job offer across every occupation. Similarly, male youth were less likely to accept each of the hypothetical job offers when compared to female youth.

The picture is more mixed when comparing across education categories. While youth with only a primary school education were more likely to accept the five lowest paid jobs than those with higher levels of education, this was not the case for the bookkeeper or manager jobs. For the manager job particularly, 79% of youth with primary school education said that they would accept this hypothetical job offer, compared with 92% of youth who had some form of tertiary education. This indicates that, at the lower wage levels, perception surrounding appropriate work for someone with their level of education may play a role in determining the frequency of job offer acceptance. At the higher wage levels, self-perception regarding the youth's ability to perform the offered job may be a factor in determining job acceptance.

Table 9. Hypothetical job offer acceptance: not employed wave 4 & 5

	Domestic Worker	Security Guard	Machine Operator	General Worker	Cashier at Retail Store	Bookkeeper	Manager
Aggregate	26.7	36.9	36.9	58.9	83.5	85.1	89.2
African	41.9	58.0	58.0	78.3	92.6	93.7	94.2
Coloured	16.9	23.5	23.5	48.3	81.0	82.3	86.5
White	5.1	5.1	5.1	12.7	36.3	62.9	83.2
Male	25.2	35.2	35.2	56.0	79.6	81.6	88.0
Female	27.7	38.1	38.1	61.0	86.2	87.8	90.2
Primary Education	44.2	55.8	55.8	74.3	91.0	80.3	79.4
Incomplete Secondary Education	30.6	41.5	41.5	64.7	87.2	88.3	90.0
Complete Secondary Education	13.7	22.7	22.7	43.8	75.0	81.3	89.4
Tertiary	8.7	14.2	14.2	30.0	61.0	72.4	91.9
Only in Education	17.0	24.0	24.0	38.7	64.6	75.9	87.3
Unemployed	30.9	42.8	42.8	67.9	91.2	91.8	92.0
NEA (excl. in education)	20.2	25.5	25.5	43.2	76.8	78.8	76.4

Notes: 1. All proportions have been weighted using sample design and non-response weights.

6.2 Inconsistency between self-reported reservation wages and job offers

Acceptance and rejection of these hypothetical job offers can be used in comparison with the self-reported reservation wages in order to evaluate the magnitude of inconsistency between these two measures. If inconsistency exists, this requires further examination surrounding the cause of this inconsistency and what it means for the reliability of the self-reported reservation wage data.

Self-reported reservation wages are considered consistent when:

- Reservation wages are above the offer and the offer is refused.
- Reservation wages are below or equal to the offer and the offer is accepted.

Self-reported reservation wages are considered inconsistent when:

- Type 1: Reservation wages are above the offer and the offer is accepted.
- Type 2: Reservation wages are below or equal to the offer and the offer is refused.

There may also be inconsistency between answers given to the hypothetical job offers. This inconsistency occurs when:

- Type 3: Job offers are rejected at wage amounts higher than amounts previously accepted.

Table 10 below reports the presence of these inconsistency types across youth characteristics, for the sample of youth who were not employed in Wave 4 and 5. Column 1 gives the percentage of consistent respondents. Respondents are consistent only if self-reported reservation wage and acceptance across all job offers is consistent, therefore the presence of only one instance of inconsistency will cause the respondent not to be classified as consistent. The proportion with 'Type 1', 'Type 2' and 'Type 3' inconsistencies are given in Columns 2, 3 and 4, respectively. Finally, proportions of youth displaying multiple types of inconsistencies are given in Column 5. Rows sum to 100.

Table 10. Hypothetical job offer and RW consistency: wave 4 & 5

	1. Consistent	2. Type 1	3. Type 2	4. Type 3	5. Multiple Types
Aggregate	31.2	20.8	27.0	0.3	20.6
African	20.3	22.8	25.7	0.3	31.0
Coloured	36.4	20.0	29.3	0.4	13.8
White	71.0	11.1	13.7	0.0	4.2
Male	31.3	21.6	26.9	0.2	20.0
Female	31.1	20.2	27.1	0.5	21.1
Primary Education	19.2	18.1	34.2	2.1	26.5
Incomplete Secondary Education	28.2	19.1	29.8	0.1	22.8
Complete Secondary Education	40.4	24.6	20.8	0.3	13.9
Tertiary	47.2	29.1	7.9	0.0	15.8
Only in Education	43.3	17.4	23.3	0.0	16.0
Unemployed	26.5	22.3	27.9	0.3	22.9
NEA (excl. in education)	34.6	17.1	32.5	2.6	13.3

Notes: 1. All proportions have been weighted using sample design and non-response weights.

