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ABSTRACT

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A striking feature of labour supply in South Africa is the phenomenal expansion in the labour force participation of women from 38 percent in 1995 to 46 percent in 2004. Even so, their participation has been persistently lower than that of men whose participation rates were 58 percent and 62 percent respectively. Furthermore, analyses of women's participation rates by race show that the rates for historically disadvantaged groups such as Africans are still lower than those of Whites. For instance, in 1995 African women had a participation rate of 34 percent and it increased to 43 percent in 2004 while the corresponding rates for White women were 52 percent and 59 percent. In light of these disparities, this paper uses survey data to examine the determinants of the low level and also of the changes in African women's labour force participation, during the first decade of democracy (1995-2004). By focussing on a ten year period, this research substantially differs from earlier studies which were preoccupied with short periods such as one year. A longer period is analytically advantageous because it allows the capturing of the changes and the robustness of the key determinants of female labour force participation in South Africa. Such information is important not only for reviewing existing policies but also for the formulation of new ones to increase female labour force participation which is a prerequisite for economic development. The study utilises a decomposition technique devised by Even and Macpherson (1990). The findings exhibit that female participation responded positively to education which has been the prime factor. Non-labour income, marriage, fertility and geographical variations in economic development persistently stifled participation. It is argued that the perceived change in participation is due to emigration and changes in human capital and financial endowments. Another important discovery is that -9 percent of the observed shifts in the participation rates from 1995-2004 is due to disparities in characteristics while differences in coefficients account for 109 percent of the shifts.

JEL Classification:　　J21, J22, J16

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1. Introduction

For so long, black South African women have suffered from cultural and legalised discrimination. This has hampered their full integration in the labour market. Since the demise of Apartheid in 1994, the new government implemented fundamental constitutional changes to ensure fair access and equal treatment of women in the labour market (van der Westhuizen *et al*, 2007). With these enabling policies, significant strides were made in assimilating women in the post-Apartheid labour market (Casale and Posel, 2002; Casale, 2003 and van der Westhuizen *et al*, 2007). Consequently, comprehending both the extent and the determinants of female labour force participation has been an important issue for both policy makers and intellectuals e.g. Winter (1999), Mlatsheni and Leibbrandt (2001), Bhorat and Leibbrandt (2001), McCord and Bhorat (2003), Serumaga-Zake and Naude (2003), Serumaga-Zake and Kotze (2004), van der Westhuizen *et al* (2007) and Casale (2003).

Most of these studies have nonetheless, exclusively focused on very limited time periods such as one year. Consequently, they are not wide ranging enough to evaluate and pin-point the correlates of the changes in African women's labour force participation. As well, some of the studies employed a purely descriptive approach which does not show the relative impacts of the determinants on female labour force participation. In view of the limitations of these studies, we try to resolve some of the above-mentioned issues in this paper. In particular, we aim to contribute to the debate by investigating the determinants of, and changes in African women's labour force participation using individual data provided by Statistics South Africa's October Household Surveys (for 1995 and 1999) and the Labour Force Surveys (September 2004). It is hoped that we will be able to pin-point both the correlates of, and those of the shifts in female labour force participation between 1995 and 2004 within a framework of decomposition analysis.

While the decomposition analysis is somewhat descriptive, it highlights a number of important points. Firstly, we show that the significant correlates of the participation decision throughout the period under study were education, non-labour income, marital status, fertility and geographical

location. This suggests that the prospects of female labour force participation were related to personal, financial, geographical and household related characteristics. Secondly, we show that the increase in female labour force participation between 1995 and 2004 was mainly due to disparities in coefficients rather than to a change in objective characteristics. This suggests that the shifts in African women's labour force participation during the period in question were mainly explained by responses to policies rather than to changes in labour market characteristics.

The plan of this discussion is as follows. In the next section we will give an overview of the female labour force participation debate. In section three we will present the theoretical framework adopted by the study. In section four we will introduce our empirical model, while in section five we expound on the methodology and data analyses. Section six carries the results of the study and the conclusions are given in section seven.

2. The Female Labour Force Participation Debate: an Overview

Female labour force participation signals the extent of women's involvement in economic activities. Not surprisingly, a huge amount of scholarly effort has been invested in understanding the subject for example, ever since the pioneering works of Mincer (1962), female labour force participation has been discussed in a number of studies in both developed and developing countries (Killingsworth, 1983; Smith, 1980; Bowen and Finegan, 1969; Boserup, 1970). Significantly, for developing countries Boserup (1970) documented women's participation in the labour market and their contribution to economic development. According to these early works, the bulk of women's work took place in non-market activities either in the home or in the informal sector[1]. Recently however, there has been a pronounced increase in the contribution of women to modern sector employment activities (Amsden, 1980:11; Moghadam, 1998:15). This is opined to have improved because of advances made in females' educational attainment and the expansion of the market economy (Maglad, 1998; Moghadam, 1998:15).

This increasing attention given to women's labour force participation stems from the interest in assessing the consequences of a wide array of public policies. Such policies include taxes, welfare programs and the alteration of institutional features of the labour market (Blundell and MaCurdy,

1999). Besides, an increased participation of women in economic activities either as employees or entrepreneurs is a desirable goal on equity and efficiency considerations (Tansel, 2001). The equity goal implies that increased labour force participation of women improves their relative economic position. In accordance with the above view, labour force participation decisions have important implications for the distribution of income. This is critical because those who do not participate in the labour market lack direct access to wage income (Dixon, 1996). Such lack of direct income is problematic, especially in non-Beckerian[2] household models since those who have direct access to economic resources have more bargaining power as compared to those who do not contribute directly to the household's total income (Basu, 2001). Consequently, financial resources, consumption vectors and well-being will be distributed in the former's favour (Blundell *et al*, 2005). Hence, if women do not contribute substantially to household income, the distribution of resources is likely to be skewed against them, which reduces their welfare which may spill over to their children[3].

Furthermore, a crucial stylised fact on labour supply from developed countries is that labour force participation has gradually but perceptibly declined for men as a whole whereas female labour force participation has risen substantially over time (Joseph, 1983:6; Berndt, 1991:594). As such, there has been a change in the composition of the labour force - a *feminisation*[4] of the workforce. It has been argued that this trend observed in men's participation rates is an outcome of the dominance of the negative income effect that resulted from improvements in men's wages and earnings over time. On the other hand, a positive and significant substitution effect of females' wages that dominates a small and initially negligible income effect is taken to explain the observed increase in labour force participation rates of females (Mincer, 1962; Maglad, 1998). Similarly, in less developed countries an increasing trend in women's participation rates has also been observed (Standing, 1999; ILO, 2005). For example, in cases like South Africa and Brazil this is attributed to the added-worker effect[5] (Casale and Posel, 2002; Fernandes and De Felicio, 2005). Nonetheless, international evidence shows that overall participation rates for women are still low as compared to those of men despite the general feminisation of labour markets (ILO, 2005; Fallon and Verry, 1988). This makes

studies which seek to understand the correlates of female labour force participation even more relevant today.

3. Theoretical Framework

The framework of analysis follows a standard participation model developed from the conventional neoclassical labour supply theory. The specification of the model follows ideas from Sprague (1994) and Blundell and MaCurdy (1999). It is notable that this simple static neo-classical model of labour supply originated from Hicks (1946).

