Migration Determinant of Fertility in Four Health and Demographic Surveillance Systems of Burkina Faso and Kenya

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Abstract:

This paper uses data from four Health and Demographic Surveillance Sites (HDSS) in Kenya and Burkina Faso to analyze the effect of female and male migration pattern on fertility behavior, both of migrants and non-migrants: Two rural HDSSs (Nanoro and Kisumu) and two urban HDSSs (Ouagadougou and Nairobi) are included in the analysis. The aim is to highlight how the migration system components (migration flows, migrant's characteristics and duration of migration) changes fertility behavior, by using Cox models and comparing results in these four areas. Two original methods are developed in this paper. The first is the use of accurate dates for in-migration, out-migration and child birth which allow to analyze in more detail the relationship between migration and fertility. The second is the inclusion of the husband's (or partner's) migration pattern as a heterogeneity factor both for migrant and non-migrant women's fertility behavior.

1. Introduction

While fertility, mobility and urban transitions are still running in sub-Saharan Africa, the analysis of interaction between migration and health is a very important issue for understanding the pattern of demographic trends in this region. Indeed, despite the fertility decrease observed in many African countries during last decades, the total fertility rate remains the highest in the world, particularly in rural areas where it is still above 5 children per woman (Garenne, 2013). Meanwhile, the persistence of socioeconomic crisis in this continent reinforces migration flows within or across country's boundaries. For many years, the high population growth in rural area due to the high rural fertility was the main reason of internal migration flows to cities. Studies on internal migrations were focused on rural exodus resulting from the removal of colonial restriction after independence during the 1960s and the failure of agricultural modernization policies during the 1970s. Structural adjustment plans during the 1980s have increased rural and urban poverty to such a point that the country is facing a protracted socioeconomic crisis. In some countries, the low standard of living in big cities is generating increasing circular migration flows with small towns or rural areas among rural migrants (Potts, 2010) and many authors highlight the fact that much of the urban growth has shift from migration growth to natural growth, mostly because rural migrants are achieving circular migrations in place of permanent migrations (Beguy, Bocquier, & Zulu, 2010; Zlotnik, 2006). Despite the fertility decrease and the change in the migration pattern, the sub-Saharan Africa has a high urban growth rate that more or less half of the population now lives in big cities or small towns (UN Habitat, 2010). This context raises the issue of impact of migration on reproductive behaviors and on the pattern of the fertility transition in sub-Saharan Africa.

This study of the relationship between migration and fertility is taking a prominent place in the analysis of the demographic transition in Africa despite the lack of accurate data. By focusing our research on Burkina Faso and Kenya, we wish to contribute to the understanding of these demographic phenomena. Kenya and Burkina Faso have very different fertility, migration and urban dynamics which make them very interesting to compare. Kenya is a pioneer country in fertility transition which started in the late 1980s, while this process is barely in the beginning in Burkina Faso. Despite this difference, the path of fertility transition shows in both countries an increasing difference between rural and urban fertility. While the urban fertility rate have fall under 4 children per woman, the rural fertility rate remains above 7 children per woman in Burkina Faso while in Kenya the fertility level is respectively 3 and 5 children per woman in urban and rural area (Institut National de la Statistique et de la Démographie & ICF

International, 2012; Kenya National Bureau of Statistics & ICF Macro, 2010). Previous researches have shown that migration pattern in Kenya is more individual and circular between slum settlement in cities and rural area while in Burkina Faso most of the migration to cities patterns are family based and permanent in "non-slum" informal neighborhood.

The objective is to identify components of migratory-system (defined by reasons and conditions of internal migrations, demographic and socioeconomic characteristics of migrants, residence duration, flows, etc.) which could change migrant's, and eventually non-migrant's, reproductive behaviors. The major research question is concerned with why is the differences in the migration processes in Kenya and Burkina Faso resulting in different fertility behaviors dynamics? The study will also highlight how the effect of migration on fertility could promote the fertility transition in urban and rural area in Kenya and Burkina Faso. Our main hypothesis is that migrant integration at destination will encourage them to fit with fertility rate at destination, while links with place of origin will discourage them. To verify that hypothesis, this study analyzes the effect of women and men migration pattern on women fertility behaviors and, conversely, the effect of fertility on migration pattern by comparing rural and urban areas in Kenya and Burkina Faso.

