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RESERVATION WAGES-MEASUREMENT AND DETERMINANTS: EVIDENCE FROM THE KHAYELITSHA/MITCHELL'S PLAIN (KMP) SURVEY

Richard Walker

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The Administrative Officer
Centre for Social Science Research
University of Cape Town
Private Bag
Rondebosch, 7701
Tel: (021) 650 4656
Fax: (021) 650 4657
Email: kforbes@cssr.uct.ac.za

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Southern Africa Labour and Development Research Unit

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Richard Walker was a master’s student in the School of Economics at the University of Cape Town and is currently an Economic Analyst at Genesis-Analytics in Johannesburg.

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Abstract

This paper investigates the difficulties in measuring reservation wages, models the determinants of reservation wages, and compares reservation wages with predicted wages. Data is drawn from the Khayelitsha/Mitchell's Plain (KMP) survey. Certain factors (e.g. education, labour market status, household income and duration of unemployment) are significant in explaining variation in reservation wages. Importantly, a person's position in the labour market is not as a result of his/her reservation wage. Rather, reservation wages are a function of his/her labour market status: while those in wage-employment report a reservation wage based more on perceived labour market value, those in unemployment report a reservation wage influenced strongly by subsistence requirements. This study concludes that voluntary unemployment does not exist in KMP, with people in general reporting reservation wages well below what they could expect to earn.

1. Introduction

The depth of poverty and inequality faced in South Africa is amongst the worst in the world, with about 24 million South Africans, out of a total population of 45 million, living below the poverty line[1] (McCord, 2002). Numerous studies (e.g. Leibbrandt, Bhorat & Woolard (2001), Nattrass & Seekings (2001) and van der Berg & Bhorat (1999)) have shown that there is a strong link between poverty, inequality and the labour market in South Africa. In particular the availability and level of wage income in the household determines the household's position in the income distribution. Although evidence has shown that the level of wage income determines the probability of a household being in poverty or not, a more important and crucial factor is the presence of a wage

[1] Here the poverty line is calculated on the basis of household consumption expenditure of R800 or less per month in 1996 prices.

earner in a household. Leibbrandt, Bhorat and Woolard (2001:81) have shown that 76.1% of those people who live in poverty are in households that have no formal sector wage earners. Given that even low paying jobs can have a substantial impact on alleviating poverty, one would expect people living in an area of high unemployment and related economic hardship, to accept almost any job opportunity.

However, looking at the Khayelitsha/Mitchell's Plain (KMP) survey of 2000 (Centre for Social Science Research, 2000), where respondents responded to questions concerning hypothetical job offers, about 15% of the sample refused the offers. These jobs offered wages realistic to KMP and adjacent areas at the time of the survey. How could people refuse jobs given the high levels of unemployment and the lack of job opportunities, especially for those with few skills? How could they refuse offers in light of the evidence showing that a household's position in the income distribution is strongly influenced by the availability of wage income? Perhaps people do have a reservation wage even in the presence of large unemployment and poverty. Perhaps certain individuals are choosing to remain voluntarily unemployed. Perhaps reservation wage information still matters in dictating labour supply and participation decisions in South Africa and KMP more specifically.

Using data from the KMP survey, this paper will explore reservation wages. The survey was developed with a special focus on labour market issues and covered the magisterial district of Mitchell's Plain, which includes the African townships of Khayelitsha, Gugulethu and Langa. As noted in Nattrass (2002) it is not a representative sample of the Cape Town metropolitan area but of predominantly working class Africans and Coloureds. The households that were sampled had to answer both a household level questionnaire and an adult questionnaire[2]. The household questionnaire was used to establish a household roster with the usual questions on age, gender and relationships in the household (Centre for Social Science Research, 2003). The adult questionnaire was administered to all those above the age of 18 in the household and was divided into sections measuring aspects from a respondent's level of education to their unemployment and employment histories etc. One section (section K) was designed specifically to measure a respondent's reservation wage, i.e. to establish the lowest wage at which the person would work.

The aims of this paper are to understand the complexities in measuring reservation wages using data from the KMP survey. Through regression

[2] See http://web.uct.ac.za/depts/cssr/dfrusas.html#kmp for a copy of the household and adult questionnaire.

analysis, the paper will probe what factors (individual, household, situational etc.) influence a person's reservation wage in KMP. An understanding of the determinants of reservation wages should help predict and explain changes in labour supply. This paper also looks at the relationship between a respondent's predicted wage and his/her reservation wage in an attempt to distinguish groups of people whose reservation wage is excessive relative to what they could earn given their characteristics.

Section 2 begins with a discussion of what constitutes an individual's reservation wage. Included in this discussion is a theoretical overview of different value functions that pertain to different labour market states. These value functions will provide guidance as to what factors are likely to impact on a person's reservation wage.

Section 3 probes the important question of whether economic behaviour follows reported reservation wages. Much of this discussion will focus on work done internationally as there has been little work done in this regard in South Africa. Much of the South African work has been concerned with the problems in measuring reservation wages through surveys, as will be discussed.

Section 4 looks carefully at the questions used in the KMP survey and probes how reliably they measure reservation wages. Has this survey managed to overcome the problems of other surveys? Can the measured reservation wages be considered reliable and consistent? Is economic behaviour consistent with these reservation wages?

Section 5 uses regression analysis to probe what factors determine a person's reservation wage. The discussion begins by looking at the model specification and includes a description of the explanatory variables used in light of the value functions described in section 2 and the analysis in section 4.

Section 6 compares respondents predicted and reservation wages to assess whether there is an argument for the existence of large-scale "voluntary" unemployment in KMP. Predicted wages are estimated using the Heckman maximum likelihood method. A probit analysis is then conducted to analyse what groups of people are most likely to have a reservation wage higher than their predicted wage (i.e. overly optimistic wage expectations).

Section 7 concludes the paper.

2. Reservation Wages

Killingsworth (1983) defines a person's reservation wage as the highest wage at which he/she will not work. More formally, it is the slope of the budget line tangent to the individual's utility function, when all of his/her time is dedicated to leisure activities (for a complete discussion of this see Killingsworth, 1983). Thus if the wage drops below this level, changes in the wage will not change behaviour. If the wage increases above this level then the person will enter the labour market. At his or her reservation wage a person is indifferent between work and leisure. However, if a person's property income (other income derived from sources that are unrelated to work) rises or falls, so does their reservation wage. Killingsworth (1983:8) notes that, "other things being equal, people with less property income cannot 'afford' to be choosy about working and will have to be prepared to work for a lower wage."

In terms of the KMP survey, a person's reservation wage is the point at which he/she will participate in any form of wage-employment assuming they were unemployed at the time. Thus knowing each person's reservation wage, one will better understand labour supply in KMP. As the point at which people participate in the labour market is their reservation wage, knowing the determinants of reservation wages one will be able to predict and interpret changes in labour supply. Other sources of income affect the reservation wage but so will the shape and position of the particular utility function, which is a portrayal of the individual's work/leisure trade-off. As discussed below, the value people derive from being in different labour market states determines the interaction between their non-wage income and their work/leisure trade-off.

Following Sapsford and Tzannatos (1993), it is assumed that prior to searching for a job, an individual decides on the minimum acceptable wage that he/she will work for. If this minimum acceptable wage is higher than the value of the income associated with the individual's present situation then he/she begins the process of search and only stops once a wage offer equal to or greater than the reservation wage is found. Thus, reservation wages are an important component of the search theory model that describes an individual's process of looking for a job. People formulate their reservation wage by taking into account a comparison of different value functions which describe the present discounted value of expected net benefits associated with being in different states in the labour market.

Sapsford & Tzannatos note that "it is frequently assumed that the individual, having accepted this offer, remains in employment forever, in which case it is

convenient to interpret the wage offer as the discounted present value of the lifetime earnings from the job in question" (1993:339). In an area like KMP, people will probably have short time horizons given the high unemployment and unpredictable nature of employment duration. In addition people in KMP are not able to move freely between states when they wish due to the shortage of available jobs. Therefore, it would be unrealistic to model their value functions in a dynamic way where they discount the present value of being in a particular state. Rather the value of each state will be analysed in a static sense, where only the current value is measured. For example, the value of being employed as opposed to being unemployed and searching for work or being unemployed and not searching for work.

Following Dinkelman & Pirouz (2001:2) these value functions can be represented as follows:

1. $\mathbf{V_j}$ **= value of taking a job offer**
= W(j) – C(j)

W(j) is the after tax wage rate from the job. C(j) are the costs related to the job, which may include transport to work and the costs of putting children in childcare. For the purposes of this paper these costs are assumed to be the same for everyone in KMP[3].

2. $\mathbf{V_{su}}$ **= value of search unemployment**
= B(s) – C(s)

Where B(s) are the expected benefits of search and C(s) are the costs of search.
Moving beyond Dinkelman and Pirouz[4], the benefits of search are equal to:
$B(s) = [(P_j)(E[w_j])/x] + b_{su}$

Where P_j is the individual's probability of finding a job and $E[w_j]$ is the expected wage in that job, both dependant on x, the individual's characteristics (e.g. gender, age, race, education level etc.). P_j is also dependent on the

[3] In practice these costs are probably greater for women, as they are expected to look after the children.
[4] The specification of benefits of search, as presented in Dinkelman & Pirouz (2001), have been changed here, to reflect that an individual's probability of finding a job and the expected wage rate are both dependant on x, a vector of the individuals characteristics. In Dinkelman & Pirouz (2001) the probability of an individual finding work is not shown to be dependant on x.

macroeconomic climate and the preference of employers for labour. b_{su} is the amount of non-work (property) income available in searching unemployment depending on what resources the individual and household can draw on. These resources may include old-age pensions, the child welfare grant and other state transfers.

Costs of search, C(s), will equal the sum of the cost associated with each search method pursued. This will include transport costs, agency costs, media costs and the opportunity costs of queuing and waiting. Once again, for the purposes of this paper it is assumed that these costs are the same for each individual in KMP.

3. $V_{o,i}$ = value of being out of the labour force in state i
= B(o,i) – C(o,i)

Where, for example, B(o,i) could be the benefits from being out of the labour force as a house worker, student, retired individual, or other[5]. For a student these benefits would include the value of an improved qualification plus any other non-work (property) income that the individual or individual's household is able to draw on.

C(o,i) are the related costs of state i, which would include the opportunity costs of not searching for a job. These opportunity costs would vary depending on how the individual would be expected to fare in the labour market given their individual characteristics (x) and the expected value and probability of them finding a job.

When an individual sets a reservation wage it is an indication of his/her formulated value functions and at what point he/she will move from being out of the labour force or in search unemployment and into formal employment. This movement would happen when V_j exceeds both V_{su} and $V_{o,i}$.

Value functions are useful in that they indicate what factors are likely to impact on the reservation wage. Using value functions provides a framework for narrowing the list of explanatory variables used in the regression analysis in section 5. As the purpose of this paper is to understand the determinants of a person's reservation wage in KMP, before they receive any job offers, the costs C(j) are irrelevant. Due to the lack of specific information regarding the costs C(s) and C(o,i), these costs are assumed to be the same for all people living in

[5] Dinkelman & Pirouz (2001) indicate, following a suggestion from Wittenberg (1999), that 'other' might involve criminal activities or individuals not doing anything with their time.

KMP and are also irrelevant for this study[6]. C(o,i) also includes the opportunity costs of not searching which are related to the individual's probability and expected value of getting a job. However, as $[(P_j)(E[w_j])/x]$ improves so will the value of being in searching unemployment, which will lead to a rise in the reservation wage. As a result the person would move into searching unemployment. Thus, B(s) and B(o,i) are relevant in determining a persons reservation wage. This will be further explored in section 5 when the explanatory variables in the regression analysis are specified.

3. Measuring Reservation Wages

The notion of a reservation wage is simple conceptually, but difficult to measure in practice. Do real people actually have reservation wages, and if so, what affects them? Other equally pertinent questions include:

- Do people report reservation wages that are consistent with the economist's theoretical understanding of a reservation wage?
- Do people understand what a reservation wage is?
- In reporting their reservation wage, what assumptions are people taking into account?
- How closely is a person's present reservation wage related to his or her wage history?
- What causes a person's reservation wage to change?
- Most importantly, is an individual's economic behaviour consistent with his/her reported reservation wage, for example with regard to labour market participation and refusal or acceptance of job offers?

The discussion in this section begins by looking at some important international literature. Much of this work has been done in an environment that does not have the extremely high unemployment rates and poverty experienced in South Africa. As a result, caution must be exercised in drawing inference for the South African context.

The discussion will then look at work done in South Africa specifically regarding the measurement of reservation wages. Most of this work is based on two surveys that have attempted to measure reservation wages, the SALDRU

[6] It is accepted that households have different numbers of children, which may impact differently on individual value functions and thus on their reservation wage. However, as discussed in Appendix B, the variable number of children adds no significance in explaining variation in reservation wages.

(South African Labour and Development Research Unit) 1993 survey (SALDRU93) and the October Household Survey of 1994 (OHS94). In concluding, solutions will be offered to help improve future surveys of reservation wages in South Africa. Section 4 analyses the usefulness of the KMP data against this backdrop.

3.1 International Work

In an early econometric analysis of reservation wages, Lancaster and Chesher (1983) found that respondents, in their sample of British unemployed people, were able to answer questions on reservation wages. In addition, individuals reported reservation wages that were "numerically consistent" with optimal job search theory, where only 3 respondents of the sample of 642 reported an expected wage of less than the reservation wage. The expected wage in this instance is what the respondents reported when asked what wage they expected to earn.

Jones (1988) investigated the relationship between reservation wages and a person's duration of unemployment. Using data on unemployed individuals in Great Britain, he found a positive relationship, where reservation wages "play a significant" role in the determination of unemployment duration. This finding is in line with the theory of stationary job search, which asserts that, given other characteristics, an individual who has been unemployed for some time is likely to have a higher reservation wage than someone who has been unemployed for a shorter time. This is because no wage offer high enough has been made to induce the longer unemployed person into the labour force. From this evidence Jones (1988) concludes that the unemployed do act in accordance with their stated reservation wage when evaluating prospective job offers. Furthermore, Jones states that there is "considerable precedent in the economics literature for viewing such responses [to reservation wage questions] as indicative of labour market behaviour" (1988:749).