The fact that only 31% of respondents (Row 1, Column 1) did not display any inconsistency may indicate that self-reported reservation wage is (at least to some extent) an unreliable measure of labour market decision making. Type 2 inconsistency (rejection of job) behaviour was more

common than Type 1 inconsistency, and overall 21% of respondents displayed multiple types of inconsistent behaviour in their answers. While the proportion of Type 3 inconsistency appears to be very small, much of this inconsistency is hiding in Column 5 as it tends to take place in the presence of other types of inconsistency. Overall, 11% of this sample of youth did display Type 3 inconsistency when separating this inconsistency out from Column 5.

In Column 1 one can see that White respondents were substantially more consistent than either other race group, with 71% having no inconsistency between answers. African youth were the least consistent, at only 20% displaying consistent answers. They also displayed the largest percentage of multiple inconsistencies in their decision making, at 31%. It should be noted that the hypothetical questions asked may underestimate Type 2 inconsistency of white youth if their true reservation wage tends to be near the higher wages on offer. Consistency increased with education obtained, with 47% of those with a tertiary education consistent, compared with 20% of those with only a primary school education. The unemployed had the lowest consistency rates, at only 27%. This may indicate that the unemployed are more flexible when setting their reservation wages, perhaps out of financial necessity. Interestingly (and perhaps worryingly), more unemployed persons displayed Type 2 than Type 1 inconsistency in their decisions, with the former higher by 15 percentage points. The unemployed youth also displayed the highest percentage of both inconsistency types, with as many as 23% in this category.

The fact that a substantial proportion of the sample displayed both inconsistency types, as well as the high overall level of both types, indicates that multiple channels may be causing self-reported reservation wage to be out of line with simulated job market decision making. In other words, youth may take job type into account when forming reservation wage but also fail to accurately self-report reservation wages.

A more in-depth examination of inconsistency will begin to reveal the nuances underpinning reservation wage setting by youth. This can be done by asking a series of hypothetical reservation wage questions including different occupations at the same wage rate. This will reveal more conclusively whether income is the only factor in determining wage rates or whether job taste matters in its construction. Survey questions can also probe why respondents did or did not take hypothetical job offers when answers are out of line with self-reported reservation wages. This will reveal whether inconsistency between these measures is due to measurement error of the self-reported reservation wage or nuance in its construction that we are failing to capture. To my knowledge, this is yet to be done in a South African survey. These questions are asked to a small sample of five previous CAPS respondents (see section 3.2 for the sampling process). While answers given are in no way generalizable to the full sample, they may shed light on the thought processes underpinning answers to both sets of questions. This enables a more targeted speculation on the causes of these inconsistencies, as well as illuminating potentially revealing questions to be asked in subsequent surveys.

6.3 Five additional CAPS interviews: examining possible causes of inconsistency

Five African CAPS respondents were re-interviewed using a survey with more in-depth reservation wage questions. All existing hypothetical job offers were asked at appropriately inflated wage rates (i.e. to ensure that the real value of the wage offer was approximately the same as in Waves 4 and 5). The survey included four additional job offers at the same wage of existing job offers. Two of these were 'unpleasant' jobs (toilet cleaner and garbage man/woman), and two were used as indicators for jobs more 'fun' and 'appealing' than the majority of available work (radio DJ and actor/actress). Table 11 gives the existing and added hypothetical job offer questions and their relevant wage rates.

