The Role of Domestic Migration on Fertility Rates in the Global South

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October 2019

Abstract

Demographers have largely noticed how period measures of fertility can be biased due to tempo confounders. These insights have well-served research on international migrants' fertility. That has not been the case for internal migration flows. This disproportional attention is unfortunate, given the critical role of internal migrants for demographic change across developing regions. We rely on multiple Demographic and Health Surveys for 68 low and middle-income countries to provide the first comparative and most consistent study of the contribution of internal migrants to urban fertility, notably by using measures that correct the migration-related tempo distortions on fertility measurement. Our results suggest that the interlinkage between migration and fertility leads to a significant overestimation of the fertility of migrants in urban areas. This overestimation varies substantially across world regions, being more significant among countries in Asia, the Middle-East and North Africa and the Former USSR. The overestimation is minor among Latin American, Caribbean and Sub-Saharan African countries.

Introduction

According to the United Nations, in 2013, one of each six people worldwide was an internal migrant (United Nations, 2013), corresponding to approximately 1 billion people. This figure largely surpasses the number of international migrants worldwide (approx. 3% of the world population). Despite the fundamental role of internal migration for demographic change in the global South, the fertility of international migrants has received disproportionally more attention than the fertility of internal movers, at least in the last two decades (Kulu, 2005; Kulu & González-Ferrer, 2014). Establishing comparable fertility measures between international migrants and the non-migrant populations in receiving countries have produced fruitful methodological innovations (Kulu & González-Ferrer, 2014; Toulemon & Mazuy, 2004). Little attention has been devoted to bringing these innovations to contexts of migration within countries, e.g., between rural and urban areas.

This lack of attention is unfortunate, as urbanization of developing countries has been sustained in the last decades, with more than 50% of their population living in cities since 2015 (United Nations, 2018). Assessments of the sources of urban growth in developing countries have suggested a dominant role of natural increase rather than of rural-to-urban migration (Chen, Valente, & Zlontnik, 1998; Jedwab, Christiaensen, & Gindelsky, 2017). The young age structure of the migrant population certainly inflates the level of urban natural increase. Yet because migrants have been socialized to larger family sizes in the countryside, they are also often characterized by higher fertility levels at destination when compared to long-term urban residents (Goldstein & Goldstein, 1981; Hervitz, 1985; Lerch, 2013; Rokicki, Montana, & Fink, 2014; White, Moreno, & Guo, 1995). These differences in fertility have motivated increased attention to family planning in urban areas, particularly among the deprived and migrant communities.

A recent global assessment challenged this view as it found a similar level of period fertility between non-migrants and migrants in their urban destinations. Childbearing among migrants was often depressed by spousal separation and other disrupting effects of mobility on reproduction, as well as by behavioral adaptation to the new living environment (Montgomery, Stren, Cohen, & Reed, 2003). This result confirms studies in sub-Saharan Africa (Brockerhoff, 1995). From a cohort perspective, however, rural-to-urban migrants have significantly larger families than long-term urban residents, especially at advanced stages of the fertility transition. Therefore, the completion of the urban fertility transition is slowed down by migration (Lerch, 2019).

This competing evidence may be related to the problems with the measurement of period fertility among migrants. Conventional measurements (such as the Total Fertility Rate) tend to be inflated or deflated as births are only observed at the destination. On the one hand, migrants tend to catch up with childbearing upon arrival in order to recuperate the delay accumulated before the move due to spousal separation, migratory preparations, etc.; (Lindstrom, 2003; Parrado, 2011, 2015; Toulemon, 2004). On the other hand, migrants' TFR at destination may be depressed when women rush into marriage and childbearing immediately before the move to reunify with a previously migrated partner, leading to lower fertility immediately after arrival. These interlinkages between migration and fertility decisions lead to tempo-biases in conventional measurements of migrant fertility at destination. Having a more precise measurement of fertility by duration since arrival is relevant to accurately assess the contribution of migrants to both, urban growth and fertility change; two of the significant transformations of the second half of the twentieth century among countries in the global South.

Overarching aim and methods

We concentrate in rural to urban migration, a widely spread and diverse phenomena in countries of the global South. Our overarching goal is provide more accurate measures of period fertility for domestic migrant women. Further we examine the differences in the conventional TFR of migrant vs. non-migrants in urban areas. Using linear models at the country-level, we measure the influence of four factors in the difference between the TFR of migrant and non-migrant women. These four factors relate to the main sources of fertility disruption in a migratory context: larger fertility at origin, depressed fertility before migration and catching up after migration, and the age structure of the migrant population.

In the first part of the analysis we compute a synthetic indicator of period fertility among migrants. To control for the distorting tempo effect of migration we use Toulemon and Mazuy's (2004) fertility indicator. This indicator accounts for both, the (often depressed) fertility before the move and the (catching up of) births afterward. By combining cohort and period fertility of migrants, this hybrid measure is obtained as a weighted sum of the average pre-migratory number of children ever born to arrival cohorts (defined by age at migration) and these cohorts' post-migratory duration-specific period fertility rates at destination. The weights come from the age structure of migrants at arrival.