However, Jones (1988) does make note of a problem associated with his results and why they may not be applicable in a wider context. An important point is the effect of unemployment benefits on a person's reservation wage. In a country where the unemployment benefits are exhaustible or non-existent, a person's reservation wage may decline as the duration of unemployment persists. In Britain this would not have been so critical at the time of the study when unemployment benefits were not exhaustible. In South Africa this may be

a problem given the inadequate provision of unemployment benefits[7]. A person may have a reservation wage to begin with and may act in accordance with this wage in evaluating job offers. As the duration of unemployment persists and the related hardships of unemployment intensify (Leibbrandt, Bhorat & Woolard (2001), Nattrass & Seekings (2001) and van der Berg & Bhorat (1999)) so may this reservation wage decline or economic behaviour deviate from this stated reservation wage. As a result a person's reservation wage in one time period may not be an accurate predictor of economic behaviour with regards to labour supply in another time period.

Particular studies in periods of high unemployment have produced mixed results. As discussed in Jones (1988): Holzer (1985) finds the reported reservation wages to be a reasonable reflection of economic behaviour, whereas Moylan, Millar and Davies (1984) found inconsistencies with men accepting offers below their reported reservation wages. Testing the erosion of an individual's reservation wage or his/her inconsistent behaviour as unemployment persists will only be possible when reliable panel data exists in South Africa. However, to a limited extent, the KMP survey offers the possibility of assessing this[8].

Gorter and Gorter (1993), using data derived from the Dutch Socio-economic panel of 1985-87, conclude that the job offer arrival rate is more important than the unemployment benefit and reservation wage in ending a search spell. They highlight that the personal productivity of the searcher will affect the job offer arrival rate. This finding is rather vague and inconclusive. Does the productivity of the searcher not influence his/her B(s) (as specified in equation 2 in section 2) which impacts on his/her reservation wage - as discussed in section 2 when looking at value functions? If this is true then the reservation wage in turn affects the offers that are accepted or rejected. Thus, the reservation wage is important in determining the length of search duration (i.e. economic behaviour) because it reflects the underlying perceived productivity of an individual and how earnestly they are prepared to wait for an appropriate offer.

Prasad (2000) uses consecutive reservation wage observations and accepted wages that can be compared to reservation wages from previous years, from the German socio-economic Panel (GSOEP) study, to examine whether reservation wage data resemble a relationship to actual economic behaviour. The strength

[7] The UIF (Unemployment Insurance Fund) provides 26 weeks of income for those workers that contributed to the fund, but less than 2% of workers are actually covered (Nattrass & Seekings, 2001).

[8] See section 4.2 and section 5. In section 5 a variable measuring unemployment duration is included as one of the explanatory variables of an individual's reservation wage.

of this study is that it uses panel data, which accurately shows how a person's reservation wage changes over time in relation to the wage offers accepted. By computing the differential between the accepted wage at time (t + 1) and the reservation wage at time (t) and plotting this as a percentage of the reservation wage, Prasad (2000) shows that the majority of results cluster around zero. This strongly suggests that there is a relationship between reservation wage data and economic behaviour.

Recent work by Boheim (2002) has looked at whether the reported reservation wage is an indicator of a persons 'true' reservation wage - 'true' reservation wage being the minimum wage that an individual would accept to participate in the labour market. Boheim (2002:18) concludes that, "men's reported reservation wages are an indicator of their "true" reservation wage." For women the outcome is not as indicative, but Boheim (2002) notes that the number of women in the sample is low, which may influence the results.

In Boheim's paper, reference is made to work done by Dawes (1993) and a study he conducted on long-term British unemployment. Dawes (1993) concluded that reported reservation wages could be misleading, as responses to reservation wage questions can "indicate subsistence requirements rather than self perceived labour market value" (2002:2). Although Boheim (2002) criticises the Dawes study for using a particular sample of unemployed individuals, where the conclusions may not be true for the population as a whole, it is important to keep these points in mind when analysing reservation wage data for South Africa. With the high levels of poverty and unemployment in South Africa, individuals may be strongly influenced to report reservation wages that indicate subsistence requirements rather than self-perceived labour market worth. The findings in section 5 support Dawes's argument by showing a distinction between the reservation wage of those in wage-employment and the reservation wage of the unemployed. The evidence seems to indicate that those in wage-employment report reservation wages that reflect their perceived labour market value, whereas the unemployed tend to consider subsistence requirements when reporting their reservation wage. Dawes refers to reported reservation wages that consider subsistence requirements as misleading. This is not the case as long as one is aware of this. There is important information to be garnered from reservation wages that reflect subsistence requirements.

In summary, the international work seems to support the notion that reported reservation wages are a good predictor of economic behaviour but concern still arises over the high levels of unemployment in South Africa and how this may distort economic behaviour. For example, a person may report a particular reservation wage in time t, but as their duration of unemployment lengthens,

their reservation wage will fall (see section 5). Given this fall the person's economic behaviour in time t+1 will reflect the reduced reservation wage and not the reported reservation wage from time t. This erosion of the reservation wage will only be testable when panel data exists.

3.2 South African Work

Surveys that have attempted to measure an individual's reservation wage in South Africa include the SALDRU93 survey, the OHS94 and the KMP survey used in this study. A major limiting factor of these surveys is that they are once off and thus no assessment can be made of how an individual's reservation wage changes over time. It is also not possible to compare the reported reservation wage to the wage histories of the respondents (although the KMP survey tries to an extent to amend this) and as a result it is difficult to ascertain how reliably the reservation wages predict economic behaviour. Nonetheless, for the purpose at hand, the KMP survey provides good information for trying to understand what factors impact on a person's reservation wage. In addition, the KMP survey measures the wages of those who are presently employed, as well as the wage offers refused and provides information on hypothetical jobs where respondents were asked if they would accept the job or not at a specified wage. Section 4.2 uses this information to test the reliability of the reported reservation wage from the KMP survey. Table 1 lists the questions from the SALDRU93 and OHS94 surveys pertaining to reservation wages.

Table 1. Measuring reservation wages in the SALDRU93 & OHS94 surveys

SURVEY	***SECTION***	***QU. #***	
SALDRU93[9]	8.1	12	What is the lowest wage in rand per day that …*name*… would accept for a casual or day job?
		13	What is the lowest wage in rand per month that …*name.*… would accept for a permanent job?
OHS94[10]	3	3.31	What is the minimum salary or wage …*name.*… is prepared to work for? IMPORTANT: Specify per day/week/month/year 1 = day, 2 = week, 3 = month and 4 = year

[9] Southern Africa Labour and Development Research Unit, 1993
[10] Central Statistical Service, 1995

Before moving on to discuss work that has used the results from the surveys, it is worth commenting on the omissions and inconsistencies in the questions in table 1. The questions do not specify how many hours a respondent would be expected to work or how far from their residence the hypothetical job would be. The questions say nothing of related benefits that the jobs may or may not offer. At least the SALDRU93 survey makes a distinction between casual and permanent work – which can have importance in assessing how job security is valued. This is not made clear in the OHS94 question.

Kingdon and Knight (2001) assess the difference between reservation wages and predicted wages as a possible route to understanding the nature of unemployment in South Africa using data from the SALDRU93 and OHS94 surveys. From the SALDRU93 survey, question 13 (see table 1) is used as the measure of a person's reservation wage. Kingdon and Knight point out that question 12 is not used, as it seems less reliable. Their reasoning is that by "standardising the reported daily reservation wage figure to the month by multiplying the daily rate by 25 gave an average monthly reservation wage for casual jobs that was 45% higher than the reported monthly wage for a permanent job" (2001:10). This reasoning fails to include the possibility that respondents were taking job security into account when reporting reservation wages for permanent employment and as a result were willing to accept lower wages. As a result the answers are possibly not less reliable but include more information than is noted.

As both surveys failed to ask questions for past wages or wage offers rejected, Kingdon and Knight generated predicted wages for the unemployed individuals using parameters from the wage functions of employed persons. Kingdon and Knight's (2001) results show that about 50% of the unemployed have a reservation wage that exceeds their predicted wage and for about 30% of the unemployed, this reservation wage exceeds the predicted wage by more than 40%. More specifically: African respondents, people from rural homelands, low-educated workers, females, the young and persons who have never worked before have a noticeably higher mean reservation wage ratio (reservation wage/ predicted wage). One may conclude that for the majority of the unemployed they are not reporting their reservation wage and would be prepared to work for less given their predicted wage. Thus, using this reservation wage to understand economic behaviour would be flawed. However the reliability of the reservation wage measure has to be questioned.

Kingdon and Knight (2001) list numerous reasons why they suspect the reported reservation wages to be unreliable. One problem is that survey questions on reservation wages are often not specific enough and are open to wide

interpretation. The questions in the SALDRU and OHS surveys failed to specify the expected hours of work per week or month and also the distance to work (see table 1). In labour-force surveys, there is no such thing as a single 'going wage' because such a wage depends on the job and the skills characteristics of the individual concerned. Secondly, people often report a fair wage and not necessarily the minimum they would accept in the formal sector. Thirdly, often people (especially in deep rural areas) lack information about the labour market and are unable to value themselves correctly given the level of skills they possess. They also lack education and previous work experience, which causes them to be ignorant about their market worth. Fourthly, when asked about their reservation wage people may adopt a bargaining stance since this is the usual context in which they discuss wages. Thus, the wage they report is the one they would normally start bargaining with and is above their minimum acceptable wage.

In addition, Jones (1988) discusses the notion that respondents may be concerned about the confidentiality of the survey and as a result have little incentive to report honest answers. Finally, people may report a wage they expect to receive in an area other than where they presently reside. This is often the case with people living in rural areas, who aspire to find work in urban areas. Kingdon and Knight find that these measuring problems contribute to the situation where the "reported reservation wage often exceeds the predicted wage" (2001:14).

In trying to improve the reliability of recording reported reservation wages, Dias offers the following suggestion of how to formulate a survey question:

"If a full-time job is offered to …name… nearby (within 5 kilometres of your residence) would …name…accept it if the weekly rate were: (with a range of income categories having been provided)?" (2000:18)

Furthermore, Dias suggests that the interviewer "read each salary or wage bracket starting from the lowest and identify the first wage or salary bracket that the respondent would be willing to accept" (2000:18). Hopefully this will prevent respondents from assuming a bargaining position when reporting their reservation wage and identify the lowest wage that an individual would be prepared to work for. As noted earlier with question 12 and 13 from the SALDRU93 survey, Dias suggests that a question should be asked pertaining to the minimum wage that a respondent would accept for doing a casual job. This will help shed light on the extent to which "job security can be traded for income" (2000:18). Included in the survey should be questions on past wages or past wage offers rejected. As Dias puts it, "past wages earned may well form a

reasonable benchmark for wage expectations while past wage offers rejected may substantiate the reservation wage reported" (2000:18).

Dias has offered positive suggestions, although when specifying "full-time" in the question this should be backed up with a precise definition of what it means. How many hours and how many days per week is one expected to work? Does this include other benefits etc.? By specifying that the job is within 5 kilometres of the respondent's residence, this will hopefully reduce the problem of rural respondents reporting wages they expect to get in an urban environment.

4. Reservation Wages in KMP

Having reviewed particular work in South Africa on measuring reservation wages and being aware of the problems encountered and suggested solutions, the discussion will now focus on how reservation wages were measured in KMP and whether a respondent's economic behaviour is consistent in light of their reservation wage.

4.1 Measurement

In the KMP survey, direct information pertaining to a respondent's reservation wage is asked in six separate places. Table 2 lists the associated questions.

Before analysing the questions individually, it is important to note that they all specify a "take-home" wage or, in other words, the wage once any deductions have been made (e.g. tax deductions). Thus, in later sections where comparisons are made it will be important to convert all previous wages, refused wages and hypothetical wages to take-home wages making the necessary tax adjustments.

Respondents who stated that they are not currently wage or self-employed, and who want a job, would have answered questions F24 and F25. The phrasing of questions F24 and F25 are quite different which will help explain the associated difference in their means with question F24 having a mean response of over R1500 and question F25 a mean response of about R950 - a difference of more than R550.

Table 2. Questions in the KMP survey pertaining to reservation wages

Question No.	***Question***	***Obs***	***Mean[11] (rands/ month)***
F24	What do you think would be a reasonable take-home monthly wage for you given your desired hours of work and your age, education, skills, and area of residence etc.	1100	1533
F25	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)?	1099	958 (800)
G29	What is the absolute lowest weekly take-home wage you would accept if offered a job?	208	2656
I5	What is the lowest daily take-home wage you would be prepared to accept for a casual job?	1241	2319
I18	What is the lowest daily take-home wage you would be prepared to accept for a casual job?	353	2930
K5	What is the absolute lowest monthly take home wage that you would accept for any work (if you were unemployed at the time)?	2267	1159 (1000)

Note: Numbers in brackets are the median response to the associated question.

Question F24 seems more likely to be probing what an individual thinks a fair wage would be and not the minimum he/she would be prepared to work for. Question F25 on the other hand seeks to uncover a person's absolute reservation wage – asking the wage below which a person "would not be prepared to work." Without further information, one may conclude that an individual's reservation wage is approximately two-thirds of what he/she would report as a fair wage.

Respondents who have engaged in non-wage income-earning activities (self-employment) in the last six months would have answered question G29. Question G29 is trying to probe the minimum wage that an individual would need to be paid to move from self-employment into more formal wage-employment. The mean wage of over R2600 has been calculated by converting the reported mean weekly take-home wage to a monthly take-home wage[12]. This

[11] The calculated mean monthly reservation wage has not been adjusted in any way for outliers, which may have resulted from recording or other errors.

[12] From a discussion with Dudley Horner (Deputy Director SALDRU) on the 16 May 2003, it was agreed that for the purposes of this paper: all daily wages would be multiplied by 21.75, all weekly wages would be multiplied by 4.33 and all fortnightly wages would be multiplied by 2.17 to estimate a monthly wage respectively. To derive 21.75: 104 (number of weekend days in year) is subtracted from 365 (number of days in a year). This result, 261, is then

mean is far higher than that from questions F24 or F25, indicating that the unemployed are more desperate for work, possibly as they are less employable and have lower property income on which to depend. To try and understand why the G29 mean is so much higher, the means of self-employed gross income, money left for salaries and take-home profit were calculated as shown in table 3.

Table 3. Means of selected self-employment income

Type of Income	***Mean (rands/month)***
Gross income/Total income earned	984
Money for own salary	634
Take-home profit	580
Reservation Wage	2656

Initially it was hypothesised that a self-employed person's reservation wage, to be drawn from self-employment into formal wage-employment, would be related to what he/she earns in self-employment. The idea being that the formal wage compensates at least for what is earned in self-employment. Table 3 shows that this is the case but much more than expected. The mean reservation wage of over R2600 is far higher than even the mean gross income earned in a month. Perhaps, just compensating a self-employed individual for the loss of income is not enough, and that the loss of freedom to control one's own business/time plus the loss of enjoyment and satisfaction from running a business etc. has to be included in the compensation.