Table 11. Existing and additional hypothetical job offers at the same wage

Would accept job as X at a specified wage?	R2000	R2400
Unappealing Job Offer	Toilet Cleaner	Garbage Man/Woman
Existing Job Offer	Security Guard	General Worker
Appealing Job Offer	Radio DJ	Actor/Actress

Acceptance and rejection of jobs at the same wage rate may reveal the importance of job taste in reservation wage setting. In addition to the inclusion of these job offers, youth were also asked at what minimum wage they would take each job offer if the offer was rejected. This was in order to reveal the existence of a compensating differential between job types. Youth were also asked why they accepted or refused each job, in order to ascertain whether wages were the only contributing factor to their decisions, or whether, for example, race or gender stereotypes played a role. When there was inconsistency between the self-reported reservation wage (RW) and answers given to the hypothetical job offers, an attempt was made to ascertain the root cause of this – was the self-reported reservation wage inaccurate, or was the job offer particularly pleasant or unpleasant, causing them to adjust their self-reported reservation wage for each offer?

Of the five youth interviewed, four provided some form of inconsistent answer between the self-reported reservation wage question and the hypothetical job offers. Table 12 below indicates the self-reported reservation wage (RW) and revealed reservation wage (RRW) for each of the five interviewees. The revealed reservation wage is constructed by creating a bracket in which the real reservation wage falls, with the lower bound formed by the highest amount rejected before any offers were accepted (i.e. ignoring inconsistency between job offers) and the upper bound is the lowest amount accepted. If the respondent accepted the lowest paying job, the revealed reservation wage is assumed to be lower than the lowest wage on offer.

Table 12. Reservation wage (RW) & revealed reservation wage (RRW): 5 additional interviews

Interview Number	RW	RRW	Consistent between RW & RRW	Consistent Between Job Offers
1	R500	< R1300	YES	YES
2	R2000	< R1300	NO	YES
3	R2000	1300 - 2000	YES	NO
4	R3000	2000 – R2400	NO	NO
5	R3500	R1301 - R2000	NO	YES

All three respondents who had revealed reservation wage inconsistent with self-reported reservation wage accepted work at wages below their self-reported reservation wage, classified as a Type 1 inconsistency. When questioned why they accepted the job at this wage, the answers told a consistent story. Each respondent said that their reason for accepting was based on a purely financial decision. Reasons given were as follows:

- "That money is reasonable"
- "Because I'm not working, at least I'll be working. I'm desperate, I'll take it"
- "Because it's right that money… because I need the job… I can take that money just because I'm suffering and I need to support my children."

This indicates that their self-reported reservation wage did not accurately capture the absolute minimum wage at which they would be willing to work.

When questioned further as to how they chose their self-reported reservation wage and why this differed from responses to the job offer questions (when they differed), answers were as follows:

- "It's because of the experience that I have, just because I have the certificates that I've done"
- "Because most of the jobs start with R2000 upwards"
- "I think it all goes to the beggar issue… beggars can never be choosers… But it won't be a permanent thing, it can never be a permanent thing…"

These answers indicate that, at least in some cases where reservation wages were Type 1 inconsistent with hypothetical job offers, the self-reported reservation wage was not based on the absolute minimum that youth were willing to take. Rather, it captured information that these youths had regarding the going market rate for their skill set or wages that they expected they could earn in the labour market. In one case, the respondent said they would accept the hypothetical job offer as temporary work until they could find higher paying work. This indicates that reservation wages for temporary and permanent work may differ. Because the reservation wage question asked is for permanent work, this may inflate the amount youth are willing to accept for work in South Africa, as many of the available jobs are temporary and would therefore carry their own reservation wages.

Respondent 1 reported a reservation wage which was consistent across all job offers. On deciding their reservation wage, they said that:

- "Every job that you get you're supposed to start with the low salary and as the time goes on the salary increases. You cannot get the highest amount for your first time."

This answer as well as consistency between hypothetical job offers indicates that, in this case, the self-reported reservation was an accurate measure of their labour market behaviour.

Two respondents displayed inconsistent answers between hypothetical job offers at the same wage, or Type 2 inconsistency. Respondent 3 accepted the security guard position at R2000 a month and subsequently rejected the toilet cleaner and radio DJ jobs at the same wage. They also accepted the general worker position at a wage of R2400 per month, but then rejected the actor position at the same wage. When questioned about reasons for this inconsistency, the respondent revealed that job distaste as well as ideas about costs associated with certain jobs played a part in their decision. The toilet cleaner position was rejected at a previously acceptable wage rate because "R2000 is too little for cleaning the toilet… it's not nice work". When asked at what rate they would accept that job, they said R3500. This indicates a compensating differential of R1500 in order to be induced to take unpleasant work, as the minimum amount a job was accepted at was R2000. When asked why they would not take the radio DJ job, they responded that, "That money isn't enough for a DJ because you're supposed to travel each and every places (sic)". Therefore, higher perceived costs associated with this position resulted in a higher reservation wage for this job, which was put at R4000. The acting position was rejected because they did not like acting, and the reservation wage put on this work was R5000.