In accordance with Hicks formulation, labour supply is derived from a general model of consumer demand in which a fixed endowment of a commodity is divided into one part for sale on the labour market and another part for direct consumption. Incidentally, the endowment consists of a fixed block of time (T) that in the simplest of cases is to be divided between hours worked (H) and leisure (L). Thus; T = H+L.

Besides, the model also presupposes that an individual possesses a well behaved (real valued, continuous, quasi-concave) utility function (U) that is defined over his consumption of commodities, X (we assume throughout the analysis that the relative price of X is constant, hence X represents a Hicksian composite commodity) and his hours of work, H. This can be expressed formally as,

$$U = U(X, H, A, \varepsilon) \tag{1}$$

where: A = individual characteristics (e.g. race, age and marital status)

ε = an individual's tastes

The individual is also assumed to face a budget constraint (2), whereby the amount of money spent on the market must be equal to the sum of that received from labour and non-labour incomes (sum of asset and unearned income). The budget constraint is in turn presupposed to be linear and homogenous of degree zero in prices, wages and income;

$$PX = WH + Y \tag{2}$$

where: W = wage rate (assumed fixed)

Y = non labour income

P = fixed per unit price of the bundle of commodities.

Consumption and labour supply decisions can be thought of as complementary behaviours whereby the individual selects X > 0 and H $\geq$ 0 that maximises utility (1) subject to the budget constraint (2). The resulting first order conditions take the familiar form

$$U_x = (X, H, A, \varepsilon) = \lambda \text{ and } U_H = (X, H, A, \varepsilon) \leq \lambda W \qquad (3)$$

where λ is the marginal utility of income. If the inequality in equation (3) holds strictly then the individual is not working (H=0) and L=T. The wage W_r such that $U_H(Y, T, A, \varepsilon) = \lambda W_r$ is the reservation wage below which an individual will not work (that is the value of time in non-market activities). Thus, the decision rule is that the individual participates if and only if, the expected market wage offer (W_i) is greater than the reservation wage;

$$W_i > W_r \qquad (4)$$

The first wage in (4) pertains to the market demand function while the second refers to the individual's labour supply function (Killingsworth and Heckman, 1986).

According to Sprague (1994) the reservation wage (W_r) depends on non-labour income and personal characteristics, such as race, age, marital status, ages and number of children and tastes. Alternatively, the expected market wage offer (W_i) depends on personal and human capital characteristics which include schooling, age, experience and unobserved parameters reflecting innate ability. This formulation abstracts from institutional factors such as union membership which also influence wages since the individuals may not know whether they will join the union before they make their participation decision. Notionally, if we combine the aforesaid explanatory variables we obtain a labour force participation model whereby, an individual participates if any of these variables impact on the market demand and individuals' labour supply functions according to rule (4).

Following Sprague's (1994) derivation which is not rigorously done here, the theory allows us to specify the following model. Labour force participation decision = f (expected wage, education, non-labour income, age, age-squared, race, marital status, ages and number of children, region of residence and unobserved parameters reflecting innate ability and personal tastes).

The theoretical predictions are: i) Expected wage - a positive relationship is postulated between the decision to participate and the expected wage (Mincer, 1962b; Cain, 1966; Joll *et al* ,1993). ii) Education - can either have a positive or a negative effect on labour force participation (Mincer, 1974; Lam and Duryea, 1999). iii) Non-labour income - A negative relationship is hypothesised between non-labour income and labour force participation (Killingsworth and Heckman, 1986). iv) Fertility (quantity and ages of children) - can either have a positive or a negative effect on women's labour force participation (Joll *et al*, 1993; Glick and Sahn, 1997)[6]. v) Age - an inverted U profile is postulated between age and labour force participation (Joll *et al,* 1993). vi) Marital Status- either has a positive or a negative effect on labour force participation (Becker, 1973; Grossbard-Shechtman, 1984; Angrist, 2001; Bignebat, 2003).

4. Empirical Model Specification

The interplay between our objectives, theory and data allows us to specify the following labour force participation model.

$$\Pr(lfp = 1 \mid \mathbf{X}) = F(\beta + \beta_0 Y + \beta_1 NLY + \beta_{2j} \sum_{j=1}^{6} ED_j + \beta_3 AGE + \beta_4 AGE2 + \beta_{5j} \sum_{j=1}^{5} MSTAT_j$$

$$+ \beta_{6j} \sum_{j=1}^{9} PROV_j + B_7 URB + \beta_{8j} \sum_{j=1}^{2} PRES_j)$$

where

i = individual, **j** = number of dummies

X = is a vector of explanatory variables

lfp = is a dichotomous dependent variable =1 if the respondent participates in the labour force and 0 otherwise[7].

The explanatory variables are as follows;

Y = respondent's expected wage.

NLY = dummy variable =1 if a household or household member receives non-labour income which includes; disability grants, childcare grants, pension and remittances, or 0 otherwise[8].

ED = dummy variables for educational categories; Elementary, Primary, Secondary, College, Diploma and Degree[9].

AGE = Age in completed years[10]

AGE2 = Age-squared.

MSTAT = dummy variables for Marital Status =1 if one falls within the following categories; Married, Co-habiting, Widow, Divorcee and Single, and 0 otherwise.

PROV = dummy variables for provinces =1 if one resides in a given province and 0 otherwise[11].

PRES = dummy variables representing the presence of young children in the household (aged 0-5 years=1 and 0-14 years=1) and 0 otherwise[12].

URB= dummy variable =1 if one resides in an urban area and 0 otherwise[13].

5. Estimation Issues and Techniques

Based on the theory and model specification, this section outlines the estimation issues and methodologies which we dealt with. The procedures involved estimating labour force participation functions using survey logit techniques[14] in STATA (9.2). Although this approach does not accommodate the possible endogeneity of some covariates in our model (the presence of children, non-labour income and marital status), it was chosen due to data constraints which impaired the execution of the expected instrumentation and estimation of a system of simultaneous equations (Nakamura and Nakamura, 1992; Assaad and Zouari, 2003; Greene, 2003). Furthermore, a decomposition technique adopted from Even and Macpherson (1990 1993), EM hereafter, was used to decompose the gaps in predicted labour force participation rates for African women across time periods.

Also, the inclusion of the wage variable in the model potentially leads to biased results owing to incidental truncation; the wage offer is missing for non-working women as a result of the labour force participation decision (Wooldridge, 2002). To counter this problem, the market wage function estimated for the sample of workers can be used as the basis for imputing wage rates to those with and without observed wages (Maglad, 1998). While the wage model is often explained using human capital characteristics (Mincer, 1974; Mincer and Polachek, 1974, these variables also influence the labour force participation decision. However, our data set does not contain other independent variables (abstaining from institutional variables) which explain wages only without influencing the participation decision. Therefore, including predicted wages modelled on the basis of the present variables would bring in the problem of multicollinearity in our participation model. Consequently, the expected wage was dropped from the analysis. Thereafter we present the EM technique.

Even and Macpherson's (1990 1993) Decomposition Technique

The EM procedure is similar to the well-known Blinder (1973) and Oaxaca (1973) decomposition procedure for wages disparities. The similarity is that they both decompose the respective gaps (in wages/participation rates) into two components which are: differences in recognisable characteristics and disparities in response/coefficients to these characteristics. Nonetheless, the two approaches have been utilized in different contexts. Typically, the Blinder (1973) and Oaxaca (1973) decomposition technique applies to linear models, whilst the E.M procedure is associated with non linear (binary probability) models which are the focus of this study. E.M's technique does not encompass the analysis of specific factor contributions to the unexplained portion of the gap. This omission, however, is covered by an extension made by Yun (2000). Although, EM's procedure was initially applied to probit models, this study applies it to logit models because of the similarity between the models. The estimation procedure is explained as follows

We estimate a logit model of labour force participation y_{ij}

$$(8)$$

where i represents the ith woman; j; $j = (b, s)$ represents the year, b stands for 2004 and s represents 1995.