2. Literature review

The relationship between migration and fertility is summarized through four fundamental hypotheses: The socialization hypothesis, developed by Goldberg (1959), explain the fertility difference between migrant and non-migrant at destination, by the fact that migrants maintain fertility behaviors acquired at the place of origin. The adaptation hypothesis was developed by Myers and Morris (1966) on the assumption of intergenerational differences in fertility behaviors. Indeed, if the first generation of migrant still has the same fertility pattern than non-migrant at the place of origin, the second generation will develop similar pattern with non-migrant at destination. Myers and Morris also developed the selectivity hypothesis of migrant at the place of origin among people who have socio-demographic characteristics which can explain fertility differences with non-migrant in both place of origin and destination. The last hypothesis, developed by Goldstein (1973), explains the difference of fertility by the disruption of the migrants' reproductive process because of constraints due to mobility. However, the intensification of sexual intercourse, after the disappearance of migration constraints allows migrants to maintain their final fertility to a level close to that of the non-migrants. This disruption/catch-up hypothesis (Choi, 2014) highlights the fact that the disruption of the

reproductive process is not a definitive phenomenon but only a temporary one whose consequences in the long or medium terms remain limited.

The approach adopted by many authors consists in estimating the share of each hypothesis in fertility difference between migrants and non-migrants (Chattopadhyay, White, & Debpuur, 2006; Choi, 2014; Kulu, 2005; Lindstrom & Saucedo, 2007; Zamwangana, 2005) in reference to the pattern of migration (internal or international), the duration (short or long term) and the nature of migration flow (permanent or circular). This objective can be achieved through three methods: by comparing migrants and non-migrants in place of origin, by comparing migrants and non-migrants in place of destination, and by comparing migrants' fertility before and after migration with non-migrants' fertility in both place of origin and destination.

Up to now, the methodological approaches is based on the analysis of women fertility and migration pattern. Men migration status and pattern are taken into account as a heterogeneity factor on women fertility and migration behavior. The case of "women left behind" is developed by authors like a particular field of study, different from women migrants, on the impact of husband circular migration's pattern on the fertility of their spouses in the place of origin, mainly a rural area (Bertoli & Marchetta, 2012; Cortés, 2007; de Haas & van Rooij, 2010; Sadiqi & Ennaji, 2004; Yabiku, Agadjanian, & Sevoyan, 2010). This circular migration pattern don't have the same effect on reproductive behavior as the long term migration process because migrants could be selected not to procreate at destination but only after returning at destination. This could result in the maintaining of origin socialization and reproductive norms or the migrants return with different norms to which they were exposed at the area of destination.

All four hypotheses are based on "deterministic" assertion of migration influence on fertility (Zamwangana, 2005) stating that the place of destination is "high ranked" than the place of origin and leads to migrants' fertility decline. They were made to explain fertility behaviors in a context of rural exodus and urbanization. However, the analysis of internal migration in sub-Saharan Africa shows, along with rural-urban migrations, many important flows within rural or urban areas and from urban areas to rural areas (Beauchemin, 2001; Beguy et al., 2010; Kabbanji, Piché, & Dabire, 2007; Lututala, 1995; Zlotnik, 2006). Muhidin and Ledent (2005) have developed this "complex-migration-flows" approach in their study on relation between women migration and fertility in Burkina Faso based on biographic data from EMIUB survey. They found that migrant's women from rural origin and urban non-migrants have lower fertility level than non-migrant's rural women, while migrant's women from urban origin to rural