Question I5 would have been answered by people who have not done casual work in the six months prior to the survey and who would like to do casual work. Most of these respondents (68%) are classified as broadly or marginally unemployed, with the difference being made up by those respondents in wage-employment or self-employment who would like a few days of casual work. The mean reservation wage (adjusted to a monthly wage) for casual work in this instance is about R2319. Comparing this to the mean from question F25 (R958) shows the extent to which job security, offered by a permanent monthly job, is valued. Respondents have to be paid a lot more to do casual work in order to compensate for the lack of job security offered by a casual job and the days waiting to find the job.

Question I18 is the same as I5 except that only those people who have done casual work in the six months prior to the survey answered it. Of this group, fewer respondents (53%) are classified as broadly or marginally unemployed

divided by 12, giving 21.75 working days in a month. In similar fashion there are 4.33 weeks in a month (52/12) and 2.17 (26/12) fortnights in a month.

compared to those who answered I5, which explains the higher mean reservation wage of over R2900 (adjusted to a monthly wage). Once again this indicates the greater desperation amongst the unemployed to find work, given the lower mean reservation wage in I5.

The final question that seeks to probe a person's reservation wage is K5, which is a question within the reservation wage section of the survey. As can be seen by the number of observations, almost the entire sample answered this question, including those in wage-employment who were told to assume they were unemployed at the time. Once again it asks for the "absolute lowest monthly take home wage" but is different from F25 in that it asks the minimum a person would "accept", as opposed to the minimum "below" which he/she would not be prepared to work. This subtle difference in the question is important, as discussed in Nattrass (2002), as 64% of the respondents who answered both these questions gave a different reservation wage. Either the different phrasing of the questions causes the difference in reservation wage, or people do not have a specific reservation wage, or are rather vague about the concept.

Table 4. Comparisons of the difference between responses to question K5 & F25

Difference	***% of Respondents***
0	36%
K5>F25	42%
K5<F25	22%

Of the respondents who answered both questions K5 and F25, table 4 shows the percentage who reported the same reservation wage for both questions, a higher reservation wage in K5 than F25 and a lower reservation wage in K5 than F25. It is interesting that 42% of the respondents reported a higher reservation wage in K5 than F25. One could argue that the difference in wording between the questions is important in explaining this result. The fact that F25 asks the minimum below which people would not be prepared to work as opposed to K5 asking the minimum people would accept, seems to encourage a lower positive response. Note should be made of this for phrasing of reservation wage questions in future surveys.

Taking the entire sample of respondents who answered K5, one can see that the mean reservation wage is R1159 and the median R1000. This is higher than the mean (R958) and median (R800) for question F25, as question K5 includes respondents who are unemployed as well as respondents who are in some form of employment. The mean for K5 is lower than the mean for F24, reinforcing the

idea that question F24 is measuring the respondent's notion of a "fair wage" as opposed to a reservation wage. Taking only those respondents who are currently in wage-employment increases the mean of K5 to R1374, reinforcing the notion that the employed report a higher reservation wage than the unemployed.

The simple analysis in this section shows that people in different labour market states report different reservation wages. Furthermore individuals want increased compensation for casual work where there is a lack of job security. As this paper seeks to understand what determines reservation wages of those entering wage employment and given the above analysis, F25 and K5 are the likely measures that could be considered as the dependant variable in the regression analysis in section 5. To keep the analysis as all-inclusive as possible, K5 will be used as the reservation wage measure. Different dummy variables will be inserted for the different labour market states that individuals may be in and to test how these states impact on their reservation wage. Using work done by Nattrass (2002), individuals will be classified according to one of the following states[13]: Wage-employed, Self-employed, Casual-employed, Active-searching Unemployed, Exclusively Network-searching Unemployed, Marginalised Unemployed or Non-labour Force Participants.

4.2 A Closer Evaluation of the Reservation Wage Measure

Having decided to use K5 as the reservation wage measure, a brief assessment of the question is in order, to see how it fares in light of the discussion in section 3. Does it overcome the problems suggested by Kingdon and Knight (2001) and does it include some of the suggestions offered by Dias (2000)?

The first glaring problem with K5 is that it does not specify the hours that a person would be expected to work in order to earn the "lowest monthly take-home wage." It does not specify the distance to work, but as the survey is in the Cape Town metropolitan area with good transportation links this may not be as big a problem as suggested by Kingdon and Knight (2001). The problem with not specifying distance to work is when rural respondents report a wage they expect to earn in an urban area. A further problem with K5 is that it does not

[13] If people did more than one of the mentioned jobs then they were classified according to the job, which absorbed the greatest amount of their time or provided the greatest income. The narrow definition of unemployment would normally include only those who are classified as active-searching unemployed. The broad definition of unemployment would include those who are active searching, exclusively network-searching and the marginalised unemployed. For a more detailed and extended discussion of the classification see Nattrass (2002).

specify benefits associated with the job in question. For example, it is important to instruct the respondents that the job has no related benefits and in so doing help standardise their responses. This will be especially important when asking employed people their reservation wage if unemployed, as they may be in jobs with benefits and take these similar benefits into account when reporting their reservation wage. Removing the possibility of benefits may cause the employed to have a higher reservation wage. Further qualitative research is necessary to uncover how benefits affect one's reservation wage.

Dias (2000) suggests that income categories be read to respondents when asking them the lowest wage they would be prepared to accept. This suggestion would be beneficial when a question on reservation wages is asked in a completely random place in a survey. Here though, K5 is asked at the end of a section where hypothetical jobs, offering wages realistic to the KMP area at the time of the survey, have been discussed. As a result the respondents' minds will already be accustomed to thinking about jobs at different wages and will find it easier to answer question K5. They will be unlikely to adopt a bargaining stance or report a fair wage in answering K5, given that question K5 comes after a number of hypothetical job offers where the response is simply yes or no. In addition, they will not feel pressure suddenly to think about their reservation wage or to feel that they are being asked this question with no understanding of where the response is leading.

A major criticism thus far has been the lack of panel data to support studies on reservation wages in South Africa – as no assessment can be made of pre or post survey wage offers refused or accepted. The KMP survey goes a long way towards alleviating the limitation engendered by the fact that it is a once off study, by gathering information on wage histories, wage offers rejected and the inclusion of hypothetical job offers. In section 4.3 the paper probes how well or consistently a respondent's economic behaviour is following his/her reported reservation wage. Is K5 really measuring a person's reservation wage in KMP?

4.3 Does Economic Behaviour Support the Reported Reservation Wage?

If the respondent's reservation wage is their actual reservation wage, this will be termed a 'consistent reservation wage'. When looking at the consistency of the reservation wage, a person's economic behaviour in relation to the reservation wage needs to be analysed. If people accept jobs above their reservation wage

and refuse jobs below their reservation wage then they are showing consistent behaviour. Showing consistent behaviour is a sign that the reported reservation wage may well be the respondent's actual reservation wage.

From the KMP survey there are three ways to assess whether the reported reservation wage is in fact the person's actual reservation wage. The first option is to look at those respondents who are presently working, and to compare their current wage with their reservation wage if they were hypothetically unemployed. The second option is to look at those who are unemployed and who have refused jobs, comparing the wage offer refused to their reservation wage. This analysis is limited in that only 39 respondents refused jobs, of whom, only 27 gave useable information on the wage offer refused. The final option is to use the information from section K of the questionnaire where respondents were asked to consider whether they would accept certain jobs at a stated wage if they were unemployed at the time. These jobs and the wages on offer were realistic to KMP at the time of the survey.

Current Wage (Wage-employed) vs. Reservation Wage (Wage- employed)

For those classified as being in wage-employment, it was possible to construct a monthly after tax wage for 753 respondents[14]. Of these 753 respondents, 647 answered question K5 and reported their reservation wage if unemployed at the time. Table 5 below shows the mean monthly wage and reservation wage for this group.

Table 5. Means of Current Wage and Reported Reservation Wage for Wage Earners

	Obs	***Mean (rands/month)***
After Tax Monthly Wage	753	1720
Reported Reservation Wage	647	1319

From table 5 it can be seen that the mean reservation wage is below the mean after tax monthly wage. Thus in general, working people are reporting reservation wages below their current wage, which is a sign that the economic behaviour of those who are employed is consistent with their reservation wage (i.e. they have accepted jobs where the wage offered is higher than their

[14] A large proportion of the 753 reported a monthly after-tax wage. The rest reported a daily, weekly or fortnightly after-tax wage – the necessary adjustments were made to convert these to monthly wages. This monthly wage measure is used in section 6 when trying to estimate a predicted wage.

reservation wage). To test this consistency further, the mean of the difference between the after tax monthly wage and reported reservation wage was calculated. The result of R389 further indicates that in general people are reporting reservation wages below that of their current wage. This simple analysis suggests that in general respondents are reporting their reservation wage and acting accordingly in their economic behaviour.

Wage Offers Refused vs. Reservation Wage[15] of the Unemployed

Question F11[16] asks respondents if they have turned down job offers, during the time they have wanted work (as probed in question F10). 39 respondents refused jobs but of these only 27 reported useable information on the wage offer refused. Information for these 27 is displayed in table 6. Before proceeding with any analysis it is noted that 27 is a very small sample from which to make any significant conclusions. However, for lack of other information, it is still useful to look at the job offers refused in light of the respondents' reservation wages.

In table 6, the final column headed 'Diff', is the calculated difference between the respondent's reservation wage and his or her real after-tax monthly wage refused. A calculated difference that is negative (these numbers have been bolded) shows inconsistent behaviour on the part of the respondent, as he/she has refused a job offer with a wage higher than their reservation wage.

Of the 27 respondents listed, 10 (37%) show inconsistent behaviour. Three of these 10 respondents (numbers 8, 14 and 26) gave the reason for not accepting the job as "quarrelled with management", "family duties" and "job too far away" respectively. For these 3 respondents, even though their reservation wage is below the wage offered, their reasons for not accepting the jobs suggests they were prevented from taking the job even if they would have liked to work. Thus their behaviour cannot be termed inconsistent. The reasons given by the other 7 do not preclude them from displaying inconsistent behaviour. If their reported reservation wage was their actual reservation wage they would not give the following reasons for refusing the jobs – "did not like job", "wage too low" and "below skill level."

[15] The analysis in this section follows work done by Nattrass (2002). The difference is that all respondents who reported they had refused work during the time period they had wanted work are included. Nattrass only selects those who are defined as broadly unemployed.
[16] A question in the unemployment history section of the questionnaire.

Table 6. Selected information on those who have refused jobs

	LMSTATUS	***Res Wage (K5)***	***Job Refused***	***Reason for Refusal***	***Real[1] After Tax[2] Monthly[3] Wage Refused***	***Diff***
1	-	1800	Construction	Other	1210	590
2	Search-un	2500	Construction	Wage too low	440	2060
3	Search-un	800	Sales	Below skill level	660	140
4	Wage-emp	1200	Prison warder	**Did not like job**	3140	**-1940**
5	Search-un	1500	Cleaner	Other	660	840
6	-	250	Cleaner	**Wage too low**	330	**-80**
7	Search-un	1000	Domestic worker	Cost of travel too high	968	32
8	Netsearch-un	600	Cook	***Quarrel with manage***	1712	**-1112**
9	Search-un	1000	Restaurant	Did not like job	660	340
10	Search-un	1000	Domestic worker	Wage too low	266	734
11	Search-un	1300	Domestic worker	**Did not like job**	1452	**-152**
12	Search-un	1200	Newspaper	**Below skill level**	1400	**-200**
13	Search-un	1000	Construction	Below skill level	770	230
14	Netsearch-un	600	Domestic worker	***Family duties***	1320	**-720**
15	Marg-un	1200	Restaurant	Cost of travel too high	350	850
16	Marg-un	500	Construction	**Did not like job**	1210	**-710**
17	Search-un	1800	Restaurant	Wage too low	1400	400
18	Search-un	1000	Domestic worker	Did not like job	800	200
19	Search-un	300	Domestic worker	Did not like job	220	80
20	Search-un	1800	Clerical	Wage too low	1318	482
21	Marg-un	1500	Sales	Wage too low	440	1060
22	Search-un	1000	Restaurant	Wage too low	800	200
23	Search-un	500	Welding	**Wage too low**	600	**-100**
24	Marg-un	1000	Baby sitting	Family duties	500	500
25	Search-un	1200	Other	Wage too low	660	540
26	Search-un	300	Sales	***Job too far away***	800	**-500**
27	Marg-un	1200	Domestic worker	**Wage too low**	1449	**-249**

Note:

1. In line with Nattrass (2002), real monthly wage offers refused were calculated on the assumption of 10% inflation per annum.
2. Only two of the above respondents reported a wage offer before-tax. One was R3500 a month before-tax and the other R900 a month before-tax. According to the Budget Review 2000 (Department of Finance, 2000:81) the offer of R900 a month would not be taxed whereas the R3500 would fall into the 35001-45000 per annum tax-bracket. The necessary adjustment has been made.
3. Daily wages, weekly wages and fortnightly wages were converted to monthly wages using the formula discussed in section 4.1.

These reasons indicate that they actively took the decision to refuse the job and were not prevented from taking it. Thus, their reported reservation wage is not the lowest wage they would accept for any job, given they are unemployed at the time.

Taking the above discussion into account, only 26% (7 of 27) show inconsistent behaviour. Once again this indicates that the majority of respondents are refusing jobs consistent with their stated reservation wage.

Comparing hypothetical jobs with the Reservation Wage

Section K of the questionnaire deals specifically with reservation wages. In this section respondents are given the option of four hypothetical jobs that were realistic to areas adjacent to KMP at the time of the survey. The respondents were asked to respond either "yes" or "no" as to whether they would accept the jobs, at the specified wage rate, if they were unemployed at the time. Table 7 lists the exact questions.

Once again, the consistency of the respondents' reservation wages are to be analysed by assessing the responses to the questions in table 7. No comparison will be made between the results from question K2 and the reservation wage because K2 offers a casual job, whereas the reservation wage is for a permanent monthly job. Not understanding exactly how job security is traded for income will make this comparison difficult.

Table 7. Hypothetical job offers

Question Number	***Question***	
K2	If a government public works programme came to the area (perhaps to cut Port Jackson trees on the sand dunes or the mountain) offering R33 a day, would you take a few days work if you were unemployed at the time?	
K4	Imagine that an industrial park opened up nearby. Would you accept any of the following jobs at the following **(pre-tax)** rates of pay (if you were unemployed at the time):	
	K4.1	A cleaner with a monthly wage of R1081?
	K4.2	A general worker with a monthly wage of R1438?
	K4.3	A machine operator with a monthly wage of R1619?