The estimated probability that a female i in year j participates in the labour market is

$$\hat{p}_{ij} = \Lambda\left(x_{ij}\, \hat{\beta}_j \right); \quad (j=b,\ s) \tag{9}$$

where $\hat{\beta}_j$ is the logit estimate of the parameter vector β_j and Λ is the standard logistic cumulative distribution function.

The average estimated probability of female labour force participation for year j is given by

$$\bar{\hat{p}} = \frac{1}{N_j} \cdot \sum_{i=1}^{N_j} \Lambda\left(x_{ij}\, \hat{\beta}_j \right), \quad (j=b,\ s) \tag{10}$$

where N_j is the number of women in the year j sample.

The average estimated probability if there are no differences in response to characteristics across

the 1995 and 2004 samples is $\bar{\hat{p}}_0 = \dfrac{1}{N_s} \cdot \sum_{i=1}^{N_s} \Lambda\left(x_{is}\, \hat{\beta}_b \right)$ (11)

The b - s (2004 – 1995) gap in women's labour force participation can be decomposed into two terms

that is $\bar{\hat{p}}_b - \bar{\hat{p}}_s = \left(\bar{\hat{p}}_b - \bar{\hat{p}}_0 \right) + \left(\bar{\hat{p}}_0 - \bar{\hat{p}}_s \right)$ (12)

where $\left(\bar{\hat{p}}_b - \bar{\hat{p}}_0 \right)$ represents the portion of the gap associated with differences in characteristics, which is the explained component of the gap and $\left(\bar{\hat{p}}_0 - \bar{\hat{p}}_s \right)$ is associated with differences in response/returns to these characteristics on the probability of labour force participation (the unexplained component of the gap)[15].

The contributions that each explanatory variable k makes to the explained (EXP) and unexplained (UNEXP) portions of the total gap is given by

$$EXP_k = [\bar{\hat{p}}_b - \bar{\hat{p}}_0]\left[\frac{(\bar{x}_b^k - \bar{x}_s^k)\hat{\beta}_b^k}{(\bar{x}_b - \bar{x}_s)\hat{\beta}_b}\right] \text{ and } UNEXP_k = [\bar{\hat{p}}_0 - \bar{\hat{p}}_s]\left[\frac{(\hat{\beta}_b^k - \hat{\beta}_s^k)\bar{x}_s^k}{(\hat{\beta}_b - \hat{\beta}_s)\bar{x}_s}\right] \text{ respectively[16].}$$

Since the detailed decomposition of the coefficients is destined to suffer from an identification problem (the effect attributable to dummy variables is not invariant to the choice of the reference categories (Oaxaca and Ransom, 1999)), the study used Yun's (2005) remedy for this problem. According to Yun (2005), the identification problem in the decomposition equation is a disguised identification problem of constant and dummy variables in the regression equation. Hence, the problem is solved by using normalised regressions which enable identifying the constant and estimates of each dummy variable. See Yun (2005) for the derivation of the normalised coefficients.

5.2. Data

The data utilised for this study were obtained from the nationally representative 1995, 1999 October Household Surveys (OHS) and the September 2004 Labour Force Survey (LFS) conducted by Statistics South Africa. The OHS are annual surveys carried out from 1994-1999[17]. On the other hand, the LFS is a bi-annual rotating panel household survey introduced in 2000 to replace the OHS[18]. The total sample of labour force participants comprises of individuals aged between 15 and 65 and either reported to be employed or were categorised as unemployed using the broad definition[19]. Furthermore, the data have sample weights that enable scaling up of the sample to reflect the full population and correct for over and under representation of certain households. Accordingly, adjustments for over and under sampling were used in this study. Also, in order to avoid the well documented problem of incomparability across the surveys, some variables of interest like employment, unemployment and education for the three years had to be recreated using the relevant questions from the questionnaires. This ensured as far as possible that the observed changes in the measures represented real changes in the economy rather than definitional changes (Casale, 2003) (see data appendix for details on the derivations)[20].

5.3. Data Analysis

The empirical analyses are entirely based on African females aged between 15 and 65 years. It is emphasised that the study uses the strict definition of unemployment and therefore, the strict definition of the labour force[21]. However, we will utilise the broad definition of unemployment (differs from the latter by including the non-searching unemployed) and hence, of the labour force to check the robustness of our results. The working age populations, strict and broad labour forces, and their respective participation rates are presented in Table 1. Subsequent to the sample delineation, we provide a summary of both the dependent and independent variables used by year. Table 2 provides the descriptive statistics. In particular, linearised[22] standard errors are reported for proportions.

An inspection of the descriptive statistics shows that at most the distribution of participants by provinces and education levels did not shift much from 1995-2004, except for the marked increase in the recipients of secondary education. To add on, the proportion of households which received non-labour income increased between 1995 and 2004. Consequently, we anticipate the presence of a strong income effect. The data also reveals that the proportion of households with children aged below 15 years did not shift between 1995 and 2004. This could be a signal of the variable's robust and persistent influence on participation (supposedly negative). The figures also illustrate that the ratio of urban households increased between 1995 and 1999. This pattern is expected due to increased urbanisation.

Also, in line with the stylised facts, the ratio of married women persistently and perceptibly declined throughout the period. It is notable that this variable dropped by an outstandingly large magnitude from 1995-2004 as compared to the shifts in other marital states (increase in single and cohabiting and widowed women). In conclusion, this section consists of elementary ideas which are to be rigorously analysed in the following section.

6. Estimation Results

The results are discussed in two segments, the first one concentrates on the logit models. It is reiterated that the analysis mainly focuses on the strict participation regressions and where applicable any differences with the broad participation models will be highlighted. Also, the results will be compared across the cross sections. In the second section, we will explore the findings from the decompositions of the gaps in labour force participation rates.

6.1. Evidence from the Logit Models

Tables 3 and 4 show the coefficients and marginal effects estimated from the binary logit regressions for African women for 1995, 1999 and 2004. These marginal effects are computed at the mean of the continuous covariates and they show how the baseline probability of participation shifts due to a unit change in the jth covariate holding other covariates constant. For the dummy variables the marginal effect is a change in the probability of labour force participation due to a discrete change of a dummy variable from 0 to 1.

The estimates show that across the years (1995, 1999 and 2004), education had a positive effect which increased at advanced levels. These results are consistent with previous studies which covered limited time periods such as one year (see Mlatsheni and Leibbrandt, 2001; McCord and Bhorat, 2003). The established outcome also holds for other developing countries such as Nigeria and Kenya as well as for developed countries like Australia (Kabubo-Mariara, 2002; Iwayemi and Olusoji, 2005; Evans and Kelly, 2004). These findings point to the important role of education in determining whether or not a woman is a participant in the South African labour market.

It is also notable that the prospects of African women to participate in the South African labour market differed according to the rural/urban spatial dimension[23]. Specifically, women who lived in urban areas had greater chances of participating in the labour force as compared to those in rural areas. The implication of this finding is that the government still has a challenge in amending cultural and historical legacies which kept African women out of urban areas and hence, limited their opportunities to participate in economic activities.

