Title: Fertility and women's labour force participation in Lesotho

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Extended Abstract

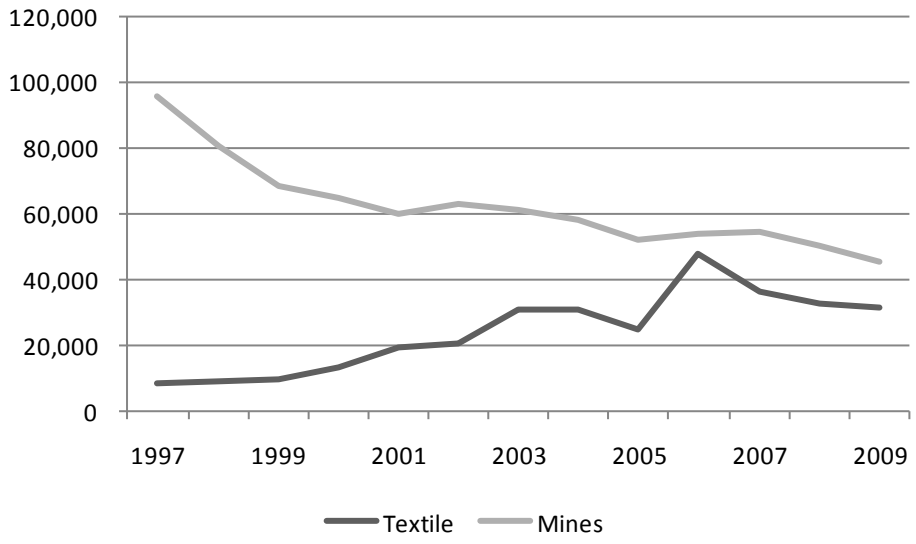
Since the colonial era, the South African mining sector has been an important source of employment for a significant proportion of Lesotho' male labour force. Availability of jobs within the South African mining sector offered a relatively secure source of employment for Basotho men and male labour migration became integral part of the life cycle of most men in Lesotho, particularly uneducated men in the rural areas. Upon reaching working age, uneducated men would take up employment in the Southern African mining sector, accumulate assets such as land and livestock, get married and almost immediately start a family.

In 1968 the South African mining sector employed an average of 59 531 Basotho migrant labourers and this increased to 100 458 in 1980 (Foulo, 1991). The number increased in the late 1980s reaching 112 722 in 1994 and since declined. Although the average number of Basotho migrant labourers in the South African mining sector declined from about 65 000 in 2000 to 56 357 in 2003 owing to retrenchments, miners' remittances still remain the major source of the GNI in Lesotho (Central Bank of Lesotho, 2004). However, these retrenchments translate into loss of source of livelihoods and exposure to poverty for some households since a large proportion of households, especially in the rural areas, has for a long time depended on remittances for their livelihood (Lundahl, McCarthy and Petersson, 2003).

The decline in the number of Basotho miners in South Africa in the 1990s coincided with increased employment opportunities in the textile and garment industry. The textile industry has, over time, become the source of livelihood for some households in Lesotho; a new form of labour migration with a predominance of women has emerged as people migrate into the urban areas to take up employment in the growing textile industries (Government of Lesotho, 2003; Kimane and Ntimo-Makara, 1998). Changes in the number

of Basotho men engaged in South African mines and the number of employees in the Lesotho textile industry are shown in Figure 1**Error! Reference source not found.**.

Figure 1. Number of employees in Lesotho textile firms and RSA mines



Source: Bureau of Statistics and Central Bank of Lesotho (2009)

The shift in the labour force participation in patterns in Lesotho has coincided with a decline in the level of fertility. Total fertility declined from 5.3 children per woman in 1986 to 4.1 in 1996 signifying the beginning of the country's fertility transition. Recent Lesotho Demographic Health Surveys (LDHS) have shown evidence of further declines in total fertility to 3.5 children per woman in 2004 and 3.3 children per woman in 2009 (Ministry of Health and Social Welfare [Lesotho], 2005; Ministry of Health and Social Welfare (MOHSW) [Lesotho] and ICF Macro, 2010).

This paper investigates the relationship between fertility and women's labour force participation through an assessment of changes over time in parity progression and birth intervals of working and non-working women. The primary sources of data are the maternity histories of women aged 15-49 derived from the 2004 and 2009 Lesotho Demographic and Health Surveys.

Theoretical framework

The relationship between women's labour force participation and fertility is well documented. In general an increase in the proportion of women in the labour force reduces fertility. The basis for this argument is, among others, that childbearing and women's labour participation are viewed as competing for women's time. The theoretical model underlying the relationship between women's labour force participation and fertility is the Easterlin hypothesis (van de Kaa, 1996). The model assumes that individuals' reproductive decisions are driven by the desire to maintain tastes for goods, services and children established through socialisation in the parental home. Inherent in this assumption is that marriage and childbearing could be delayed and family size reduced if the desired standard is deemed to be unattainable.

Methods

The present analysis will begin with a comparison of the total fertility rates of working and non-working women using the 2004 and 2009 LDHS data. The analysis for the paper will also employ two approaches proposed by Brass and Juarez (1983) that extend the estimation of parity progression measures to cohorts with incomplete fertility namely the Projected Parity Progression Ratios (PPPRs) and the truncated summary index B_i , the proportion of women having the next birth within i months. The estimation of the projected parity progression ratios, denoted P_n, involves relating the proportions of women with n children who go on to have $n+1$ children for two adjacent cohorts. The cohorts are rendered comparable through excluding the births in the five years before the survey for women in the older cohort.