Note: Question K4 refers to pre-tax rates of pay. No tax adjustment needs to be made for any of the jobs, as the wages earned are too low to be included in any of the taxable brackets. The tax threshold being R21 111 per year, according to the Budget Review of 2000 (Department of Finance, 2000:81). However, for future surveys, it would be worthwhile to inform respondents of the tax threshold, so that the true take-home value of the job can be judged.

Three new variables were generated that equalled the monthly take-home wage offered in questions K4.1 to K4.3. For each respondent, the difference between their reported reservation wage and these variables was calculated[17]. The

[17] For example, if the reservation wage were R2000, then the difference (K5 – K4.1) between the reservation wage and a cleaner's monthly wage would be R919.

analysis in this section calculates the percentage of respondents whose responses were consistent and probes inconsistencies.

The decision rule, in analysing the consistency of the reservation wage, was based on four simple criteria:

Firstly**,** the reservation wage is termed "consistent" if the calculated difference is positive and the respondent refused the associated job *or* if the calculated difference is negative and the respondent accepted the associated job. For example if the difference is positive, then the respondent's reservation wage is higher than the offered wage. To be consistent the respondent would have to refuse this job as it offers a wage below the respondent's reservation wage.

Secondly, the reservation wage is termed "inconsistent" if the calculated difference is positive and the respondent accepts the associated job *or* if the calculated difference is negative and the respondent refuses the associated job. For example if the difference is positive, then the respondent's reservation wage is higher than the offered wage. If this job were accepted then the behaviour is inconsistent as the respondent is accepting a job where the offered wage is below his/her reservation wage.

As shown in table 7: the job offer in K4.1 is a cleaner with a monthly wage of R1081, the job offer in K4.2 is a general worker with a monthly wage of R1438 and the job offer in K4.3 is a machine operator with a monthly wage of R1619. Table 8 lists the consistency between the respondents' reported reservation wages and their acceptance or refusal of the three jobs.

Table 8. Reservation Wage and cleaner, general worker and machine operator job offers

Decision Rule	***Percentage of Respondents***		
	Cleaner	***General Worker***	***Machine Operator***
Consistent: res>wage offer and refusal	12%	8%	7%
Consistent: res <wage offer and acceptance	58%	66%	62%
Inconsistent: res>wage offer and acceptance	23%	19%	21%
Inconsistent: res<wage offer and refusal	6%	7%	10%

The first notable feature of the results is that roughly 70% of the respondents are showing consistency between their reservation wage and the acceptance or refusal of the three jobs. Secondly, the majority of inconsistency lies with respondents accepting the jobs at wage offers below their reservation wage. This

may reflect the seriousness of unemployment in the area and the desperation to find work, but also that respondent's are not taking the high levels of unemployment into account when reporting their reservation wage. Only when presented with an offer are we able to gauge a person's true reservation wage. Thirdly, only a very small percentage of the respondents are actually refusing jobs where their reservation wage is below the wage offered. Inconsistency in this respect may reflect a person's taste for work or preference for employment given the nature of the job. Further investigation showed that about 44% of the respondents who refused the cleaner job where the wage offer was above their reservation wage (inconsistent behaviour) are classified as non-labour force participants. In this regard it is difficult to term their behaviour as being inconsistent. In fact by refusing the job they are being consistent with their present labour market position where they may for example still be studying or too old to work.

The question posed at the beginning of this section 4.3, is whether the economic behaviour of respondents supported their reported reservation wage. The purpose in trying to answer this question is to probe whether respondents are in fact reporting the minimum wage they would accept. As has been shown, the mean wage earned by those in wage employment is substantially higher than their mean reported reservation wage. For those who have refused jobs, the majority (about 74%) have refused job offers where the wage is below their reservation wage. Finally, in analysing the responses to the hypothetical job offers one can safely conclude that the majority of respondents (about 70%) are being consistent in accepting or refusing jobs with a monthly wage given their reservation wage.

One can conclude from these results, that in general, K5 is a good measure of a person's reservation wage and needs no adjustment for the regression analysis. Section 5 will probe what factors determine the variation in reservation wages across KMP.

5. Determinants of Reservation Wages in KMP

Ordinary Least Squares (OLS) regression will form the basis of the analysis of what factors impact on an individual's reservation wage. The regression equations will take the following form:

$$\textbf{log(res wage)} = c + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_i X_i + \varepsilon$$

The dependant variable will be the log of the individual's reservation wage and the explanatory variables (X_i) will be drawn from a list of variables as discussed in Section 5.1.

Only those respondents who are between the ages of 18 and 65 are included in the regression analysis. Furthermore, of the respondents classified as non-labour force participants, all those who mentioned being too old or too sick are not included as they are not able to function effectively in employment, even if they wanted to. Non-labour force participants who are still within the economically active age and gave reasons such as 'still in school', 'rather not work', 'prefer leisure' etc. are still included as they may accept a job if the 'correct' wage is offered. In terms of racial breakdown only Coloureds and Africans are compared, as there are too few respondents of other race.

5.1 Discussion of Variables[18]

As shown in Appendix A, most of the reservation wages are clustered around R1000 per month. At the top end, three observations were dropped from the analysis as they were considered outliers and may affect the regression results[19]. At the bottom end, no outliers were considered for investigation as they are all within two standard deviations of the mean.

The reservation wage and three measures of income (as discussed further on) were adjusted by taking the log of these variables. This adjustment is necessary to control for any scale effects resulting from the wide variation in these variables compared to other variables, as shown in table 9. The standard deviation of the reservation wages is R755, far greater than the variation in any of the other continuous explanatory variables. In addition, a number of the explanatory variables are categorical. Using the log of the reservation wage, as opposed to the reported reservation wage will produce better results and estimates of relationships that may exist, as the variation in reservation wage will be reduced and extreme values will have less of an impact.

In section 2 the importance of non-wage (property) income in affecting a person's reservation wage was highlighted. The theory is that those people who have higher non-wage income can afford to survive in unemployment for longer and will therefore have a higher reservation wage. This can be tested using data

[18] Appendix B offers a discussion of explanatory variables that were considered, but not used in this study. They may however be applicable in other studies.
[19] Included in Appendix A is a discussion of the treatment of outliers.

collected by the KMP survey. The measure of household income (**hhold income**) that is used has been compiled by aggregating the individual incomes for each household (wage, self, casual, grant, remittance income etc. - see Skordis and Welch (2002) for a complete discussion[20]) instead of using the reported household income from the household level questionnaire. The reason for this is twofold:

Firstly, Skordis and Welch (2002) find that household income estimates tend to be higher and have greater variation when formulated by aggregating individual income estimates as compared to the household income measure from the household level questionnaire. Thus, the household level questionnaire may not be measuring household income correctly.

Table 9. Summary stats of reservation wage & continuous explanatory variables[21]

	Obs	***Mean***	***Std. Dev.***	***Min***	***Max***
Reservation Wage (rands)	2011	1165.8	755.4	10	7000
ln(Reservation Wage)	2011	6.87	0.7	2.3	8.9
Age (years)	2217	34.1	11.7	18	80
Numploy	2217	0.9	0.8	0	2
Education	2182	8.6	3.3	0	15
Hhold Income (rands)	1884	3399.3	4528.9	5	60500
ln(Hhold Income)	1884	7.3	1.5	1.6	11
Net Hhold Income	1857	2063.5	3448.5	0	33300
ln(Net Hhold Income)	1857	5.7	3	0	10.4
Contr Hhold Income	1857	1362.9	2813.9	0	37600
ln(Contr Hhold Inc)	1857	3.7	3.7	0	10.5
Duration of unemp (months)	1025	43.2	50.4	1	376

Secondly, having an aggregated measure of household income, it will be easy to dis-aggregate and determine how separate components affect a household member's reservation wage. For example, to see whether changes in wage income in the household are more significant in explaining changes in the respondent's reservation wage than say changes in household income earned via casual work. The hypothesis being that any changes in wage income would be more serious in terms of future income security than changes in casual income.

This is similar to work done by Klasen and Woolard where they try and assess whether pension and private incomes "constitute a direct disincentive to search

[20] In compiling the household income measure, the gross wage earned by each individual was used instead of a net wage, as there was better and more information at a gross level.
[21] Adjusted sample used in regression analysis.

by raising the reservation wage" (2000:18). In their study they find that pension and remittance incomes do not appear to raise reservation wages and only self-employment income and private income is associated with higher reservation wages.

In addition, the effects of two further measures of household income will be tested in the regression analysis when including only those respondents in wage-employment. The first is household income minus the contribution of the particular respondent to household income (**net hhold income**) and the second is the contribution of the respondent to household income (**contr hhold income**). As noted earlier, the log of these household income measures will be used to control for the wide variation in these variables as shown in table 9.

As discussed in section 2 a person's reservation wage in KMP will be affected by the benefits of being searching-unemployed (B(s)) and/or the benefits from being out of the labour force in state i (B(o,i)). B(o,i) will include non-wage (property) income as discussed but also such things as an improved qualification, spending greater time in leisure or with ones children etc. This list could be quite extensive with many factors that are not easily measurable (i.e. the value of leisure time for each respondent). For the purpose at hand, **education** and **number of children** have been identified as important explanatory variables. A variable was created that measured the number of children under the age of 16 in the household but as discussed in Appendix B was not a significant predictor of the reservation wage. However, education is an important explanatory variable and will be discussed further on.

B(s) is made up of the sum of $[(P_j)(E[w_j])/x]$ and b_{su} as discussed in section 2. b_{su} includes the non-wage (property) income that a person can rely on in unemployment. The importance of B(s) lies in the impact of the expected value and probability of getting a job on one's reservation wage. As specified, P_j and $E[w_j]$ are dependent on x - the individual's characteristics. In terms of value functions, certain x characteristics will improve a person's chance of getting a job or raise their expected wage. As a result, the value for them of searching will be higher and they will have a higher reservation wage than someone who does not share these favourable characteristics. The purpose of the regression analysis is to break these two steps into one and instead of looking at how P_j and $E[w_j]$ affect the reservation wage, rather how certain characteristics directly impact on a person's reservation wage.

Klasen and Woolard (2000) find that age, gender, race and education have a large and significant impact on reservation wages. Table 10 shows the mean reservation wage for different age categories in KMP increasing as one moves

from the 18-22 category up to the 40-49 category. After the 40-49 category the mean declines slightly, indicating a peak in a person's reservation wage somewhere in mid-career (40-49). This peak will be tested in the regression analysis by the use of an age-squared variable. The mean reservation wage of **males** (R1301) is higher than that of **females** (R1072). The mean reservation wage of **Africans** (R1045) is far lower than that of **Coloureds** (R1470).

Table 10. Mean reservation wage across different variables (in rands)[22]

		Obs	***Mean***	***Median***
K5		2011	1166	1000
Age Categories	18-22	371	1056	1000
	23-29	509	1113	1000
	30-39	558	1193	1000
	40-49	362	1270	1000
	50-64	211	1237	1000
Gender	Male	822	1301	1000
	Female	1189	1072	1000
Race	African	1457	1045	1000
	Coloured	542	1470	1200
Marital Status	Married	770	1297	1000
	Unmarried	1175	1068	1000
Position in household	Head of hhold	737	1265	1000
	Not the hhold head	1266	1111	1000
Work Experience (Unemployed)	Worked before	500	1060	1000
	Never Worked	430	936	800
Duration of Unemployment	6 months or less	155	1158	1000
	Btw 6 and 12 months	185	957	900
	Btw 12 and 24 months	190	934	900
	Btw 24 and 48 months	198	991	1000
	Btw 48 and 96 months	138	922	825
	More than 8 years	118	1096	1000
Labour Market Status	Wage-emp	747	1355	1000
	Self-emp	168	1214	1000
	Casual-emp	64	1024	1000
	Search-unemp	431	1066	1000
	Network Search-unemp	168	957	825
	Marginalised-unemp	331	944	900
	Non-labour force parts	102	1272	1000
No. of other wage-employed in hhold	Zero	695	1026	1000
	One	860	1193	1000
	Two or more	456	1328	1000
Place of Birth	Rural	1018	1028	800
	Urban	915	1295	1000

[22] Adjusted sample used in regression analysis.

Table 10. Mean reservation wage across different variables (in rands) continued….

		Obs	***Mean***	***Median***
Education Categories	0-Std5	625	1040	1000
	0-Std5+	39	1385	1000
	Secondary	782	1095	1000
	Secondary+	133	1411	1000
	Matric	232	1269	1000
	Matric+	156	1542	1200
	University	13	1877	1500
Expectations on getting a job	Very Positive	344	1011	1000
	Positive	216	1102	1000
	Neither Pos nor Dis	91	1017	900
	Disheartened	85	890	800
	Very Disheartened	120	1043	1000
Savings Behaviour	Presently Saving	1011	1239	1000
	Not Saving	1000	1091	1000

In coding the **education** variable, a year of education was assigned for each year of school completed. If a person finished matric they were assigned 12, for 12 years of education completed. Years of post-school education completed were added in addition to schooling. Of the respondents, 601 indicated that they had done some form of post-school education, of which 410 had completed their studies. The respondents who had not completed their post-school studies received no extra years of education.

The KMP questionnaire offers numerous post-school study options, ranging from training courses for the unemployed to a university qualification. In order to add extra years for post-schooling, an assessment was made of the mean time it took the group of people who had completed a certain course or diploma to finish. This was possible as the questionnaire asked each respondent if they had completed their studies, the age they began, and the age they finished. Table 11 shows the mean time in years that it took for people to complete their respective courses, diplomas or degrees.

Table 11. Mean time in years to complete courses, diplomas or degrees

	Obs	*Mean time to complete (yrs)*	*Years assigned to post-school educ*
Training course for unemployed	24	0.96	1
Training course at work	61	1.49	1
Trade certificates	53	0.91	1
Technikon/Technical training/Diploma	101	2.03	2
University	17	3.47	3

According to the means in table 11, years of post-school education completed were assigned, as per column 3. Table 10 shows how the mean reservation wage increases substantially as years of education completed rises. For those who are in the category of having completed zero years of education to standard 5, the mean reservation wage is R1040. For those who have completed university the mean reservation wage is R1877.

Prasad (2000:46) finds that those who are **married** tend to have a lower reservation wage and that the status of **household head** "exerts a positive effect on the reservation wage." Table 10 shows (opposite to Prasad's findings) that the mean reservation wage of those who are **married** (R1297) is higher than the mean reservation wage of those who are **unmarried** (R1068). This difference may be better explained by the impact of age. More than 80% of those who are married are between 30 and 64 years of age (when reported reservation wages are highest), as opposed to 60% of those who are unmarried being below the age of 30. Controlling for age the regression analysis will be able to test this. The mean reservation wage of **household heads** (R1265) is higher than the mean reservation wage of other household members' (R1111), supporting Prasad's findings[23].