In the case of marital status, the outcomes display that apart from being married or a divorcee other states were not always significantly different from the referent category. Nonetheless, this study tallies with earlier analyses pertaining to marriage, as it ascertained that marriage considerably reduced the probability of a South African woman to participate in the labour market during the period 1995-2004. Incidentally, marital status (marriage) has emerged as one of the essential factors accountable for the enduring lower level and extent of African women's participation in the labour market. This finding is startling, given that most African households live in poverty, hence we did not expect the negative impact of marital status to be substantial, particularly due to the added worker effect (Casale and Posel, 2002). Besides, being a divorcee increased prospects of participating in the labour market. Logically, the chances of participation are higher for such group of women as they lack prospects for economic dependence on a spouse.

As expected, our findings on the presence of children aged below 15 years[24] in the household (fertility) harmonise with the theoretical assertion that fertility tends to increase the housewife's value of time at home, thus negatively affecting the prospects of participating in the labour market in times in which the need for childcare or housework is high. In this dimension, our results warrant further investigation of measures that reduce the time requirements of childcare in the household, since high levels of female labour force participation are a prerequisite for economic development. Such measures include availing economic access to day care centres and other facilities which look after kids.

Moreover, our outcomes for non-labour income revealed the existence of a substantial income effect (negative) over the entire decade. Further scrutiny of this outcome indicates that on average non-labour income accounts more for the low participation rates of South African women than marriage and fertility (although the effect of marriage is higher when we refer to the broad labour force).

Equally important is the observation that residing in any other province apart from the Western Cape reduced the probability of labour force participation for African women during the period under investigation (when significant). This could be due to the insistence of unequal provincial progression in the face of free mobility. Accordingly, ambitious and skilled individuals migrated to

provinces with better employment and self advancement opportunities. Consequently, disadvantaged provinces were predominantly left with inferior human capital/non-participants resulting in limited chances for improvement. Therefore, failure to migrate due to e.g. cultural or other reasons and continuing to reside in relatively underdeveloped provinces limited the chances of South African women to participate in economic activities.

6.2. Evidence from Decomposition Analysis

Table 5 shows the results from the decomposition of the observed gaps in African women's average predicted labour force participation rates between 1995 and 2004. The reference year is 1995 and the comparison year is 2004[25]. Using the strict definition, the average estimated probabilities of labour force participation are 0.339 and 0.4256 for 1995 and 2004 respectively. The total predicted labour force participation gap (differences in expected probabilities of participation) is therefore 0.0862, of this gap -0.00715, or (-8.29 percent) is due to variations in observed characteristics and 0.0934 or (108.29 percent) is ascribed to different responses to characteristics across the years. As for the broad definition, the average predicted probabilities of participation for the two periods are 0.4909 and 0.6426. The total predicted gap is therefore 0.1521, of this gap -0.0048 (-3.15 percent) is attributable to a change in characteristics and 0.1569 (103.15 percent) is due to differences in coefficients. Thus, the increase in female labour force participation over this period is almost exclusively explained by differences in coefficients/behavioural response, regardless of the definition being used. This suggests that women with the same objective characteristics in 2004 as in 1995 participated more in the labour market. Such outcomes imply that the increase in female labour force participation between 1995 and 2004 was mainly due to a change in the functional relationship between labour force participation and the covariates rather than to a change in the value of the characteristics of the sampled individuals. Essentially, this outcome tallies with Casale (2003).

Turning to the specific factor contributions, the results from all the decompositions show that the changing coefficients on the set of age dummies significantly contributed positively to the overall change in labour force participation. In other words, women of the same age in 2004 as in 1995

were more likely to be working/looking for work or not searching for work but willing to work in 2004. We can infer that if both samples had similar age labour force participation profiles, the differences in the participation rates will decrease by at least 3.89 percent (or by 9.03 percent using the broad definition).

To add on, the coefficients for the set of education dummies are found consistently to be responsible for a large portion of the change in labour force participation. This outcome implies that women in 2004 were more likely to enter the labour market than equally educated women in 1995. The effect of education is stronger when moving from the strict to the broad definition. This could be signalling that individuals with the same education are more likely to participate in the labour market in general and they are even more likely to be discouraged in 2004, perhaps highlighting the persistence of dire unemployment conditions (Casale, 2003). All the same, the sets of education and age dummies had the primary effect on the observed increase in female labour force participation.

As for non-labour income, the fact that its levels were higher in 2004 tends to reduce the difference in participation rates irrespective of the definition of participation used. In contrast, the positive effect of the differences in the coefficients of non-labour income implies that its acquisition is likely to increase participation by 0.07 percent (or by 0.25 percent according to the broad definition). Thus, the rolling out of social grants increased women's chances of participating in the labour market. Potentially, this resulted from the uplifting of social burdens such as caring for the aged and disabled family members from women, as some of the dependents could economically afford to seek the services elsewhere.

The urban dummy is consistently found to be responsible for the increase in labour force participation through the effects of both characteristics and coefficients. The positive effect due to changing characteristics is expected because of urbanisation. As such, the proportion of people living in the urban areas increased considerably over the period, and urban residence is associated with higher labour force participation.

Provincial location also accounts for the increase in female labour force participation through the effects of both coefficients and characteristics, although the effects of the coefficients vary across

samples. Even so, the results for the strict participation equations show that the effect of coefficients is larger than that of characteristics. This means that the increase in participation is mainly due to the residents of the different provinces' behavioural response to their characteristics. The low effect of provinces on the decomposition of characteristics could be due to negligible changes in the distribution of the female population across the provinces, during the sample period. However, further analysis is precluded by the fact that we cannot identify movements within and across the provinces.

Furthermore, the decomposition of the characteristics show that the change in marital status from 1995-2004, has a substantial positive effect on the overall increase in labour force participation in all the decompositions. This is expected from the descriptive statistics which show that there had been a decline in marriage and a slight increase in the proportion of widows and divorcees, all of which promote participation. *In fact marital status contributes significantly to the overall change due to characteristics.*

On the other hand, the results for the decomposition of the coefficients indicate that the effect of marital status dummies over time is not consistent across definitions of samples. For the broadly defined sample, the changing coefficients on marital status dummies have a negligible negative effect while they have a positive effect on the strictly defined one. The positive effect is because widows and divorcees are more likely to work, or to actively search for work in 2004 than in 1995. This is expected as they are more likely to enter the labour market in response to their lack of prospects for economic dependence.

In the case of fertility variables, the analysis reveals that having children aged below 15 years in the household does not have an impact on the decomposition of characteristics[26]. This is expected as the descriptive statistics for this variable did not shift between 1995 and 2004. Nevertheless, the decomposition of the coefficients show that women who dwell in households with children aged below 15 years are less likely to participate in 2004 as compared to 1995. However, these variables did not contribute much to the shifts in the participation rates over the period under study.

In summary, the differences in African women's labour force participation across the years are mainly due to disparities in coefficients. However, the unexplained portion of the gap is more difficult to interpret and it could be partly due to factors omitted from our analysis. Despite this, our results are similar to those obtained by Yun (2000). The implications of the findings are that the increase in African women's labour force participation is due to behavioural response to individual characteristics especially, the set of age and education variables which harmonises with Casale (2003). Moreover, marital status, non labour-income, provinces and urban residence also contributed to the observed shifts in participation rates.

7. Concluding Remarks

This research investigated the human capital, economic, demographic and geographical factors which influenced African women's decision to participate in the labour market over the period 1995-2004. The variables were found to influence labour force participation in line with the underlying theoretical framework of utility maximisation and labour-leisure choice.