destination showed higher fertility than rural non-migrants. However, the risk for migrant's women to have fewer (or more) children then rural non-migrant is significate for high-ranked birth and not significate for the first birth. Chattopadhyay et al. (2006) have found exactly the same trends in Ghana with retrospective data on women birth history and fragmented migration history from DHS surveys, but, the lack of accurate data on migration made it difficult to determine a causal relationship between migration and fertility. Kulu Hill's (2003) study on female migration pattern and fertility in Estonia during the second half of the 20th century was also based on that "complex-migration-flows" approach. Detailed data on fertility and migration history allowed him to highlight causal relationship between the two phenomena. However, this study focused on a country with a post-transitional background: a total fertility rate well below the generation renewal line, at 1.65 children per woman, and an urbanization rate at 70 percent (United Nations Population Division, 2012).

Reasons of migration are less developed as fertility factors because most of the surveys used for these researches like DHS don't have this information. However, the reason of migration can have a significant effect on fertility as childbearing can conflicted with some migration objective. Muhidin and Ledent (2005) are among the few authors who used this factor in the analysis of interaction between migration and fertility in Burkina Faso. They showed that women who migrated for economic reason have fewer chances to have a child than women who migrated for family reasons (union formation or family reunion). The relationship could be different for men as they are not physically implicated in pregnancy and delivery. The childbearing could not be a constraint for men and the economic migration process can have a positive relation for their spouse's fertility who are remaining in the place of origin or migrating with a family objective (Agadjanian, Yabiku, & Cau, 2011; Bertoli & Marchetta, 2015). In most African countries, young and teenage single independent migrants are mostly exposed to risky sexual behavior and unwanted fertility because of their economic and social vulnerability. Even so, young girls are more at risk then young boys, and the latter could be encourage to access rapidly to the job market and independent housing while young girls remain under the responsibility of their family members or tutors. The reason of migration could also be considered like a time-varying covariate because migrants are able to change their migration objective according to the duration of stay and contextual factors at destination. An economic or social objective could be turned into a family objective and vice-versa.

3. Data and method

This research is based on longitudinal data on migration and fertility from four urban and rural HDSSs in Kenya and Burkina Faso (Ouagadougou, Nairobi, Nanoro and Kisumu) to highlight causal relationship between migration and fertility. The availability of detailed data on fertility and migration with accurate dates in these HDSSs during many years for more than 217,100 people (124,500 at Ouagadougou, 82,700 at Nanoro, 185500 at Nairobi and 230000 at Kisumu) allows us to use a longitudinal method like duration analysis, Poisson and Cox model for analyzing the effect of migration on fertility in order to test causal relationship between these two phenomena, by controlling effect from context and individual characteristics. Also, HDSSs have data on part of the population under surveillance on conception and pregnancy in addition to household characteristics which allow us to refine fertility analysis. Migration is identified by entry in or exit out of the surveillance area.

Indeed, HDSSs are places of origin for out-migrant and place of destination for in-migrants. HDSS information allows us to analyze fertility for migrants and non-migrants women at places of origin and destination. We are comparing non-migrant fertility with in-migrant fertility after migration and out-migrant fertility before migration. Thus, it is possible to test the selectivity hypothesis for out-migrants at the place of origin among people with different fertility behavior then non-migrants. Similarly, it is possible to test the adaptation hypothesis of in-migrants to the fertility behavior of non-migrants at destination. Availability of migration data for all household members, particularly for women's husbands and male partners, allows us to test the disruption/catch-up hypothesis as a result of the shock due to the migration of one or both spouses. This shock could results on a low fertility or a fertility increase of migrant's couples comparing to non-migrant's couples at the place of origin or destination. The test of socialization hypothesis is conducted by comparing rural migrants to urban area with non-migrants living in rural area and urban migrants to rural area with non-migrants living in urban area. These relations are fundamentals to test our main research hypothesis. The comparative measurement of integrations factors at destination and factors that maintain links with place of origin will highlight fertility adjustment or differentiation mechanisms between migrants and non-migrants.

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