The second respondent showing inconsistency between hypothetical job offers (respondent 4) both accepted and rejected a job at R2000, the radio DJ and security guard positions, respectively. The respondent indicated that the security job position did not pay enough, but that the radio DJ job was accepted because "A DJ can make some cash even outside the radio station". This indicates a negative compensating differential associated with better work, as a lower wage is accepted due to other financial benefits of the job. Therefore, two respondents put a negative and positive compensating differential on the same job (Radio DJ), based on their understanding of the costs and benefits associated with that work in the labour market.

Reasons given for the presence of this Type 2 inconsistency indicates that, at least for some people, job distaste does have a role to play when setting reservation wages. This may also be accompanied by overstated self-reported reservation wages, because the respondent failed to interpret the question correctly, or held different reservation wages for full and part-time work. When this is the case, both Type 1 and Type 2 inconsistency will be present, for example in respondent 4.

What this means overall is that reservation wages garnered from the common one-shot question can be accurate, or they can be overstated, or they can be approximations of more nuanced

information. For some people at least, asking one standard reservation wage question is problematic. Answers to this question will give crude approximations of the thought processes involved in their reservation wage setting behaviour.

This means that the self-reported reservation wage question should be accompanied by question provoking whether accurate answers are being captured. Each case is specific, and surveyors need to be given the tools to elicit more accurate information. Hypothetical job offer questions, at different wage rates, can indicate where self-reported reservation wages have been overstated due to misinterpretation of the question. When these jobs are asked at the same wage rate, answers to these questions can indicate the presence of job taste considerations. If the respondent answers negatively to any job offer at wages previously accepted, the surveyor should continue to ask if the job would be accepted at wages of higher increments. This will allow for the calculation of compensating differentials for different occupations, which should be taken into account along with the likelihood of finding work in each occupation in the given location.

This analysis of the inconsistency between self-reported and revealed reservation wages indicates that the self-reported reservation wage may contain a substantial amount of measurement error. This is motivation for the use of the revealed reservation wage in analysing the extent to which youth are holding realistic reservation wages. This is motivated by the assumption that the revealed reservation wage is better suited at accurately capturing the lowest wage at which individuals would be willing to accept employment.

6.4 The effect of unrealistic revealed reservation wages on employment

The following section aims to replicate the analysis in section 5, above, in order to assess both the extent to which revealed reservation wages are realistic, and the subsequent relationship with employment. The revealed reservation wage is used in order to account for measurement error in the self-reported reservation wage variable.

Similarly to section 5.3.1, revealed reservation wages (RRW) are compared with predicted wage (using a Heckman model) and a RRW>PW dummy is produced. If revealed reservation wages are above predicted wages, the dummy takes on the value of 1. If the predicted wage is within the revealed reservation wage bracket, the revealed reservation wage is considered consistent with the predicted wage and the dummy variable takes on the value of 0. Finally, if the lowest amount a job was accepted at is below the predicted wage, the revealed reservation wage is also considered to be consistent and the dummy variable takes on the value of 0. One type of behaviour is not taken into account with this measure – individuals displaying 'picky' behaviour, specifically where at least one hypothetical job is rejected at a wage that is higher than the wages paid for hypothetical jobs that the individual had previously accepted. In these cases, if the lower accepted wage offer is in line with predicted wage, the revealed reservation wage is considered consistent as youth are willing to

work at wages lower than their predicted wage. Therefore, job taste or 'pickiness' is not captured by the revealed reservation wage in these cases.

Table 13 compares mean values of the RRW>PW dummy and the original RW>PW dummy which used self-reported reservation wages. This is done only for the sample of youth who were not working in Wave 4 and 5, therefore the mean values of the RW>PW dummy differs from those in Figure 1, which included values from Wave 1. It is clear that use of the revealed reservation wage substantially decreases the presence of unrealistic reservation wages, from 19% to just 6%. Race differentials in unrealistic behaviour have both reversed and become substantially reduced, mainly because the very high rates displayed by African youth are considerably diminished. This may indicate that this group in particular were prone to measurement error in the self-reported reservation wage. Use of this measure also indicates striking differences between mean RRW>PW dummy values between those studying, unemployed and not economically active.