The results unveiled that female participation in the South African labour market is positively associated with education and urban residence. Importantly, education was a very crucial correlate during the first decade of democracy. In contrast, non-labour income, marriage, fertility and geographical variations in economic development persistently reduced the prospects of participation over the entire period. It is also notable that most of these findings harmonise with those of the single year studies like Winter (1999), Mlatsheni and Leibbrandt (2001), Bhorat and Leibbrandt (2001), McCord and Bhorat (2003), Serumaga-Zake and Naude (2003) and Serumaga-Zake and Kotze (2004) .

Finally, we also discovered that the shifts in participation rates across time were mainly due to changes in coefficients or behavioural responses (*mainly, the effects of the differences in the coefficients of the age and education variables*) as compared to changes in individual characteristics. This conclusion implies that there is potential for future researchers to explore the contributory mechanisms for the impact (positive) of behavioural response to age on African females' labour force participation. To add on, the perceived shifts in the probability to participate were also

aroused by policy engendered changes in endowments such as the inception of an all-embracing income redistribution policy, and also to changes that occurred in the marriage market over the years. While these conclusions on the shifts in female labour force participation are beyond single period studies, most of them however, harmonise with Casale (2003).

In conclusion this essay is not a final statement on this topic. Instead, the investigation of an increase in labour force participation was constrained by the poor quality of the available data, which has however showed signs of improvement as of late. For instance, the existing data did not permit us to identify movements within and across provinces. Clearly, this has limited the utility of such variables. Because of recent improvements in data quality, it is hoped that the recently introduced labour force survey panel data will take future studies beyond this limitation by making it possible to track individual women's movements into and out of the labour market. Such data will provide more information than is possible from the existing one and hence, enable controlling for the endogeneity of non-labour income, fertility and marital status. This is critical because accommodating the linkages between these decisions improves on the precision of their estimates. Furthermore, such info will enable the inclusion of variables such as predicted wages in the analysis. In this paper, their exclusion owes to the unavailability of data on theoretically postulated regressors for wages which are independent from those which also influence labour force participation.

All the same, on the basis of the above discussions it appears as if government intervention is still needed in order to accomplish the desired but elusive goal of ensuring maximum participation by women. To accomplish this one would suggest the following tentative policies.

1. Continue investing in education especially, up to higher levels.
2. Review childcare grants so that they encompass ways to increase mothers' economic access to child care facilities. Potentially, this would alleviate the limiting effect of child care on women's participation.
3. Augment income redistribution policies with strategies that encourage some of today's beneficiaries to develop their human capital. Arguably, this will increase their prospects of participating in the labour market.

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Appendix

Table 1: Delineation of the Samples used for Empirical Analyses

		Unweighted Statistics			Weighted Statistics (000s)		
		1995	1999	2004	1995	1999	2004
African Women	Working Age population	30 507	26 596	28 233	9 251	10 227	11 626
	Broad Labour Force	14 589	15 722	17 299	4 537	6 059	7 471
	Strict Labour Force	10 039	11 193	11 404	3 139	4 269	4 948
	Repartition by economic activity						
	Employed	7 402	7 293	7 624	2 300	2 714	3 229
	Broadly Unemployed	6176	8 429	9 675	1 917	3 354	4 242
	Strictly Unemployed	2 638	3 900	3 780	839	1 555	1 719
	Participation Rates						
	Broad participation Rate				49.0	59.2	64.2
	Strict participation Rate				33.9	41.7	42.6

Source: own calculations using OHSs 1995 and 1999 and LFS 2004_2

Table 2: Descriptive Statistics for African Women, 1995, 1999 and 2004

Variable	1995		1999		2004			
	Mean/Prop	S.Dev	Mean/Prop	S.Dev	Mean/Prop	S.Dev	Min	Max
Broad labour force participation rate	0.49	0.005	0.59	0.004	0.64	0.004	0	1
Strict labour force participation rate	0.34	0.059	0.417	0.005	0.426	0.005	0	1
Age	35.7	10.3	34.9	10.3	35.4	10.9	15	65
Age-Squared	1380	788	1323	790	1370	842	225	4225
15-19 years	0.186	0.002	0.177	0.003	0.165	0.002	0	1
20-24 years	0.160	0.002	0.176	0.003	0.169	0.003	0	1
25-34 years	0.256	0.003	0.267	0.003	0.267	0.003	0	1
34-44 years	0.185	0.002	0.182	0.002	0.175	0.003	0	1
45-54 years	0.118	0.002	0.10	0.002	0.126	0.002	0	1
55-65 years	0.090	0.001	0.092	0.002	0.096	0.002	0	1
Non-labour income	0.19	0.005	0.382	0.006	0.595	0.007	0	1
Children <15 years	0.79	0.005	0.786	0.004	0.789	0.005	0	1
Children < 6 years	0.50	0.006	0.531	0.005	0.536	0.006	0	1
Provincial variables								
Western Cape	0.021	0.003	0.029	0.003	0.032	0.005	0	1
Eastern Cape	0.1886	0.009	0.169	0.009	0.158	0.009	0	1
Northern Cape	0.006	0.001	0.008	0.001	0.009	0.001	0	1
Free State	0.074	0.005	0.073	0.001	0.068	0.005	0	1
Kwazulu/Natal	0.231	0.011	0.225	0.012	0.227	0.011	0	1
North West	0.094	0.007	0.095	0.005	0.091	0.007	0	1
Gauteng	0.144	0.011	0.175	0.010	0.189	0.012	0	1
Mpumalanga	0.081	0.006	0.077	0.006	0.08	0.006	0	1
Northern Province	0.155	0.010	0.144	0.009	0.142	0.009	0	1
rural	0.604	0.012	0.479	0.013	0.478	0.138	0	1
urban	0.395	0.012	0.521	0.013	0.52	0.138	0	1
Marital Status								
Married	0.349	0.003	0.300	0.003	0.256	0.003	0	1
Cohabit	0.039	0.001	0.060	0.002	0.096	0.003	0	1
Widow	0.059	0.001	0.055	0.002	0.072	0.002	0	1
Divorcee	0.030	0.001	0.034	0.001	0.035	0.001	0	1
Single	0.520	0.003	0.549	0.004	0.539	0.004	0	1
Education levels								
Elementary	0.037	0.001	0.023	0.001	0.016	0.001	0	1
Primary	0.247	0.003	0.279	0.003	0.233	0.004	0	1
Secondary	0.523	0.005	0.524	0.004	0.600	0.005	0	1
College	-	-	0.009	0.001	0.007	0.001	0	1
Diploma	0.036	0.001	0.030	0.001	0.036	0.002	0	1
Degree	0.008	0.001	0.012	0.001	0.012	0.001	0	1
N	30507		26596		28233			