Prasad's (2000) regression results show that the **number of other employed persons in the household** is a significant determinant of the reservation wage. Table 10 supports this finding in showing that the mean reservation wage of those households with two or more employed persons (R1328) is the highest compared to the mean reservation wage of households with 1 or zero other employed persons. Number of other employed people can be a further measure of financial security (linking to the discussion of property income) and/or affect the probability of a respondent getting a job, thereby influencing a person's reservation wage.

Jones (1988) found that people with higher reservation wages have longer periods of **unemployment duration** as they can afford to stay unemployed longer until a better job offer is received. In this case a person can control the decision to accept a job via evaluating different job opportunities. In KMP the causality we are trying to measure is the opposite. The lack of jobs means that unemployed people do not have control over their employment prospects and need to wait until they are 'lucky' enough to find employment. The hypothesis being that the longer a person remains unemployed, the lower his/her reservation

[23] Regardless of the model specification, the regression results (not shown) do not find any significant difference between household heads and other household members in explaining variation in reservation wages. Often the signs were different given the results from table 10.

wage falls as a result of human capital loss and an increased desperation to find work. Prasad points out that "one would expect the reservation wage to decline over time on account of wealth effects and human capital depreciation" (2000:45). Standing mentions sociological research that has shown how "prolonged unemployment reduces a worker's employability, morale, and capacity for work" (1978:233). In Holzer's (1985) study on reservation wages and their effect on the labour market outcomes of black and white youth he notes that, particularly for black youth, as their unemployment duration lengthens so too do their reservation wages decline. The mean duration of unemployment in KMP is about 43 months (see table 9). Table 10 shows a decline in the mean reservation wage, as duration of unemployment increases, from R1158 for those who have been unemployed for less than 6 months to R922 for those who have been unemployed between 48 and 96 months.

Standing claims that migrants "are likely to have less knowledge of prevailing urban wage rates and, possibly with fewer income-sharing contacts on whom to rely, a greater need for an income from work, however small" (1978:233). In terms of the specified value functions, a person from a rural area may have a lower probability of securing employment (lack of contacts, urban labour market experience etc.) and as a result a lower reservation wage. With this in mind, a person's **background** may provide strong explanatory power in describing variation in the reservation wage. Place of birth is chosen to proxy for a respondents background. Table 10 shows that those born in an urban area have a higher mean reservation wage (R1295) than those born in a rural area (R1028). This supports the idea that people from a rural area may have migrated to KMP in search of work, are more desperate to secure employment and will thus participate at a lower wage.

A factor that may significantly affect the probability and expected value of someone getting a job in KMP, and thus their reservation wage, is their level of **work experience**. Potential experience is usually proxied by the formula: Age – Years of Education – 6. With the disjointed employment histories in KMP and the high levels of unemployment this does not seem a viable way to measure work experience. Keswell and Poswell (2002:12) use 'age' instead of 'potential experience' in their paper on returns to education, as "grade repetition, low educational attainment, and job insecurity (problems which typify South Africa) will likely produce overestimates of the effect of potential experience." The effect of age is already included but to measure work experience more directly a dummy variable (**work**) was created to distinguish between those who have worked before from those who have never had a job. One would expect there to be a difference (amongst the unemployed) between the reservation wage of those who've **worked before** and those who haven't. Those who have worked may have a better idea of their labour market value and report a reservation

wage in line with this. On one hand those who have never worked may have unrealistic wage expectations and report higher reservation wages, as evidenced by Kingdon and Knight (2001). Alternatively, those who have never worked may acknowledge they have less experience and expect to earn a lower wage than those who have worked and thus have a lower reservation wage. This is supported marginally in table 10 where the mean and median reservation wage of the group who have worked before (R1060 & R1000) is higher than the mean and median reservation wage of the group who have never worked (R936 & R800).

The discussion in section 4 highlighted the importance of **labour market status** in affecting a person's reservation wage. As discussed, using the classifications developed by Nattrass (2002) for KMP, dummy variables will be inserted into the regression analysis to test whether there is significant difference between the reservation wages of people with different labour market classifications. Table 10 shows evidence that there is a difference with those in wage-employment having the highest mean reservation wage (R1355). It is interesting to note that for the unemployed categories, the highest mean reservation wage is for those who are searching unemployed (R1066), declines for those who are network searching unemployed (R957) and is lowest for those who are Marginalised (R944). Thus, on average those who are actively looking for work have a higher reservation wage than those who are marginalised and not even trying to find a job. Finally, non-labour force participants have a higher than average mean reservation wage of R1272 – indicating a stronger desire to remain out of wage employment.

Finally, the KMP survey tried to collect information on a person's **expectation towards getting a job**. This is likely to be affected by labour market status, as those who are marginally unemployed are likely to be more discouraged than those who are searching unemployed. The KMP survey asks those who are unemployed "…how long you think it will be before you get a job." From this question[24] each respondent was classified as being either very positive, positive,

[24] Question F17 was used in order to test how expectation towards getting a job affected a respondent's reservation wage. The question read, "We now want to ask you how long you think it will be before you get a job." If the respondent felt that they had a realistic possibility of getting a job within the next month they were classified as "very positive." If the respondent felt that they had a realistic possibility of getting a job within the next three months they were classified as "positive." If the respondent felt that they had a realistic possibility of getting a job within the next six months they were classified as "neither positive nor disheartened." If the respondent felt that they had a realistic possibility of getting a job within the next year they were classified as "disheartened." If the respondent felt that they had no realistic possibility of getting a job within the next year they were classified as "very disheartened."

neither positive nor disheartened, disheartened or very disheartened about their prospects for getting a job. Table 10 shows no clear pattern in the mean reservation wage for each category from very positive to very disheartened however the medians seem to decline as the attitude towards getting a job becomes less positive.

5.2 Results

Regression 1, listed in table 12, includes respondents from all labour force classifications. The explanatory variables are **age**, **numploy** (number of other wage-employed persons in the household), **educ** (highest education level completed), **gen** (gender), **race** and **married** and are all significant at the 1% level. The regression however has an R-squared value of 0.1463, thus only 14.63% of variation in the reservation wage is being explained by the included explanatory variables. As a result much of the variation in the reservation wage is still unexplained. This is a weakness of all the regressions in table 12 and especially those regressions where only the unemployed are included. In these regressions the R-squared is around 0.09 - only 9% of the variation is explained! An obvious reason for the low R-squared is that other significant determinants of reservation wages have not been captured.

However, the low R-squared is not necessarily a cause for concern given that R-squared's are typically low in cross sectional analysis. It would be highly unrealistic to expect a high proportion of the variation in the reservation wage to be explained with our limited understanding, at this stage, of what impacts on reservation wages. The interest in using regression analysis is to see how the listed explanatory variables (from discussion in section 5.1) impact on a person's reservation wage controlling for other effects - rather than trying to specify a model with the greatest explanatory power (but with less analytical vigour). As research on reservation wages is deepened, more of this variation in the reservation wage will hopefully be explained as further determinants are discovered and introduced. Already it is interesting to note that when only a regression is specified for those classified as 'marginalised unemployed' and the variable 'work' is included, the explained variation in the reservation wage doubles. Elsewhere 'work' had little explanatory power but suddenly becomes significant as an explanatory variable. What does this mean? This will be discussed further on.

Table 12 displays the regression results.

Dependant Variable: ln(reported reservation wage)																
	All Respondents					Wage Employed			Unemployed							Marginalised
	1	2	3.1	3.2	4	5	6	7	8	9	10	11	12	13	14
intercept	6.052*** [0.076]	6.289*** [0.062]	6.028*** [0.079]	5.971*** [0.079]	6.210*** [0.093]	6.107*** [0.154]	6.007*** [0.153]	6.33*** [0.09]	6.095*** [0.118]	5.87*** [0.165]	6.09*** [0.148]	5.988*** [0.178]	5.869*** [0.165]	5.963*** [0.195]	5.700*** [0.272]
age	0.007*** [0.002]	0.005*** [0.001]	0.007*** [0.002]	0.007*** [0.002]	0.005*** [0.002]	0.004 [0.003]	0.003 [0.003]		0.008*** [0.002]	0.008*** [0.002]	0.006** [0.002]	0.007*** [0.003]	0.007*** [0.003]	0.008*** [0.003]	0.005 [0.004]
numploy	0.055*** [0.02]	0.050*** [0.02]	0.053*** [0.021]	0.080*** [0.02]	0.021 [0.024]	0.038 [0.047]			0.035 [0.033]						
education	0.038*** [0.005]		0.039*** [0.005]	0.040*** [0.005]	0.037*** [0.005]	0.05*** [0.007]	0.047*** [0.008]		0.029*** [0.008]	0.031*** [0.008]		0.031*** [0.008]	0.032*** [0.008]	0.032*** [0.009]	0.032** [0.014]
gender	0.232*** [0.029]	0.218*** [0.029]	0.234*** [0.03]	0.244*** [0.03]	0.213*** [0.03]	0.247*** [0.046]	0.226*** [0.047]	0.206*** [0.048]	0.185*** [0.045]	0.153*** [0.049]	0.141*** [0.049]	0.159*** [0.05]	0.142*** [0.049]	0.144*** [0.053]	0.176* [0.095]
race	0.322*** [0.034]	0.334*** [0.033]	0.302*** [0.042]		0.326*** [0.034]	0.255*** [0.049]	0.247*** [0.05]	0.252*** [0.048]	0.325*** [0.053]	0.302*** [0.057]	0.316*** [0.057]	0.260*** [0.058]	0.281*** [0.059]	0.269*** [0.061]	0.388*** [0.09]
married	0.083*** [0.032]	0.088*** [0.032]	0.086*** [0.033]	0.125*** [0.033]	0.078** [0.032]	0.109** [0.049]	0.096* [0.05]	0.112** [0.047]	-0.002 [0.052]						
0-5+		0.194* [0.101]						0.220 [0.166]			0.120 [0.155]				
6--9		0.115*** [0.035]						0.162*** [0.058]			0.091 [0.059]				
6-9+		0.302*** [0.06]						0.343*** [0.09]			0.304*** [0.115]				
Matric		0.304*** [0.051]						0.223*** [0.077]			0.184** [0.085]				
Matric+		0.417*** [0.06]						0.427*** [0.078]			0.333*** [0.107]				
University		0.688*** [0.172]						0.647*** [0.199]			0.393 [0.359]				
Urban			0.028 [0.036]	0.184*** [0.03]											
Self-emp					0.006 [0.06]										
Casual-emp					-0.104 [0.084]										
Searching-unemp					-0.086* [0.045]										
Network-searching unemp					-0.163*** [0.058]										
Marginalised unemp					-0.172*** [0.048]										
Non-labour force parts					0.000 [0.07]										

Dependant Variable: ln(reported reservation wage) continued...															
	All Respondents					Wage Employed			Unemployed						Marginalised
	1	2	3.1	3.2	4	5	6	7	8	9	10	11	12	13	14
ln(net hhold income)							-0.005 [0.007]								
ln (contr to hhold income)							0.037*** [0.012]	0.039*** [0.011]							
ln (hhold income)										0.035** [0.016]	0.036** [0.016]	0.041** [0.017]	0.035** [0.016]	0.027 [0.018]	0.048* [0.029]
Unemp btw 6-12 months												-0.176** [0.079]			
Unemp btw 12-24 months												-0.188** [0.078]			
Unemp btw 24-48 months												-0.131* [0.079]			
Unemp btw 48-96 months												-0.157* [0.092]			
Unemp greater than 8 years												-0.005 [0.099]			
Work													0.075 [0.0516]		0.186** [0.086]
Very Positive														-0.055 [0.087]	
Positive														0.037 [0.092]	
Disheartened														-0.013 [0.112]	
Very Disheartened														0.065 [0.103]	
n	1905	1905	1832	1844	1905	702	661	661	884	707	707	670	707	598	251
R2	0.1463	0.156	0.145	0.1249	0.1555	0.1601	0.1738	0.1743	0.0844	0.0924	0.0948	0.1052	0.0951	0.0841	0.1692
Prob>F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

Numbers in [ ] are the Standard Error.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.
Numploy is a continuous variable with three observations: "0", "1" and "2 or more" - indicating the number of other wage employed people in the household.
Base for the gender variable is female.
Base for the race variable is African.
Base for the married variable are those who are not married.
Base for education category is the group of people with 0 years of schooling up to those who have completed std 5 and have no post school education.
For the education categories, if the std completed is followed by a +, then these respondents have done some form of post-school training.
Base for urban variable is rural.
Base for labour force status are those in wage-employment.
Net hhold income is (Total household income - Respondents contribution to household income).
Contr to hhold income is (Respondents contribution to household income).
Base for work are those who have never had a job.
Base for expectation towards getting a job is "neither positive nor disheartened."

Returning to the regression 1, a brief discussion of the coefficients is in order. The coefficient on '**age'** is positive and shows that as people grow one year older, their reservation wage on average increases by about 0.7%, controlling for other factors. This supports earlier evidence from table 10 where the mean reservation wage increased up until the 40 to 49 age category and declined slightly thereafter. An age-squared variable was introduced to test a possible quadratic relationship between age and reservation wage. The age-squared variable turned out insignificant and showed no evidence that reservation wages seem to peak in middle age.

The coefficient on **'numploy'** is positive and indicates that for each additional employed person in the household a person's reservation wage increases by about 5.5%. There are two possible explanations for this. Firstly, household income is directly related to the number of employed people in the household. Extra employed people mean greater household income. As a result, households with extra employed people have more income to support those who are unemployed and offer greater income security to those in unemployment, thus allowing unemployed individuals to have a higher reservation wage. Secondly, higher numbers of employed people in the household may indicate that the prospects of an unemployed person finding a job are increased. This idea links in with evidence presented by Kingdon and Knight from a 1995 survey of employers that showed how "41% of firms relied on friends and relatives of existing workers for their recruitment" (2000:8). The greater the number of employed people within a household, the better the network for the unemployed person to find a job. With better networks comes a higher reservation wage, as the unemployed expect to get a better job more quickly.

However 'numploy' becomes insignificant in regression 4 where labour market status is included, regression 5 where only wage-employed people are included and regression 8 where only the unemployed are included. 'Numploy' is not significant in regression 4 as there is evidence that 'numploy' is correlated with labour market status. Labour market status is a significant predictor of the number of wage-employed people in a household. The insignificance of 'numploy' in regression 5 is not surprising, especially given regression 6 showing how a wage-employed person only takes their contribution into account when reporting their reservation wage (as will be discussed further).