Table 13. Proportion of youth with reservation wage higher than predicted wage, using two measurements of reservation wage: waves 4 & 5

	1. RRW>PW	2. RW>PW
Aggregate	5.7	19.0
African	4.4	23.2
Coloured	6.5	17.1
White	7.3	9.7
Male	6.5	20.5
Female	5.2	17.9
Primary Education	10.7	34.8
Incomplete Secondary Education	3.7	16.7
Complete Secondary Education	7.3	19.8
Tertiary	13.3	18.5
Only in Education	10.3	26.0
Unemployed	4.1	16.7
NEA (excl. in education)	4.4	13.3

Notes: 1. All proportions have been weighted using sample design and non-response weights.

Only 4% of the unemployed were found to hold unrealistic revealed reservation wages using the revealed reservation wage measure. Therefore, the high levels of inconsistency between revealed and conventional reservation wage have resulted in large differences in the RRW>PW and RW>PW dummies for this group. This means that differences in these measures are substantial, and that use of conventional reservation wage appears to overstate the extent to which unemployed youth are unrealistic about their market earnings. The fact that such a low percentage of the unemployed held unrealistic revealed reservation wages means that use of this measure in the employment equation becomes both unnecessary and impossible. There are not enough unemployed youth holding unrealistic revealed reservation wages to successfully use this measure

as a determinant of employment because employment outcome is perfectly predicted for the youth with RRW>PW who were unemployed in Wave 4 and appeared in Wave 5 (all of these youth had found employment in Wave 5).

It is clear, then, that unrealistic reservation wages using this more nuanced measure are not a contributing factor to the employment outcomes for unemployed youth in Cape Town, South Africa.

7. Discussion and conclusion

High global youth unemployment rates have fuelled discussion surrounding the possible causes of this problem. While there are many reasons youth may find themselves unemployed, the role of unrealistic reservation wages has been gaining attention. This is the theory that youth are holding reservation wages in excess of wages they can expect to earn in the labour market, possibly due to a lack of labour market knowledge. This means that they will reject jobs at offers in line with what they can expect to earn in the labour market, thereby 'pricing' themselves out of available employment opportunities. South African literature on the existence of this type of unemployment has focussed on the labour force as a whole, thus it has failed to restrict the analysis to those aged 34 and below. Although one paper (Rankin & Roberts, 2011) does restrict its analysis to youth, they do not examine the relationship between the measure of unrealistic reservation wages and labour market outcomes. In addition, the existing South African literature employs a static analysis, therefore the relationship between unrealistic reservation wage and employment has been evaluated without the tools to establish in which direction causality runs. This paper attempts to address these issues by using panel data on youth in Cape Town, in order to ascertain whether there is any evidence that unrealistically high reservation wages are contributing to unemployment in this sample.

Results from a replication of the analysis by previous papers, using conventional self-reported reservation wage data, produce comparable results. This measure indicates that high rates of youth have unrealistic reservation wages. Going beyond the existing literature, this paper showed that the difference between achieved and expected education is a significant correlate of unrealistic self-reported reservation wages. Most (if not all) of the previous literature uses a completed education measure and does not account for current enrolment. This means that they fail to capture the expectations youth may have of future educational attainment and therefore their labour market prospects. Regressions of employment on unrealistic self-reported reservation wages, only for those youths unemployed in the previous wave, indicate that this variable has no significant effect on employment outcomes. This is the first indication that youth unemployment in Cape Town is not caused by unrealistic reservation wages.

This paper also goes beyond existing South African studies by evaluating the reliability of the self-reported reservation wage measure commonly used. This is based on arguments by Kingdon and Knight (2001) that the presence of unrealistic reservation wages in their South African sample was due to failure of the self-reported measure to accurately capture labour market behaviour. A series of hypothetical job offer questions available in the data is used to evaluate the accuracy of the self-reported measure and to construct a measure of 'revealed' reservation wage. Furthermore, five members of the CAPS panel were re-interviewed in order to gain some understanding of the nuances involved in reservation wage construction. Results found are that there are large inconsistencies between self-reported and revealed reservation wages, especially for African and unemployed youth.