Education levels do not show the none category

Table 3: Strict Participation Regressions for African women, 1995, 1999 and 2004

Variable	1995		1999		2004	
	Coefficients	Marginal Effect	Coefficients	Marginal Effect	Coefficients	Marginal Effect
Age	0443 (0.009**)	0.09	0.456 (0.006)**	0.11	0.407 (0.009)**	0.1
Age-squared	-0.005 (0.0001)**	-0.001	-0.001 (0.0001)**	-0.001	-0.005 (0.0001)**	-0.001
urban	0. 421 (0.051)**	0.09	0.415 (0.053)**	0.09	0.396 (0.056)**	0.09
Eastern Cape	-0647 (0.115)**	-0.12	-0.706 (0.122)**	-0.15	-0.752 (0.136)**	-0.16
Northern Cape	-0.204 (0.161)	-0.04	-0.55 (0.204)*	-0.09	-0.854 (0.174)**	-0.18
Free State	0.098 (0.121)	0.02	-0.393 (0.123)**	-0.08	-0.566 (0.140)**	-0.12
KwaZulu/Natal	-0.322 (0.115)**	-0.06	-0.222 (0.119)	-0.05	-0.577 (0.135)**	-0.13
North West	-0.431 (0.126)**	-0.08	-0.626 (0.120)**	-0.14	-0.909 (0.144)**	-0.19
Gauteng	0.112 (0.117)	0.02	-0.356 (0.115)**	-0.08	-0.519 (0.137)**	-0.12
Mpumalanga	-0.493 (0.127)**	-0.09	-0.183 (0.12)	-0.04	-0.430 (0.136)**	-0.09
Northern Province	-0.841 (0.130)**	-0.15	-0.401 (0.127)**	-0.09	-0.726 (0.144)**	-0.16
Co-habiting	-0.035 (0.097)	-0.01	-0.217 (0.076)**	-0.05	-0.249 (0.075)**	-0.06
Widow	0.199 (0.076)*	0.04	0.061 (0.084)	-0.01	-0.054 (0.085)	-0.01
Divorcee	0.601 (0.09)**	0.13	0.456 (0.110)**	0.11	0.204 (0.110)***	0.05
Married	-0.313 (0.049)*	-0.06	-0.406 (0.049)**	-0.1	-0.441 (0.059)**	-0.1
Primary	0.178 (0.053)**	0.04	0.142 (0.056)**	0.03	0.271 (0.068)**	0.07
Secondary	0.276 (0.058)**	0.06	0.451 (0.058)**	0.11	0.691 (0.066)**	0.16
Diploma	1.721 (0.119)**	0.40	1.198 (0.127)**	0.44	2.107 (0.149)**	0.45
Degree	1.815 (0.204)**	0.42	1.191 (0.192)**	0.43	2.543 (0.148)**	0.5
Children<6	0.034 (0.040)	0.01	-0.012 (0.04)	0.01	-0.249 (0.051)	-0.01
Children<15	-0.227 (0.050)**	-0.05	-0.401 (0.054)**	-0.1	-0.041 (0.051)**	-0.06
Non-labour income	-0.363 (0.050)**	-0.07	-0.699 (0.043)**	-0.16	-0.4982 (0.043)**	-0.12
Constant	-8.279 (0.209)**		7.912 (0.202)**	-	-7.154 (0.222)**	
Predicted probability	0.339		0.417		0.425	
Observations	30507		26596		28233	
F	164.90**		183.68**		110.60**	

i) Robust standard errors in parentheses: *** Significant at 1%, ** significant at 5%; * significant at 10%.

ii) The referent variables are: rural for the rural urban spatial dimension, Western Cape for the Provinces, Elementary education level (grades R-2) for the education levels and Single for Marital Status.

Table 4: Broad Participation Regressions for African women, 1995, 1999 and 2004

Variable	1995		1999		2004	
	Coefficients	Marginal Effect	Coefficients	Marginal Effect	Coefficients	Marginal Effect
Age	0.525 (0.009) **	0.13	0.592 (0.009)**	0.14	0.581 (0.011)**	0.12
Age-Squared	-0.007 (0.0001) **	-0.001	-0.008 (0.0001)**	-0.001	-0.007 (0.0001)**	-0.001
urban	0.323 (0.046)**	0.08	0.304 (0.053)**	0.07	0.053 (0.052)	0.01
Eastern Cape	-0.57 (0.115)**	-0.13	-0.269 (0.135)**	-0.06	-0.579 (0.127)**	-0.13
Northern Cape	-0.216 (0.17)	-0.05	-0.289 (0.185)	-0.07	-0.566 (0.168)**	-0.13
Free State	0.007 (0.121)	-0.001	-0.036 (0.141)	-0.01	-0.349 (0.124)**	-0.08
KwaZulu/Natal	-0.292 (0.11)**	-0.07	0.083 (0.137)	0.02	-0.461 (0.124)**	-0.10
North West	-0.377 (0.126)**	-0.09	0.050 (0.139)	0.12	-0.381 (0.127)**	-0.08
Gauteng	0.20 (0.122)***	0.05	0.302 (0.134)**	0.07	-0.046 (0.124)	-0.01
Mpumalanga	-0.321 (0.123)**	-0.07	0.088 (0.138)	0.02	-0.109 (0.128)	-0.02
Northern Province	-0.648 (0.125)**	-0.16	0.051 (0.139)	0.01	-0.106 (0.130)	-0.02
Co-habiting	-0.381 (0.103)**	-0.09	0.182 (0.091)**	0.04	-0.001 (0.096)	0.000
Widow	0.0569 (0.081)	0.01	0.091 (0.096)	0.02	-0.206 (0.102)**	-0.05
Divorcee	0.685 (0.111)**	0.17	0.587 (0.127)**	0.12	-0.046 (0.128)	0.01
Married	-0.539 (0.049)**	-0.13	-0.326 (0.053)**	-0.08	-0.524 (0.006)**	-0.12
Primary	0.192 (0.053)**	0.05	0.373 (0.062)**	0.09	0.522 (0.066)**	0.11
Secondary	0.089 (0.057)	0.02	0.522 (0.061)**	0.12	0.859 (0.077)**	0.19
Diploma	1.036 (0.112)**	0.24	1.820 (0.182)**	0.30	2.247 (0.186)**	0.28
Degree	1.075 (0.205)**	0.25	1.498 (0.225)**	0.26	2.378 (0.563)**	0.28
Children<6	-0.207 (0.037)	-0.07	-0.227 (0.04)	0.05	0.216 (0.048)	0.05
Children<15	-0.297 (0.046)**	-0.05	-0.403 (0.054)**	-0.09	-0.259 (0.060)**	-0.05
Non-labour income	-0.198 (0.045)**	-0.05	-0.406 (0.043)**	-0.1	-0.342 (0.046)**	-0.07
Constant	-8.484 (0.197)**	-	-9.655 (0.213)**	-	-8.995 (0.239)**	-
Predicted probability	0.49		0.59		0.64	
Observations	30507		26596		28233	
F	185.02**		215.05**		147.18**	

i) Robust standard errors in parentheses: ** significant at 5%; *** significant at 1%.
ii) The referent variables are: rural for the rural urban spatial dimension, Western Cape for the provinces, Elementary education level (grades R-2) for the education levels and Single for marital Status.

Table 5: Decomposition of the change in African women's labour force Participation between 1995 and 2004 (% point change shown)

Definition of the Economically Active	Strict	Broad
Total change in labour force participation	*8.6*	*15.2*
Change due to Characteristics:		
Total	*-0.715*	*-0.479*
	(-8.29%)	*(-3.51%)*
Factor Shares		
Age Dummies	0.01	0.01
Education Dummies	-0.35	-0.19
Provinces	0.03	0.03
Marital Status	0.05	0.05
Non- Labour income	-0.58	-0.40
Children<15 years	0.00	0.00
Children<6 years	-0.01	0.01
Urban dummy	0.13	0.02
Change due to coefficients		
Total	*9.34*	*15.69*
	(108.29%)	*(103.15%)*
Factor Shares		
Age Dummies	3.89	9.03
Education Dummies	4.59	8.00
Provinces	0.43	-1.61
Marital Status	0.32	-0.01
Non- Labour income	0.07	0.25
Children <15years	-0.06	-0.58
Children<6 years	0.09	0.07
Urban dummy	0.01	0.54

Data Appendix

A. Definitions of Employment and Unemployment

Employment and unemployment status is derived in both the national household surveys and the labour force surveys from a logical series of steps involving typically seven questions asked for all those aged 15 years and older. However, Stats SA has not always used a consistent methodology when defining employment and unemployment from these questions. Therefore, these variables have been redefined for 1995, 1999 and 2004 to create, *as far as possible*, comparability between these years for the discussion of labour force participation over the period.