However for regression 8 where only the unemployed are included, it is surprising that 'numploy' is insignificant especially when regression 9 shows the significance of household income in influencing a person's reservation wage. For the unemployed one would expect the number of employed members in the household to be a significant predictor of the reservation wage by influencing

both the ability to survive and the possibility of finding a job. Looking at the data it is clear that there is not equal variability in the 'numploy' variable for the unemployed group, with more than half of the unemployed people coming from households with no other person in wage-employment. This lack of variability may be a reason for the insignificance of 'numploy' in regression 8. However, one must not discount the possibility that other household members in wage-employment do not signify any form of job security. With such variable employment histories in KMP, one can safely assume that employment duration is probably highly variable. With this in mind, people may put little faith in an employed person being able to support them. Perhaps the significance of household income in explaining reservation wage variation in regression 9 is due to grant and other income and not to wage income from employed people in the household. Further analysis (i.e. disaggregating the household income measure) is inconclusive but on average the contribution of wage income is about 75% of household income. As a result one can assume that wage income is a major contributor to the significance of household income.

The coefficient on **'educ'** is positive as expected and indicates that for each year of education completed a person's reservation wage rises by 3.8%.

The coefficient on **'gen'** is positive and indicates that on average males have reservation wages about 23% higher than females. This differential stays relatively constant through all the regressions, dropping slightly when the regressions are restricted to unemployed people. An explanation for this drop is that controlling for household income and duration of unemployment reduces the effect of gender on a person's reservation wage. The important question to ask though is why are males' reservation wages higher than those of females? One argument is that culture and society impact on the earning role that males are supposed to fill. The expectation to be the breadwinner causes males to have higher reservation wages on average than females. Alternatively, 52% of males and 34% of females are in wage-employment, whereas 38% of males and 53% of females are classified as broadly unemployed. Thus part of the gender reservation wage differential may be explained by the dominance of males in wage-employment and the dominance of females in unemployment. Regression 4 controls for labour market status and the gender coefficient is only slightly lower but as significant.

The coefficient on **'race'** is also relatively constant through different model specifications, with Coloureds having a reported reservation wage on average of 32% higher than Africans. This racial differential of the reservation wage may be a further legacy of Apartheid where Africans were paid the least for comparable jobs and as a result are still prepared to work for less.

Finally, the coefficient on **'married'** shows that on average a married person has a reservation wage of 8% higher than a non-married person, supporting the evidence from table 10. One may have expected the coefficient to be negative (as found by Prasad (2000)), in that married people have more than themselves to look after and desperately need a job, thus being prepared to work for less. However, a positive coefficient suggests the opposite - that having more people to support, a married person is expected to earn more and thus has a higher reservation wage.

In regression 2 the education variable is dropped and replaced by dummy variables indicating different education categories. The positive relationship between education and reservation wage is once again apparent, however, looking at categories one is able to explore how the magnitude of reservation wages change as people complete different phases of education. One noticeable feature is that having any form of post-school education (even a training course for the unemployed) causes a person's reservation wage to increase quite considerably. Those who have zero schooling to standard 5, but have some form of post-school education, have a 19% higher reservation wage on average than the base; whereas those who have completed standard 6 to 9 have a 12% higher reservation wage on average[25] than the base. Thus although the first group has not reached high school, but has done some form of post-school training, they have a higher reservation wage than the group which has completed a portion of high school. Looking at the matric variables this is also true. A person who has completed matric and has done further education has a reservation wage of 42% higher on average than the base, compared to 30% higher on average for those with matric and no further qualifications. Completion of university increases a person's reservation wage by about 69% on average above the base.

The interesting question to ask is why people's reservation wages increase substantially when they have even a little bit of post-school education[26]? There are two possible answers. Firstly, Keswell and Poswell (2002) show that the returns to education in South Africa are convex in nature. People may be aware of the better reward for someone with training beyond school and expect to be paid more than a person with comparable schooling but no extra training. Secondly, people may have expended income in gaining the extra training and in turn expect to be rewarded for making this outlay. As a result they have higher reservation wages than those with only schooling.

[25] It is noted that the coefficient for the 0-5+ variable is only significant at the 10% level whereas the coefficient for the 6-9 variable is significant at the 1% level.

[26] Post-school education could be a proxy for work experience. However, this finding still holds when controlling for work experience (not shown in table 12) through the use of the dummy variable 'work.'

Regression 3.1 and 3.2 introduces a person's background into the model through **'urban'** - a variable that measures a person's place of birth. As race and background are well correlated, with 96% of coloureds coming from an urban area and 70% of Africans from a rural area, race is dropped in order to see the effect of background on a person's reservation wage. Regression 3.2 supports the findings from table 10, with the coefficient on the urban variable showing that a person born in an urban area has an 18% higher reservation wage on average than someone born in a rural area. However this conclusion must be cautioned, as background is insignificant when controlling for race in regression 3.1.

Regression 4 introduces **labour market status** into the analysis. The first notable finding is that there are not statistically significant differences between the reservation wages of those who are self-employed, casual-employed and non-labour force participants and those in wage-employment. In analysing the self-employed group more closely[27], there is evidence that half of the group is what one could term survivalists and the other half entrepreneurs. Survivalists are those people who have turned to self-employment, not because they have a good idea or like running their own business, but because of the lack of formal sector jobs and the desperation to survive. On the other hand entrepreneurs are those who prefer running their own business to working in formal wage-employment. The mean reservation wage for the survivalist group is R965, whereas the mean reservation wage for the entrepreneurial group is R1368. Using a dummy variable that broke the self-employed group into survivalists and entrepreneurs showed no significant difference in the reservation wage of the survivalists from the entrepreneurs under any model specification.

In regression 4 the difference in reservation wage between labour market states starts becoming significant when looking at those who are unemployed. If we assume that as you move from searching unemployed to network-searching unemployed to marginalised unemployed, people are becoming more discouraged[28] about their prospects of finding a job, then there is a good relationship between expectations of finding a job and the reservation wage. As people become more discouraged their reservation wage declines from being

[27] Question G28 in the KMP survey asks those who have indicated that they are in self-employment, "If you were offered a job with the same wage as your present profit, would you take the job? (Assume that you would work the same number of hours for the wage as you do now for profit)." If people answered yes to this question they could be considered survivalists and if they answered no then they could be termed entrepreneurs.

[28] Searching unemployed and network-searching unemployed tend to use networks to find jobs, however the searching unemployed are also actively going out to look for jobs. On these grounds, it is assumed that the searching unemployed are more positive about their prospects of finding a job.

8.6% less for the searching unemployed[29] to 17.2% less for the marginalised unemployed.

As discussed in section 3, Dawes (1993) suggested that in some instances reservation wages might be an indication of subsistence requirements rather than self-perceived labour market value. Evidence of this is clear when comparing the wage-employed with the unemployed.

Including only those in wage-employment in the regression analysis, the coefficient on the education variable rises to 0.05 as shown in regression 5. Comparing this to regression 8, which includes only the unemployed, the education coefficient drops to 0.029. Furthermore, when breaking the education variable into categories and assessing the difference in coefficients between regression 7 (wage-employed) and regression 10 (unemployed) there are some interesting results. For all education categories the reservation wage of those in wage-employment is significantly higher than the base compared to the unemployed. For the unemployed only those with 6-9+, matric and matric+ show any significance of having a reservation wage higher than the base[30]. Thus, the level of education completed is far more significant in separating out the difference in reservation wages amongst the wage-employed.

In addition regression 6 shows that those in wage-employment take far greater cognisance of their own contribution to household income (their wage) rather than the level of household income without their contribution. On average a person who contributes 10% more too household income will have a reservation wage of 0.4% higher, whereas the coefficient on net household income is highly insignificant[31]. This clearly indicates that those in wage-employment have little concern for possible subsistence requirements but report a reservation wage that reflects their labour market value. On the other hand household income is significant to unemployed people when measuring variation in their reservation wages as shown in regression 9 where an increase in household income of 10% leads to a rise in an unemployed person's reservation wage of 0.4%.

In summary, the difference in the co-efficient on the education variable for the wage-employed and the unemployed indicates the difference in importance attached to education as an explanation of variation in the reservation wage of

[29] Significant at the 10% level and becomes significant at the 5% level when 'numploy' is dropped from the regression.
[30] The reason why the university coefficient is insignificant is probably as a result of the small sample of only 4 unemployed people who have a university degree.
[31] An outlier with a total household monthly income of R60500 was dropped but this made no difference to the results.

the two groups. The effect of education is more pronounced and significant for those in wage-employment. In addition, wage-employed individuals place more significance on their own contribution to household income (i.e. what they are presently earning) rather than on household income minus their contribution. Alternatively, the level of household income has a significant impact on the reservation wage of unemployed individuals. This difference between the groups is clear evidence that unemployed individuals take greater cognisance of subsistence requirements than wage-employed individuals when reporting their reservation wage. Wage-employed people are far more concerned with their labour-market value than the unemployed when reporting reservation wages.

Looking specifically at all unemployed[32] individuals in regression 11, an assessment is made of the effect of **unemployment duration** on a person's reservation wage. As discussed, a negative relationship between duration of unemployment and a person's reservation wage is expected in KMP. Regression 11[33] shows that this is true for unemployment duration of up to 2 years - thereafter the results are not as significant. On average, a person who is unemployed for 6 months to a year will have a reservation wage of 18% less than a person who has been unemployed for less than 6 months. The reservation wage of someone drops on average by 19% if they are unemployed for a year to two years as compared to someone who has been unemployed for less than 6 months. The results are not significant for those who have been unemployed for more than 2 years, possibly because these people have been out of the labour market for so long that they have lost touch with what they could realistically expect to earn given their characteristics. As a result, the reservation wage they are reporting is likely to be random and relatively meaningless.

Table 10 showed evidence that the median reservation wage of those who have **worked before** is higher than the median reservation wage of those who have never had a job. This is not supported in regression 12 where the 'work' coefficient is insignificant. However, in regression 14 where only the marginally unemployed are included, the coefficient on work is significant and shows that those who have worked report a reservation wage of 19% higher than

[32] I tried running separate regressions (not shown) for those defined as narrowly employed but the general results were the same as that for the unemployed as a group. The only difference (as discussed) is the significance of the 'work' variable for the marginalised unemployed.

[33] Duration of unemployment is in no way linked to labour market status of the individual (i.e. it was found that a consistent amount of searching-unemployed fall into each category of unemployment duration - this holds for the network-searching and the marginalised unemployed).

those who have never worked[34]. This significance can probably be ascribed to the fact that those who are marginalised unemployed have less contact with the labour market and can only truly judge their reservation wage according to what they had received when working previously. Those with previous work experience probably feel they can command a higher wage than those who have never worked.

Finally, **expectations on getting a job** were introduced to see if they supported the evidence found in regression 4 where those who are more discouraged have a lower reservation wage. Regression 13 shows that no significant difference in reservation wage is explained by the difference between those who are positive and those who are disheartened about their job prospects. Even when a dummy variable was used to try and distinguish the very positive from the very disheartened there was no significant difference in reservation wage.

Using White's test, all regression equations were tested to see whether heteroskedasticity existed. In addition, those regressions including measures of household income were tested for heteroskedasticity by plotting the household income variable against the residuals. No sign of heteroskedasticity was found.

In summary, although the R-squared value of the regressions is low, there are some interesting findings worth noting:

Firstly, **gender** and **race** consistently show significance in explaining variation in reservation wages. Males have higher reservation wages than Females and Coloureds have higher reservation wages than Africans.

The effect of **age** seems to vary, but in general older people have higher reservation wages. As age is not always significant – we cannot be exactly sure what the link is between age and reservation wages. It may proxy to an extent for life or work experience with older people thinking they can offer more to a job and as a result expecting to be remunerated better. In addition or alternatively, older people may want to be remunerated better in order to maximise on their final years in the labour force.

An important finding is that any form of **post-school education** leads to a sudden increase in a person's reservation wage even if they have had little or no schooling.

[34] One will note that the coefficient on the hhold income variable becomes slightly less significant at only the 10% level. This may be as a result of correlation between hhold income and the work dummy. Those who have worked before come from wealthier households than those who have never worked.

A person's reservation wage varies according to his/her **labour market classification**, with those in wage-employment leaning more towards a perceived labour market value reservation wage and those who are unemployed more towards a subsistence reservation wage. In addition, as people become more discouraged about their job prospects, their reservation wage declines.

Disaggregating **household income** to isolate the separate effects of wage, self-employment, casual-employment, grant and remittance income on the reservation wages of the unemployed showed no significant results.

Although **duration of unemployment** is not linked to labour market classification of the unemployed, there is evidence that as duration of unemployment lengthens (up to a point), so the reservation wage declines. Beyond this point, people have been unemployed for so long that the reservation wage they report is probably random and meaningless.

Finally, a person's reservation wage varies according to his/her **background** (urban/rural) only because a higher proportion of Africans are from rural areas and most of the Coloureds from urban areas.

Now that we know the unemployed have the lowest reservation wage – one may wonder why it is that they are unemployed? Are they voluntarily choosing to remain unemployed due to optimistic wage aspirations given their level of skills, or are they not being employed, as they are too expensive relative to the wage they could command in the workplace and relative to those who are in wage-employment? In order to answer these questions, section 6 will look at a respondent's reservation wage in relation to their predicted wage. As discussed in section 3, Kingdon and Knight (2001) use a similar technique in trying to assess whether the unemployed are voluntarily unemployed.

6. Reservation and Predicted Wages

The first step is to generate a predicted wage for all respondents. From this, the ratio of reservation wage divided by predicted wage (RW/PW) is calculated (for all respondents who reported a reservation wage) to assess which groups of people have unrealistic wage expectations. Unrealistic wage expectations are where the ratio of RW/PW is greater than one meaning a higher reservation wage than predicted wage. To better understand which groups of people are most likely to have unrealistic wage expectations, an ordinal variable is created. Respondents are then given the value 1 if their ratio RW/PW is greater than 1 or

the value 0 if their ratio RW/PW is less than or equal to 1. Using probit analysis an assessment is made to see which groups of people have the highest chance of having a RW/PW ratio of greater than 1. The methodology is discussed briefly in section 6.1 followed by a presentation of the results in section 6.2.