The measurement of reservation wages appears much more complex than the standard self-reported question allows for. There is evidence that self-reported reservation wages may be capturing the expected rather than the minimum acceptable wages. Job taste is also an issue, with a high proportion of youth rejecting jobs at wages higher than a) their self-reported reservation wage and b) wages of hypothetical job offers previously accepted. Overall, this means that a one-shot reservation wage question may be accurate, or may be erroneously measured, or may be only a crude approximation of more nuanced information. This is of importance for construction of future reservation wage questions, which should put measures in place in order to account for these possibilities. This includes more extensive use of qualitative methods in order to elicit reservation wage.

The prevalence of inconsistency between these measures provides an argument for the use of a revealed reservation wage, rather than the reported reservation wage, in the analysis of the potential effects of reservation wages on employment and unemployment. A comparison of this measure with the predicted wage indeed shows that unemployed youth are very unlikely to hold 'unrealistic' reservation wages (i.e. in relation to their predicted wages), with only 4% of the sample in this category. The large percentage of African youth with unrealistic self-reported reservation wages was severely diminished using this revealed reservation wage measure. This indicates that the measurement error between the self-reported and revealed reservation wages severely overstates the extent to which youth actually incorporate unrealistic reservation wages in their labour-market decision-making. The frequency of unrealistic reservation wages (appropriately measured) amongst unemployed youth is so low that use of this measure in the employment equation becomes superfluous.

Some qualifications are in order. This conclusion depends on the standard assumption that a reservation wage is 'realistic' or 'unrealistic' according to whether it is lower or higher than the 'predicted wage', and this in turn depends on the calculation of the way in which predicted wage was constructed, which was restricted to supply-side information. However, Rankin and Roberts (2011) have shown that bringing in assumptions about the demand for labour can affect results.

Rankin and Roberts (2011) argue that wages earned in large and small firms differ, that youth would not in all likelihood find work in large firms, so that including youth working in large firms in the calculation of predicted wages may underestimate the extent to which youth are unrealistic in the labour market, given the actual availability of work in South Africa. When they compare reservation wages to predicted wages only for youth working in small firms, the prevalence of unrealistic wages substantially increases. The pattern of demand for labour should be taken into account in the calculation of predicted wages. If there is unavailability of certain work in the labour market, particularly higher paying work, this could mean that a sub-set of work used to predict wages should be excluded because these wages fail to accurately reflect what is available in the South African labour market. Unfortunately, the CAPS data does not contain any information on firm size, so it is not possible to replicate the approach of Rankin and Roberts (2011).

The concern underlying the Rankin and Roberts (2011) approach can, however, be stated more generally, and needs to be taken into account when interpreting whether reservation wages (self-reported or 'revealed') are 'realistic' or not. The standard approach in both the international and other South African literatures is to consider that youth reservation wages are unrealistic insofar as they are out of line with what youth are predicted to earn in the labour market, given their individual characteristics. However, it can be argued that in economies with very high levels of unemployment, youth are unrealistic if they are rejecting any work which would leave them with a higher income than they would have otherwise (i.e. work which covers transport and other costs associated with employment). If job-offer arrival is severely stunted, rejecting offers in order to hold out for higher paying work, even in line with expected labour market earnings, may be unrealistic. It may be more realistic, as one respondent in the additional CAPS interviews reported, to take low-paying offered jobs until higher paying work can be found. This strategy takes into account the nuances of the labour market in which youth find themselves, in this case the fact that job offers are likely to be insufficient in order to find work at predicted wages in any reasonably time-frame. The fact that almost 70% of unemployed youth rejected the lowest paying domestic worker job indicates that, although they are 'realistic' according to the definition used in this paper, they may not be realistic about the actual availability of work in Cape Town, South Africa.

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The project is designed to promote dialogue across disciplines and paradigms and to forge a stronger engagement between research and policy making. By generating an independent, rich and nuanced knowledge base and expert network, it intends to contribute to integrated and consistent policies and development strategies that will address these three critical problem areas effectively.

Collaboration with researchers at universities and research entities and fostering engagement between researchers and policymakers are key objectives of the initiative.

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