- **Employment**

The employed are defined as those individuals between the ages of 15 and 65 years who claimed that they had a full time, part time, or casual/ seasonal job in the past seven days. Those who did not work in the past seven days due to the following reasons: illness, strike, bad weather, problems with transport, vacation, study or training leave, maternity/paternity leave, unrest and 'other'; but who did have a full time, part-time or casual/ seasonal job to return to, were also classified as employed.

Individuals who had not worked in the past week due to off-season activity or a temporary reduction in economic activity were classified as unemployed even if they had a job to return to, as this constitutes frictional/seasonal unemployment[27]. This differs slightly from Stats SA's definition of employment, as they also include as unemployed rather than employed those individuals who had not worked in the past week due to problems with transport, unrest and 'other'. It is not clear why this was done and in fact could have been a coding error that was repeated each year (Casale, 2003).

The differences between how overall employment was defined by Stats SA and how it is defined here are minimal, because there is a limit to what one can do with the questions asked on employment. However, the fact that the questions that are asked to capture work activities in the previous seven days have become more explicit implies that the employment data should be viewed with caution.

In the OHS 1995 all individuals were simply asked about their activities in the last seven days in (Q3.1) and those who indicated that they had been (1) Working full time (2) Working part time, were asked to continue answering questions on employment.

In the 1999 OHS, the questionnaire was more explicit. Individuals were asked in (Q3.1):

During the past seven days, did ... do any work for pay, profit or family gain for example
- formal work for a salary, wage or profit
- informal work, such as making things for sale, selling things, or providing a service
- work on a farm or land, whether for a wage or as part of the household's farming activities

- casual/seasonal work
  1=YES, FULL TIME
  2=YES, PART TIME
  3=YES, CASUAL/SEASONAL
  4=NO

The LFS 2004:2 was the most explicit of the surveys Individuals were asked the following question (Q2.1)[28]:

In the last seven days, did ... do any of the following activities, even for one hour? *Show prompt card 2.*
a) Run or do any kind of business, big or small, for himself/herself or with one or more partners?
Examples: selling things, making things for sale, repairing things, guarding cars, brewing beer, hairdressing, crèche businesses, taxi or other transport businesses, taxi or other transport business, having a legal or medical practice etc.
b) Do any work for a wage, salary, commission or any payment in kind (excl. domestic work)?
Examples: a regular job, contract, casual, or piece work for pay work in exchange for food housing.
c) Do any work <u>as a domestic worker</u> for a wage, salary or any payment in kind?
d) Help unpaid in a household business of any kind?
Examples: Help to sell things, make things for sale or exchange, doing accounts, cleaning up for the business, etc. Don't count normal housework.
e) Do any work on his/her own or the household's plot, farm, food garden, cattle post or kraal or help in growing farm produce or in looking after animals for the household?
Examples: ploughing harvesting, looking after livestock.
f) Do any construction or major repair work on his or her own home, plot cattle post or business or those of the household?
g) Catch fish, prawns, shells, wild animals, or other food for sale or household food?
h) Beg money or food in public?

While it is likely that more informal employment was captured over the years because of the more detailed questions, it is interesting to note that Stats SA did make some attempt to catch these individuals later on in the questionnaire for all the periods under consideration. Accordingly, the last question of all those who said they had not worked in the previous seven days (the inactive and the unemployed) is 'How does ... support him/herself? If anyone chose the option 'Did odd jobs during the past week', they were sent back to the beginning of the module on employment. Regrettably, there is no explanation of what counts as an 'odd job'.

Stats SA only provides information on how many people were redirected to employment questions in the 1995 and 2004 data sets. Nevertheless, this shows that the detailed question on employment in the LFS seem to work in capturing the more informal types of employment. In 1995 nearly 123 000 observations were redirected this way, while in the LFS 2004_2 only around 9 000 were redirected, implying that many of them had already been picked up earlier.

- **Strict and Broad Unemployment**

The unemployed are defined as those individuals who did not have a job but would accept if a suitable one was offered. For the sake of comparability the definition of unemployment used here does not require that person be available to accept work within one week. While this is generally considered a

fair criterion, it could not be used here because the question concerning availability for work was omitted in OHS 1995 (Casale, 2003).

The distinction between strict and broad unemployment is then based solely on the individual's work seeking activity. Those individuals who said they wanted work and had actively searched for work in the past four weeks were classified as strictly unemployed. Those who claimed that they wanted work but had done nothing to search for work in the past four weeks were classified as broadly unemployed. Active work-seeking included waiting or registering at an employment agency or trade union; enquiring at workplaces, farms, factories or other possible employers; placing or answering adverts; seeking assistance of relatives or friends, looking for land, building or equipment or applying for permit to start a business or farming; and waiting at the street side.

The latter option, waiting at side of the street, was only included in the list of options available to respondents on work seeking action after 1995. It is possible that there were some individuals in the 1995 OHS who were classified as broadly unemployed when they should have been strictly unemployed as without this option they could have responded that they did nothing. This might not be an insubstantial number. In 1999 there were about 530 observations (246 000 weighted), and in 2004 they increased to 904 (372 751). For the sake of consistency, we classify individuals who chose the above option in the latter years under the broad unemployment.

Also, in 1999 individuals who had not worked in the previous seven days, were asked the following question

In which of the following categories does …. fall?

1=Going to school/college/university, etc
2=Not working (but looking for work)
3=Not working, not looking for work but available for work
4= Full time homemaker/housewife
5=Retired (pensioner)
6=Permanently unable to work
7=Not working, not looking for work not available for work
8=Other, please specify

Stats SA classified as unemployed *only* those individuals, who specified in this question that they were *not working (but looking for work*, and were willing to accept a job if a suitable one was offered. This procedure is problematic as some individuals who may have been willing to accept suitable work, who would have in fact have preferred to work, and who may even have searched for work, may have categorised themselves in this initial question as students or housewives because this was their main activity at the time. Following Klasen and Woolard (2000) the definition of employment should really be focussed on not working, a willingness to accept work within a specified time frame, and a preference for working, and not on a description of the actual activities in the past week (Casale, 2003).

Those who were 'not working, not looking for work but available for work', an option that was unavailable in 1995 were classified by Stats SA as economically inactive (Casale, 2003). Yet, it is assumed that this option was included to capture the 'discouraged unemployed (there were about 393 000 of these individuals). These individuals are however, reclassified as either strictly or broadly unemployed, depending on their responses to whether they would accept a job or not , and if so whether they had engaged in any job search activities in the previous four weeks or not. All the same, the above question was not included in LFS 2004:2.