6.1 Methodology

The same monthly after-tax wage that was calculated in section 4.3.1 for those in wage-employment is used. Non-labour force participants are rejected from this analysis. All those in self/casual-employment, searching/network-searching and marginalised unemployment are given a monthly after-tax wage equal to 0. If OLS regression were used to fit an earnings function for current wage earners and the fitted parameters used to predict what the unemployed would earn if they were employed this would lead to sample selection bias. In this case the OLS estimator is both biased and inconsistent (Breen, 1996). To reduce this selectivity bias, the Heckman maximum likelihood method of estimation is used to generate the respondents' predicted wage[35]. The maximum likelihood method is preferred to the Heckman two-step approach as the estimates are more efficient than the two-stage estimator and are asymptotically unbiased given a large enough sample (Breen, 1996). In this case the sample (N=1935) is large enough.

Initially a probit model is run to explain which respondents would be employed given certain characteristics. The explanatory variables that will determine the probability of a person being selected into wage-employment are age, gender, education level, household status[36] and the number of other employed people in the household as shown in table 13. The use of networks is the main way people find jobs in KMP (Seekings, 2003). Number of other employed people in the household will increase the size of a person's network and improve their chances of finding employment. Surprisingly, race is not significant in influencing a person's probability of getting into wage-employment however, as shown in the outcome stage it is significant in determining variation in wages.

[35] The Heckman maximum likelihood method was used instead of a standard Tobit as different explanatory variables could be used at the selection and outcome stage. A weakness of the standard Tobit model is that the same set of variables is held to determine both the probability of truncation and the expected value of the realised dependant variable, conditional on it having been observed.

[36] Either head of the household or not.

Table 13. Heckman maximum likelihood equation

Dependant Variable: ln(wage)	
Selection Stage	
Intercept	-3.267*** [0.219]
Age	0.016*** [0.004]
Gender	0.301*** [0.079]
Education	0.042*** [0.012]
Head	0.948*** [0.093]
Numploy	1.525*** [0.066]
Censored	1194
Uncensored	741
LogL	-1583.539
Outcome Stage	
Intercept	6.136*** [0.222]
Age	0.007** [0.003]
Gender	0.382*** [0.062]
Race	0.229*** [0.058]
Education	0.069*** [0.01]
Lambda	-0.205** [0.104]
N	1935
Wald chi2(4)	90.74
Prob>chi2	0.000

Note: Numbers in [ ] are the standard error
* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Once the likelihood function is specified, the process seeks to find a set of parameters that maximises the likelihood function and explains the predicted wage of each respondent. The explanatory variables, **age** and **education**[37], chosen for the outcome stage, confirm with a Mincerean earnings function (see

[37] Age-squared and education-squared were also included but showed no significance.

Chamberlain & Van der Berg (2002) for a complete discussion). Age being used to proxy for work experience given the discussion earlier on the difficulties in measuring work experience in KMP. Finally, **gender** and **race** discrimination exist in the KMP labour market and are included as explanatory variables. A likelihood ratio test produced a chi-squared statistic of 3.94. Thus, at the 5% level one is able to reject the hypothesis that the selection and outcome stages are independent. This supports the use of the Heckman approach in generating the predicted wage. Predicted wages were generated for all respondents (using the model in table 13) including those presently in wage-employment. The predicted wages were adjusted by the inverse mills ratio (lambda), to account for the probability of the person getting the job. As shown in table 13 the variable lambda is included as one of the explanatory variables in the outcome stage and has a negative and significant coefficient.

6.2 Results

Table 14 shows the mean reservation wage, mean predicted wage, and the calculated RW/PW ratio for selected groups. Across all groups the ratio (RW/PW) is below one[38]. The fact that RW/PW is below one is evidence that people in KMP are realistic in their wage expectations given what they could expect to earn in employment.

To make a case for voluntary unemployment the ratio for those in unemployment would have to be one or above. The ratios for those in different labour market classifications show that this is far from the case. As people become more discouraged their ratio drops with those who are marginalised and network-searching having ratios of only 0.78 and 0.76 respectively. Such a low reservation wage relative to their predicted wage indicates their desperation to find employment. Even the unemployed who have never worked have a mean reservation wage well below their mean predicted wage.

Looking at **duration of unemployment**, the results support the desperation of the unemployed to find work. As duration of unemployment lengthens beyond 6 months, so the ratio falls from 0.83 to around 0.75. Those who have been unemployed for more than 8 years have a higher mean reservation wage as a group but also the lowest mean predicted wage.

[38] The only exception is the 0-5+ education category.

Table 14. Mean reservation wage (RW) and predicted wage (PW)

		RW	***PW***	***Ratio (RW/PW)***
Gender	Female	1046	1153	0.91
	Male	1267	1649	0.77
Race	African	1033	1245	0.83
	Coloured	1416	1701	0.83
Education	0-5	1023	1090	0.94
	0-5+	1354	1327	1.02
	6-9	1077	1388	0.78
	6-9+	1327	1615	0.82
	Matric	1209	1589	0.76
	Matric+	1533	1826	0.84
	University	1490	2013	0.74
Age	Young (<=30)	1078	1360	0.79
	Old (>=30)	1189	1371	0.87
Work Experience	Worked	1208	1431	0.84
	Never Worked	963	1196	0.81
Background	Rural	1013	1235	0.82
	Urban	1262	1507	0.84
Labour Market Status	Wage-emp	1319	1514	0.87
	Self-emp	1214	1241	0.98
	Casual-emp	1024	1301	0.79
	Searching-unemp	1066	1340	0.80
	Network Search-unemp	957	1267	0.76
	Marginalised-unemp	944	1204	0.78
Unemployed				
Duration of Unemployment	0-6	1149	1380	0.83
	6-12	957	1296	0.74
	12-24	934	1295	0.72
	24-48	991	1267	0.78
	48-96	926	1211	0.76
	>96	1096	1189	0.92
Work Experience	Worked before	1060	1335	0.79
	Never Worked	936	1211	0.77

As a result the ratio moves up to about 0.92. This supports the proposition that people lose their sense of market value after long spells of unemployment.

In general the ratio RW/PW falls as **education** increases. Firstly, this indicates that those with little education have reservation wages that are possibly too high, especially the 0-5+ category. Secondly, it indicates that the better educated are being extremely well remunerated (high predicted wages) - those with university

qualifications having the lowest ratio of all categories at 0.74. The mean predicted wage of the different education categories supports the 'convex returns to education in South Africa' hypothesis. Those with some form of post-school education have a far higher mean predicted wage than those with no post-school education but comparable schooling (i.e. 0-5 have a mean PW of R1090, whereas 0-5+ have a mean PW of R1327). However, as noted in section 5, these groups are possibly aware of this return and have higher reservation wages. The ratio of RW/PW supports this with each category of post-school education having a higher ratio than those with comparable schooling but no post-school education.

Of all the respondents, 28% had a reservation wage above their predicted wage. Probit analysis is used to understand what groups of people are most likely to be a part of this 28%. Table 15 shows the results for four different probit models. As discussed the dependant variable is ordinal, where 1 indicates that the respondent has a reservation wage higher than their predicted wage (i.e. group-1) and 0 indicates that the respondent has a reservation wage equal to or less than their predicted wage (i.e. group-0) [39].

Table 15. Probit analysis

Dependant Variable: (1 if RW/PW>1) & (0 if RW/PW<=1)				
	1	**2**	**3**	**4**
Intercept	0.029 [-0.058]	0.126** [0.047]	0.131* [0.068]	0.189** [0.07]
Age	-0.001 [0.001]	0.001 [0.001]	-0.001 [0.001]	-0.001 [0.002]
Gender	-0.118*** [0.023]	-0.114*** [0.022]	-0.128*** [0.022]	-0.167*** [0.026]
Race	0.001 [0.031]	-0.004 [0.031]	0.002 [0.031]	0.015 [0.042]
Education	-0.028*** [0.004]		-0.030*** [0.004]	-0.031*** [0.005]
Urban	0.046* [0.027]	0.037 [0.027]	0.050* [0.027]	0.048 [0.034]
Work	0.065** [0.027]	0.053** [0.026]	0.045 [0.029]	0.021 [0.032]

[39] The coefficients on 'age' and 'educ' indicate the change in the probability of being in group-1 for an infinitesimal change in the variable, extrapolated out (Stata Corporation, 2003). The rest of the variables are dummy variables and the coefficients indicate the change in the probability of being in group-1 given the dummy variable is opposite from the base. For example, in probit 1 the probability of being in group-1 for males is 11.8% less than for females.

Table 15. Probit analysis continued…

Dependant Variable: (1 if RW/PW>1) & (0 if RW/PW<=1)				
	1	**2**	**3**	**4**
0-5+		0.061 [0.078]		
6-9		-0.152*** [0.025]		
6-9+		-0.122** [0.035]		
Matric		-0.157*** [0.028]		
Matric+		-0.112** [0.035]		
University		-0.227** [0.049]		
Self-emp			0.059 [0.044]	
Casual-emp			-0.100* [0.05]	
Searching-unemp			-0.047 [0.03]	
Network Search-unemp			-0.110** [0.033]	
Marginalised-unemp			-0.106*** [0.03]	
Unemp btw 6-12 months				-0.124** [0.035]
Unemp btw 12-24 months				-0.122** [0.035]
Unemp btw 24-48 months				-0.114** [0.036]
Unemp btw 48-96 months				-0.129** [0.035]
Unemp greater than 8 years				-0.077 [0.044]
N	1714	1714	1714	936
LogL	-958.39	-963.75	-945.06	-461.60
LR chi2	94.90	84.18	121.55	90.47
Prob>chi2	0.000	0.000	0.000	0.000

Note: Probit 4 includes only those who are classified in one of the unemployment categories
Numbers in [ ] are the standard error
* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Looking at probit 1, the coefficients on **age** and **race** are completely insignificant. From this result one can comment that the reason for a greater percentage of younger and African people being unemployed is not as a result of them having too high a reservation wage relative to what they could expect to earn.

The **work** variable may show significance in probit 1, but as soon as labour market status is introduced in probit 3 it loses its significance. The 'work' variable shows no significance in probit 4[40] supporting the evidence from table 14, where those unemployed who have never worked have a similar RW/PW ratio to those who have worked before.

The **gender** variable is highly significant in all of the probit's indicating that males have about a 12% less chance of being in group-1[41]. Although one may argue that the higher proportion of women in unemployment in KMP is as a result of females having wage aspirations too high relative to what they could expect to earn in employment, table 14 shows that this is not the case. In table 14 the ratio of RW/PW for women is below 1. The gender bias in the KMP labour market, with males being paid more than females for similar jobs, is the reason why the chances of males being in group-1 is less than that of females.

The coefficient for **education** is highly significant, indicating that the chances of a person falling in group-1 declines as they become more educated. For low levels of education there may be a case that people have wage aspirations too high relative to what they could expect to earn. However, in general the explanation of the education coefficient is as a result of the very high remuneration of those with more education - remuneration well beyond their reservation wages. Probit 2 supports this, indicating that those with a university qualification have a 23% less chance of being in group-1 compared to those with an education level of only zero to standard 5.

The results in probits 3 and 4 support those from table 14. Voluntary unemployment does not exist in KMP. Those who are network searching or marginally unemployed have an 11% less chance of being in group-1 and those who have been unemployed for longer than 6 months have about a 12% less chance of being in group-1. These results are due to the extremely low reservation wages of these groups - reservation wages driven by their desperation to find work.

[40] Even when duration of unemployment is left out.
[41] For the unemployed, males have a 17% less chance of being in group-1 than females.

The results in this section indicate that unemployment is definitely not voluntary, as peoples' reservation wages are realistic given what they could expect to earn in the labour market. The reservation wages of those who are unemployed (less educated, predominantly females and African) fall below their predicted wages. This substantiates other findings about the South African labour market (Bhorat & Hodge (1999), Bhorat (2000a), Edwards (2001), Fallon & Lucas (1998) and McCord (2002)) that there is a crucial need to create jobs for those with fewer skills.

7. Conclusion

In a country where unemployment is low, and where there are a sufficient number of job vacancies, knowing the determinants of reservation wages may be useful for explaining whether relatively high reservation wages are reducing the supply of labour. However, in South Africa the problem in the labour market is rather inadequate demand for unskilled labour. In an area like KMP, where 46% of the economically active respondents are classified as searching, network-searching or marginalised unemployed, this amounts to a substantial portion of the population. With this in mind one may wonder what use reservation wage information can be.

When presented with hypothetical job offers, as discussed in section 4, certain respondents refused jobs. This is significant (given the high levels off unemployment) as it signals that some people are not willing to accept a job at any wage. In light of this, knowing the determinants of reservation wages in KMP increases the understanding of labour supply – in particular which groups of people would be prepared to work at different wage rates.

An important finding of this paper is that a person's reservation wage is influenced strongly by his/her labour market status. There is no evidence that labour market status is a function of reservation wages (i.e. the unemployed do not have excessive or unrealistic wage aspirations). It was argued that the employed report a reservation wage based more on their perceived labour market value and the unemployed report a reservation wage influenced strongly by subsistence requirements.

The paper showed that there is no evidence that the unemployed are out of work due to excessive wage aspirations, in relation to the wage they could command in employment. Section 6 shows that those who are deeper in unemployment (i.e. more discouraged) have the lowest RW/PW ratio and are least likely to

have a reservation wage above their predicted wage. In addition, as unemployment lengthens beyond 6 months, the RW/PW ratio falls accordingly. This indicates that people are responding rationally to the adverse labour market conditions. Unemployment is a result of the low availability of jobs for unskilled people rather than unrealistic wage expectations.

It is accepted that there is a shortage of skills in the economy and improving the skill level is advantageous, but generating a more skilled workforce takes time. One way to create jobs for those with low skills, especially in KMP, is through Public Works Programmes[42] (PWPs). At present, the primary aim of a PWP in South Africa is to alleviate poverty (see McCord, 2002). A key determinant of the targeting success of such a programme (i.e. employing those from the poorest households) is setting the PWP wage at the correct level. If the wage is set too high then the PWP may attract people who are better off and already have jobs, leaving the poorest people without work. As a result many of the people in deepest poverty may not have their lives improved from the PWP (see Ravallion, Datt & Chaudhuri (1991) for evidence of this). On the other hand if the wage is set too low this may be morally problematic. However, if policy makers have a better understanding of reservation wages amongst different individuals, they may be able to set a wage rate, where only workers from the poorest households are attracted, and thus the poverty alleviation impact will be at its best.

Table 16[43] shows a list of PWPs in the Western Cape between 1994 and 1998 (Adato et al, 1999). It is unclear whether the work offered by these PWPs is casual or permanent employment. As discussed in section 3 and 4, people have a higher reservation wage for casual work than for permanent work. Section 4 shows the mean reservation wage for casual work to be about double that of permanent work.[44] This should be taken into account when comparing the wage offered by PWPs and mean reservation wages. The numbers in brackets, in the bottom half of table 16, are the mean reservation wages multiplied by 2.