The indices of relative changes are estimated as the proportion for the younger cohort divided by the proportion for the truncated older cohort. The estimation of these indices assumes that the ratio of the values with equivalent censoring is the same as the ratio of the corresponding values without censoring. The indices are then used to estimate the projected parity progression ratios denoted as P_i. The P_i for the age group 45-49 is considered to be the same as the parity progression ratio for this age group and is multiplied by the index of relative change for the age group 40-44 estimate the P_n for the age group 40-44 which in turn is used to estimate the P_n the age group 35-39. A similar approach is used to estimate the P_n values for the younger cohorts. The estimation of the P_n

values assumes that the rate of progression to the next parity in the future will be the same as that in the past.

The accuracy of the P_i values depends on the number of women who experience the parity of interest. In general, estimates derived from indices of relative change estimated using parity progression ratio of between 0.65 and 0.8 (i.e. where between 65 and 80 per cent of women have experienced the parity progression of interest) are considered to result in more reliable indices of relative change since a sizeable proportion of women have experienced the event of interest.

Whereas the projected parity progression ratios approach effectively deals with the selection bias emanating from the fact that parity data are skewed toward women who have many children within a short space of time and hence have relatively short birth intervals, a problem more acute in the younger cohorts, it does not deal with the problem of censoring effectively. This is adequately addressed in the summary index B_i derived using life table analysis. This method, originally proposed by Rodriguez and Hobcraft (1980), was further developed by Brass and Juarez (1983). The Brass and Juarez approach includes the use of the truncated pair wise procedure similar to the one used in estimating projected parity progression ratios (outlined above) to estimate adjusted B_is. This adjustment deals more effectively with the problem of selection bias discussed above.

The assessment of birth intervals will adopt an approach outlined in Aoun (1989). In this method median birth intervals are estimated using life table analysis and the truncated pair wise procedure proposed by Brass and Juarez (1983) is used to estimate projected median birth intervals.

The effect of women's labour force participation on fertility operates through the proximate determinants of fertility. The paper will therefore include a comparative analysis of the proximate determinants among working and non-working women. This analysis of the proximate determinants of fertility will place emphasis on the four proximate determinants that, according to Bongaarts (1982), capture most the variation in the level of fertility among populations: the proportion of married women; use and effectiveness of contraception; prevalence of induced abortion; and duration of postpartum infecundability which depends of duration of breastfeeding and postpartum abstinence.

Expected Results

We expect to steeper falls in parity progression at higher parities among working relative to non-working women. We also expect the median birth intervals to increase with each parity progression within each age cohort and that these increases will be more pronounced among working relative to non-working women.

References

Aoun, Samar. 1989. *An assessment of the paired comparison procedure for measuring early changes in fertility in Syria, Tunisia and Yemen Arab Republic.* CPS Research Paper 89-2. London: Centre for Population Studies, London School of Hygiene and Tropical medicine.

Bongaarts, John. 1982. "The fertility-inhibiting effects of the intermediate fertility variables", *Studies in Family Planning* **13**(6/7):179-189.

Brass, William and Fatima Juárez. 1983. "Censored cohort parity progression ratios from birth histories", *Asian and Pacific Census Forum* **10**(1):5-12.

Central Bank of Lesotho. 2004. *2003 annual report.* Maseru: Central Bank of Lesotho.

Central Bank of Lesotho. 2009. *2008 annual report.* Maseru: Central Bank of Lesotho.

Foulo, T. 1991. *Migrant workers' retrenchments: Implications for Lesotho economy.* Staff Occasional Paper No. 6. Maseru: Central Bank of Lesotho.

Government of Lesotho. 2003. *Poverty reduction strategy 2004/2005-2006/2007*. Maseru: Government of Lesotho.

Kimane, Itumeleng and 'Matora Ntimo-Makara. 1998. "The gender dimension of urban migration in Lesotho", in Mapetla, Matseliso, Anita Larsson and Ann Schlyter (eds). *Changing Gender Relations in Southern Africa: Issues of Urban Life.* Maseru: Institute of Southern African Studies, pp. 101-128.

Lundahl, Mats, Colin McCarthy and Lennart Petersson. 2003. *In the Shadow of South Africa: Lesotho's Economic Future.* Hampshire: Ashgate Publishing Limited

Ministry of Health and Social Welfare (MOHSW) [Lesotho] and ICF Macro. 2010. *Lesotho Demographic and Health Survey 2009*. Maseru: MOHSW and ICF Macro.

Ministry of Health and Social Welfare [Lesotho], Bureau of Statistics [Lesotho] and ORC Macro. 2005. *Lesotho Demographic Survey 2004*. Calverton, Maryland: MOH, BOS and ORC Macro.

Rodriguez, German and John Hobcraft. 1980. *Illustrative analysis: Life table analysis of birth intervals in Columbia.* WFS Scientific Reports No 16. Voorburg: International Statistical Institute.

van de Kaa, D.J. 1996. "Anchored narratives: The story and findings of half a century of research into the determinants of fertility", *Population Studies* **50**(3):389-432.