Another difference between the method of classification used here and that used by Stats SA in the OHSs involves those individuals who later on in the questionnaire stated that their reason for not working was one of the following: scholar/student, housewife, retired and *prefers not to work*; or illness, invalid, disabled, and *unable to work* (Klasen and Woolard, 2000; Casale, 2003). These individuals were reclassified as economically inactive from unemployed in 1995 and 1999. It is not clear why they stated that they will accept a job if one was offered. Nevertheless, it seems more appropriate to include them with the economically active if they explicitly state that they prefer, or are not able to work. The reclassification tallies with the Stats SA's categorization of individuals who fall into the aforesaid categories in the LFS 2004[29].

END NOTES

[1] Some industries like textiles have historically employed women but it does not change the aggregate result.

[2] In Beckerian household models men are presupposed to be altruistic and they specialise in labour market activities and earn higher wages which they use to acquire optimal consumption vectors for their families.

[3] The World Bank (1994) argues that a growing number of studies on household allocations, show that women more than men use their economic resources to improve health, nutritional and educational status of household members particularly children, as a result in cases where women earn their own money the status of children is often better. This is an issue of concern to economists since it results in the production and reproduction of a healthy and productive workforce which is vital for economic growth.

[4] Defined here as an increase in the percentage of women among the labour force.

[5] When household income falls, e.g. due to a husband's unemployment/ a decline in real wages of the employed members of the household, women, considered secondary workers of the household, temporarily take up employment to cushion the falling household income. But, if there is structural unemployment, the increase in female labour supply will be permanent.

[6] Nonetheless, in some instances the negative effect is mitigated by the presence of other elder women in the household who will assume the child caring duties while the mothers go to work, (Wong and Levine, 1992). In addition, the presence of day care activities also enables some mothers of young children to participate in the labour market.

[7] In this study labour force participants are unemployed job seekers, those in full time and part time employment (including self employed) and those temporarily absent from work due to illness. Non-participants include those in full time education, discouraged workers, those in domestic activities and retired people.

[8] *Non Labour income* is created as a household level variable =1 if a household or household member receives any of the following social security funds: disability grants, childcare grants, pension and remittances and 0 otherwise.

[9] In the questionnaires the highest level of education attained by an individual was coded in levels of education. However, Stats SA was not consistent in their capturing of the education levels across the periods. OHS 1995 had fewer categories as compared to the subsequent periods. Hence, we combined some of the categories captured in the subsequent surveys so that the levels could be as consistent as possible. Thereafter, we created dummy variables for individuals who have attained the different levels of education.

[10] Stats SA coded the age variable as the number of years that an individual had completed during the time of the Survey. Hence, they rounded off the ages to the nearest number of years completed by an individual.

[11] *Province*, a set of dummy variables representing the 9 provinces in the country: Western Cape, Eastern Cape, Northern Cape, Free state, KwaZulu/Natal Mpumalanga, North West, Gauteng and Limpopo/ Northern Province.

[12] In the LFS (2004) children are not attributable to a specific parent due to co-habitation of working age women. Furthermore, in OHS 1995 the number of children that a precise woman has was only asked for individuals aged between 16 and 54, yet our sample covers individuals aged between 15 and 65. Due to these peculiarities we generated 2 dummy variables which represented the presence of children aged 5 and below and those aged 14 and below in the household.

[13] For the years 1995 and 1999, these variables were derived from the Enumeration area types which specified whether a specific area is urban or otherwise. As for the 2004 data set, the district councils were used in the derivation, whereby Metropolitan Areas were coded as urban and the other District councils fell under rural. LFS 2004 does not supply the information, however the variable is derived by linking PSUs to an area type variable containing values: 1(urban formal), 2 (rural formal), 3 (urban informal) and 4 (tribal area).

[14] This method enables us to control for survey design features.

[15] We may interpret the difference in coefficients between 2 groups as differences in the behavioural response to the individual's characteristics if the choice is made by her own will, or as discrimination if the choice is made by others.

[16] This procedure allocates shares according to the relative size of the explanatory variables impact on labour force participation.

[17] These surveys are independent cross sections; specifically, for each of them different samples were drawn from the population. A large but varying number of households across all provinces of South Africa were sampled allowing a detailed snapshot of labour market conditions and outcomes. For the years 1995 and 1999 in particular, similar sample designs have been applied. 3 000 Enumeration Areas (EAs) were sampled and 10 households within each of them have been interviewed, resulting in a sample size of 30 000 households

[18]The rotating panel methodology is specifically designed to measure the dynamics of employment and unemployment in the country. The LFS was conducted such that detailed information about the labour market situation of approximately 68 000 adults of working age (15-65 years) living in 30 000 households across the country was collected. The survey provides more reliable measures of labour market status than the OHSs as it has a more detailed module on informal sector activities.

[19] Includes people who although not actively looking for a job would nevertheless like to work.

[20] However, the data sets also have some weaknesses pertaining to the measurement of some variables of concern. For instance, we cannot obtain an individual level measure of non-labour income. This limits us to household level non-labour income only which has been severely criticised by the Collective models (although both measures have been predicted to reduce labour force participation).

[21] The definition for the labour force participation rate in South Africa is twofold (broad and narrow definitions). This stems from the debate about the appropriate definition of unemployment. One strand of the literature carries the narrow definition of unemployment which excludes the non-searching and is in line with the International Labour Organisation definition. In this case, labour force participation rate is simply defined as the ratio of the sum of total employed plus unemployed divided by the working age population (ILO, 1999). On the other hand, the broad definition includes the non-searching unemployed (Kingdon and Knight, 2000). The latter measure is often accused of exaggerating the level of unemployment, as it may include people who are out of the labour force (ILO, 1996). As a result, we will apply the narrow definition in our empirical analysis, for international comparison. However, we will check the robustness of our results using the broad definition.

[22] Linearization (or Taylor series) methods are widely used to estimate standard errors for the coefficients of linear regression models fit to multi-stage samples. When the number of primary sampling units (PSUs) is large, linearization can produce accurate standard errors.

[23] The African population was denied rights of land ownership outside the reserves through the 1913 Natives land act. In conjunction with this act, a battery of apartheid era regulations reinforced spatially uneven economic development and led to institutionalised labour migration in the African population (most migrants were working age men leaving women overrepresented in the rural areas). Hence, places of work and permissible permanent residence were separated by long distances. Consequently, many rural residents were barred from labour force participation.

[24] However, looking at children below 15 years stretches the effect too far, restricting the analysis to children aged below 6 would have been more appropriate as these are the kids who need more maternal care and hence affects participation. However, the effect seems to be insignificant when restricted to that age which could be due to the observation that most female relatives often migrate from their homes to offer child care services when children are aged below 6.

[25] The decomposition using 2004 as the reference year and 1995 as the comparison year produced similar results and are not shown here.

[26] We focus on children aged less than 15 as the presence of children below 6 was insignificant in our models.

[27] Following Klasen and Woolard (1999) these individuals are classified as strictly unemployed. However, the LFS questionnaire specifies that being off season for agriculture workers is unemployment.

[28] In reclassifying employment for 2004, begging (option h) was not considered as employment. Those whose only activity in the previous seven days had been begging were classified as inactive because the order of the questionnaire results in these individuals skipping questions on unemployment. Stats SA also codes these people as inactive, hence it is not clear why this option is included here.

[29]However, there are minor differences, in 2004 Stats SA excluded from their definition of unemployment those who chose the option 'too young or too old to work', for why they had not worked during the past seven days (and would accept a job if available). It was decided not to do so here because for those between the ages of 15 and 65, this response was based on perceptions of either the respondents or the employers of the jobs they had applied for and not on fact. However, these individuals amount to about 60.