[42] McCord (2002) offers a good overview of PWP and their poverty alleviation response.
[43] The top half of the table shows the PWP and the monthly wage offered. The information for the wage offered is taken from Adato et al (1999). In working out the monthly wage offered, the percentage of costs going to labour per day were converted to a monthly wage offer by multiplying the daily rate by 21.75. These monthly offers were then converted to 2000 figures using the CPI for metropolitan areas (South African Reserve Bank, 2001). 1996 was assumed to be the year of the PWP. The bottom half shows the mean reservation wage of different labour market groups.
[44] Table 2 shows the mean reservation wage for casual work (question I5) to be R2319 and the mean reservation wage for permanent work (question K5) to be R1159.

Ideally these PWP wages should be compared with reservation wages of people in the catchment area of the relevant PWP. However, in the absence of adequate data, the KMP survey is the best available proxy for comparison.

Table 16. Wages in PWPs compared to mean reservation wages

Programme	***Monthly Wage Offered (rands)***
Transport	2306
Comm-Based PWP	1229
Cleaning and Greening	1111
WCEDF-NEForum	924
PILOT-Nat Dept PW	833
FWCP-Working for Water	817
Comm-Based PWP-CEP/I	600
Labour Market Group	Mean Reservation Wage (rands)
Wage-emp	1355 (2710)
Self-emp	1214 (2428)
Casual-emp	1024 (2048)
Searching-unemp	1066 (2132)
Network Search-unemp	957 (1914)
Marginalised-unemp	944 (1888)
Non-labour force participants	1272 (2544)

Note: Numbers in brackets are the reservation wages multiplied by 2.

If we assume the PWP is a permanent job, then the 'Transport' PWP has a wage-offer higher than the mean reservation wage of both the wage-employed and the self-employed. A wage-offer this high may well distort the targeting effectiveness of the PWP (in trying to alleviate poverty amongst the unemployed) as those in wage-employment and self-employment may be attracted to the 'Transport' PWP. Only the four PWPs offering the lowest wages will be effective in targeting those who are unemployed and in most need of a job. However, a wage of R600/month for the 'Comm-Based PWP-CEP/1' programme is well below the reservation wage of even the marginalised unemployed.

If we assume the PWP is a casual job, the story is quite different. No PWP would attract people in wage-employment or self-employment as the wages offered are below the reservation wages of the wage-employed and self-employed for casual jobs (i.e. numbers in brackets). The 'Transport' PWP offering an adjusted monthly wage of R2306 would possibly attract people in casual-employment. All other PWPs would attract only unemployed people.

However, the wages offered in all PWPs, besides the 'Transport' PWP, are well below the reservation wage of even the marginalised unemployed (R1888) for casual work.

As shown, in judging the targeting success of a PWP it is important to know whether permanent or casual-employment is being offered, as people have different reservation wages for permanent and casual-employment. Reservation wage information for different labour market groups in KMP could help policy makers better structure the wage offer of future PWPs for the KMP area. For example, in targeting those who are marginalised unemployed and come from the poorest households, a monthly wage of about R950 should be offered, assuming the PWP is offering a permanent position.

The results in this paper show that those willing to accept the lowest wages are those with the least education and labour market experience and who come from households with no other wage earners. Hence, it is not necessarily in the interests of business to try and target those workers with the lowest reservation wages, in order to reduce labour costs. Having minimal experience of the labour market these people may have little idea of what it means to be at work on time or how the workday is structured and as a result will almost certainly be less productive.

From a policy perspective the results of this paper have relevance in three areas: education, measures of poverty and lowering wages to reduce unemployment:

Section 6 shows evidence of the premium attached to a person's predicted wage as a result of post-school training. This premium is as a result of the present shortage of skilled labour. However, as the skill base is extended and reservation wages rise, the ratio (RW/PW) may rise above 1 (section 5 shows how post-school education causes a sudden increase in reservation wages) and labour costs will increase. With this in mind, technical training or courses for the unemployed must be carefully prepared so that they equip the participants with sufficient knowledge/expertise/productivity changes to match the increased reservation wage or labour cost. Participants on such courses should also be given information about possible jobs and wages – in order to prevent those developing unrealistically high reservation wages.

Perhaps greater focus should fall on the expansion of primary and secondary schooling, instead of tertiary level education, as reservation wages do not increase drastically for each standard completed. Primary and secondary schooling broadens the base of people with sufficient education to benefit from on the job training. Thus employers will receive workers with lower reservation

wages but with greater potential to benefit from on the job training. Employers will be able to equip workers with job specific skills that can be directly rewarded maintaining a cost/productivity balance.

The results in section 5 show a tendency for unemployed people to take subsistence requirements into account when reporting their reservation wage. The mean reservation wage for unemployed people in KMP is about R1000 per month, which may in fact be a further and more accurate measure of a subjective poverty line. In future surveys, greater effort must be made at the level of survey design to distinguish adequately between those who report reservation wages as subsistence reservation wages (i.e. take household income into account) and those who just report their perceived labour market value. This paper has highlighted the fact that wage earners probably do not omit their contribution to household income when reporting their reservation wage.

The problem of adverse selection exists in labour contracts where the employer cannot completely distinguish between the productivity of a group of prospective employees. One way to ensure that more productive employees are attracted hired and retained is to offer higher wages or what are termed efficiency wages. A recent article by Fedderke (2003) suggests that dropping wages in South Africa will reduce unemployment. Evidence from this paper both supports and cautions Fedderke's reasoning in light of adverse selection. In supporting Fedderke's argument, section 6 shows how low the RW/PW ratio is for different groups of workers in KMP, but especially those with better qualifications. There is thus room for employers to reduce wages and still attract, hire and retain productive workers. In turn, lowering wages will possibly allow employers to hire greater numbers of workers - helping ease unemployment as argued by Fedderke (2003). In cautioning Fedderke's (2003) argument, it must be noted that different categories of labour have different reservation wages. If wages are dropped substantially then only those who are poorly educated and marginalised unemployed (i.e. less productive) will be attracted to work and those who have better education and experience will withdraw from the labour force. In this instance the unemployment rate may fall as less productive workers take jobs and more productive workers withdraw from the labour force. However, this fall in unemployment may not be permanent. On one hand, the average productivity of labour will have declined, leading to a drop in output, lower growth and less job opportunities. On the other hand, as more productive workers stay out of the labour force (duration without work increases) so will their reservation wage decline, as their human capital depreciates. At some point their reservation wage will fall low enough and they will re-enter the labour market as less productive workers. On re-entering the labour market the unemployment rate will increase once more.

Given the limited knowledge of reservation wages, qualitative research is necessary to better understand what people think when asked about their reservation wage. A complete understanding of how reservation wages change over time, how people re-evaluate themselves and the rate of this re-evaluation, will only be possible when panel data exists. The present minimum wage legislation and changes to the legislation will impact on a person's reservation wage especially if it falls below the minimum wage. When panel data exists this will be an important area for future work.

8. References

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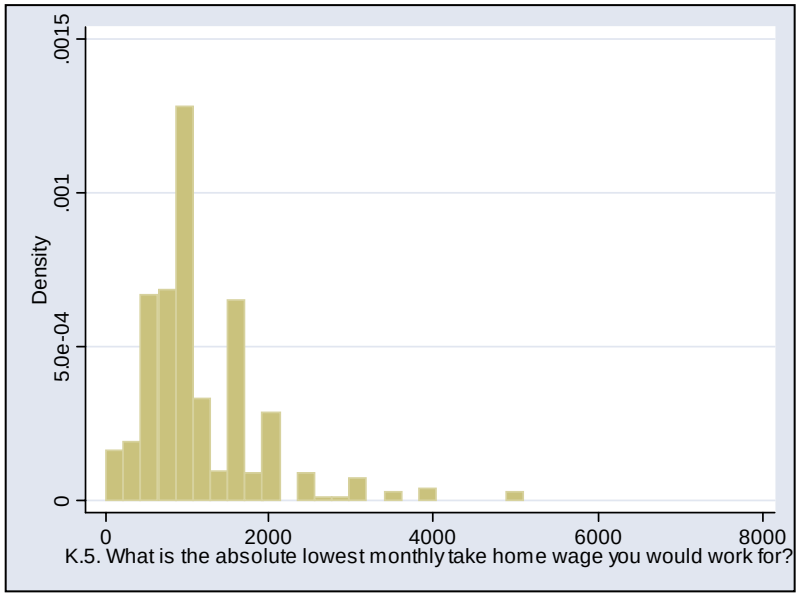
Appendix A: Histogram of Reservation Wages and Treatment of Outliers



Four respondents reported a reservation wage of above R6500 per month. These responses are more than two standard deviations above the mean reservation wage of R1159 per month and were investigated more carefully to consider whether they were outliers and in need of adjustment. Of these four responses, two were for respondents who are classified as being in wage-employment, reporting a monthly wage of R600 and R5500, well below their reported reservation wages of R8000 and R9500 respectively. Both these observations were coded as missing as they are well above what the respondent is presently earning and are taken to be recording errors.

A further respondent, classified as being marginalised unemployed, reported a reservation wage of R8000, well above the wage of R736 earned by this person in their first and only job in 1996. Accordingly, this observation was coded as missing as it is also taken to be a recording error. The fourth response of R7000 is the reported reservation wage of a school-going 21 year old. It was decided not to code this observation as missing as R7000 may be the person's reservation wage to drop out of school and forgo completing matric. Setting the three observations to missing reduces the mean and standard deviation only slightly as shown in the table below.

Mean and standard deviation before and after adjusting for three extreme outliers[45]

	Obs.	***Mean***	***Standard Deviation***
Before	2267	1159	798
After	2264	1149	752

[45] Total sample before dropping those too old etc. from the regression analysis.

Appendix B: Explanatory Variables Not Used

The following variables were not used in the analysis in this paper but could be used in a national sample.

Rural/Urban area of residence may be an important factor in explaining variation in reservation wages if respondents come from both rural and urban areas. In this study all people lived in the KMP area and were classified as urban dwellers.

In an area of high unemployment, one would expect people to have lower reservation wages than in an area of low unemployment, as the probability of finding work is lower. The local unemployment rate subtracted from one would be a good proxy for the **probability of finding a job** in a certain area. It would be useful to test the relationship between reservation wages and the local unemployment rate for areas that have differences in unemployment, but within KMP people face the same unemployment rate.

When looking at what determines an individual's reservation wage, the **type of job and industry** should be taken into account. There are two reasons why this is not taken into account in this study. The first is that no industry specific reservation wage information was asked of the respondents. The KMP survey was undertaken in an area of very high unemployment (according to the labour market classifications adopted, 46% of the economically active[46] respondents were classified as either searching, network-searching or marginalised unemployed) with the purpose of probing the minimum wage that a respondent would accept for 'any job'. The expectation is that respondents are so desperate for work, given the high levels of unemployment that they will accept whatever job is offered. The second reason is that this paper seeks to understand what impacts on a person's reservation wage in an area of high unemployment before any specific job offers are evaluated.

Factors like **distance to work** and **working conditions** would be important in determining a person's reservation wage if he/she were presently working[47] or had received a specific job offer. As we are interested in reservation wages prior to any offers having been received these factors are not considered.

[46] Here, economically active does not include those classified as non-labour force participants.

[47] If working conditions are improved or the job is brought closer to home then the person may be prepared to work for less.

Another factor considered are the **costs of job search**. According to the value functions described in section 2,if the costs of search go up then the value of being searching unemployed will fall. If this value falls then the value of employment (a wage offer) need not be as high in order to induce a person to take the job. Thus one would expect a negative relationship between costs of search and a person's reservation wage. If more specific questions had been asked in the KMP survey this would be an interesting relationship to test. However, only a question relating to the costs of travel was asked and very little variation in response was recorded (the mean being R25 per month with a standard deviation of R113). In addition, it is believed that non-work income available to the respondent is more important as an explanatory variable than the cost of search in explaining variation in reservation wages – especially if we assume that the costs of job search are the same for people in KMP. The expense of job search is then relative to the amount of non-wage income a person can rely on. If their non-wage income is high, then their costs of search will be relatively lower, than people with less non-wage income. Thus, as non-wage income is increased, costs of search will fall and the reservation wage will rise. Here, the reservation wage is positively related to non-wage income. This relationship is tested using data from the KMP survey.

A further factor that was considered in determining an individual's reservation wage is **union membership**. Mention of unions in the KMP questionnaire is only in question E19, which measures the deductions from a pay slip of a person in wage-employment. The mean reservation wage of those who indicated that they had union fees deducted from their payslip is R1521, which is substantially different from the mean of the sample as a whole of R1166 (table 10). However, this difference is better explained by the fact that all of these respondents who reported fees deducted from their payslip have answered section E, dealing with wage-employment, and are classified as being in wage-employment. The regression analysis will show that those in wage-employment have a significantly higher reservation wage as a group.

Non-wage income also includes **household savings** that a household member is able to draw on. In trying to assess the effect of **household savings** on a respondent's reservation wage, it is only possible to see if there is a difference between those people who are currently showing some form of savings activity (stokvel, burial society, bank or other) from those who are not. In the KMP survey, respondents were asked to indicate the amount of money they give to a stokvel or burial society and the amount of money saved in the bank or other savings every month. The questions asked shed no light on the accumulated savings that a person is able to draw on. It would be incorrect to assume that just

because a person is saving a high amount per month now, that they have a good savings base on which to draw. The best we can do is to assess if there is any difference between the reservation wages of those who show savings activity and those who do not. Of the KMP respondents, just under half (47%) indicated some form of monthly saving activity. As can be seen in table 10, there is a difference in mean reservation wages between the two groups. Those who save have a higher mean reservation wage (R1223) than those who do not currently save (R1076). This result was tested in various regression models and found to be insignificant regardless of the specification of the model. Often the signs were different from what was expected.

Household Size and **number of children less than 16 in the household** were considered in determining an individual's reservation wage but no clear relationship was found, from both an analysis of the means (as per table 10) and including these variables in the regression analysis.

Appendix C: Summary Statistics of Categorical Explanatory Variables (%breakdown)

	Breakdown	*%*
Gender	Male	43
	Female	57
Race	African	72
	Coloured	28
Marital Status	Married	41
	Unmarried	59
Place of Birth	Rural	51
	Urban	49
Labour Market Status	Wage-emp	39
	Self-emp	8
	Casual-emp	3
	Search-unemp	20
	Network Search-unemp	8
	Marginalised-unemp	16
	Non-labour force participants	6
Work Experience	Worked before	71
	Never Worked	29
Expectations on getting a Job	Very Positive	40
	Positive	25
	Neither Pos nor Dis	11
	Disheartened	10
	Very Disheartened	14

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