For the second part of the analysis, we compute the difference between the conventional TFR for migrant and non-migrant women in urban areas. We use a linear model to correlate this difference with two indicators pertaining to pre- and post-migratory fertility. For pre-migration fertility we compute the ratio between children even born before migration among women who migrated between ages 20 to 29 and the period fertility rate of non-migrant women in the same age range. This ratio capture differences in fertility between origin and destination. Higher fertility at origin should translate into larger differences in the TFR of migrants vs. non-migrants. For the post-migration fertility we measure the trend in duration specific fertility rates between the first and the sixth year since migration. This trend is captured by the slope of a regression line fitted to duration specific fertility rates for women who migrated between ages 20 to 29. The steeper this slope the larger the difference in the TFR of migrant vs. non-migrants. Because this slope is typically negative, we expect the regression coefficient to be also negative.

We include the mean age at migration as a control variable in all model, and we estimate them separately for five macro-regional areas of the world: Americas, Asia, Middle-East and North Africa (MENA), Eastern Europe, and Sub-Saharan Africa.

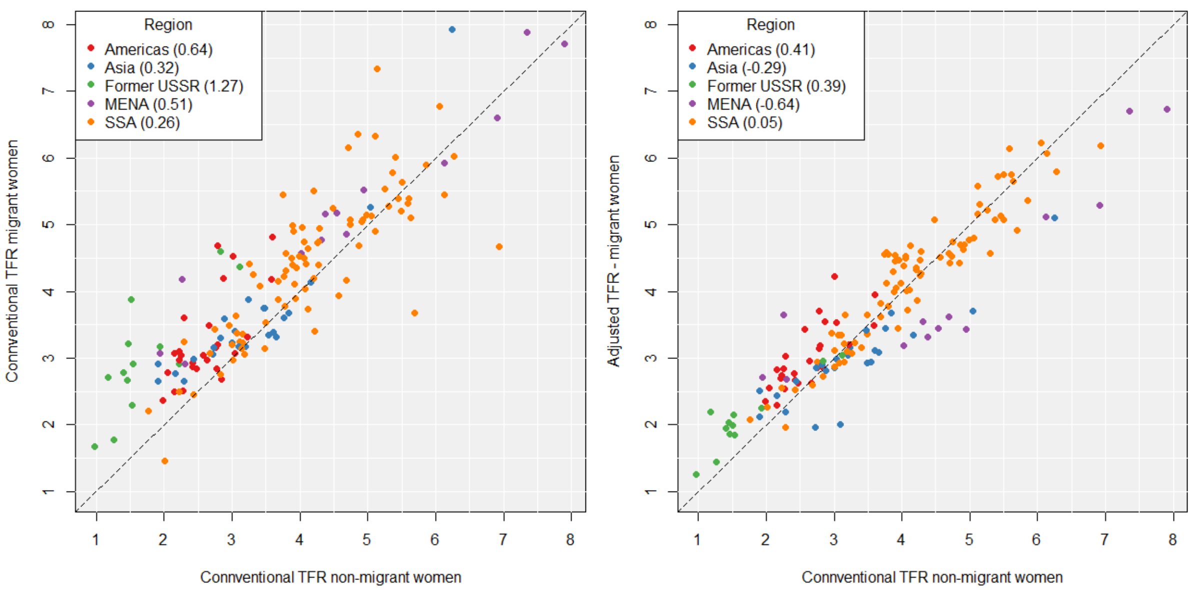
Data

We rely on 159 waves of the Demographic and Health Surveys collected between 1990 and 2017. These waves include 68 countries. We select these waves because they have information on women's changes in residence including the number of years since arrival to the place of the interview, and the type of residence before migration (urban vs. rural, recoded from variable V105). In addition, these surveys record women's birth history which allows us to distinguish pre- and post-migration births. We focus on women of rural origin, and urban non-migrants. We consider as non-migrant women who declared having always lived in the place of the interview. We excluded temporal visitors and women who moved to cities from a different country. For migrant women, we calculate the age at migration by subtracting the numbers of years in the current place (variable V104) from their age at the time of the survey (variable V012).

Preliminary results

According to the conventional TFR, in all surveys included in the analysis, migrant women have on average 0.44 more children than non-migrant. This gap is significantly different from 0 (p-value=0.000). As seen in the left panel of Figure 1 (numbers in parenthesis), this average difference varies widely across world regions, from 0.26 children in Sub-Saharan Africa to 1.27 in countries of the Former USSR. All region-specific differences in the TFR are statistically significant (p-values<0.01).

Figure 1 – Migrant and non-migrant Total Fertility Rates in urban areas



The right panel in Figure 1 compares the conventional TFR of non-migrants and the adjusted-TFR for migrants. When the TFR of migrant women is adjusted, migrant vs. non-migrant differences in the fertility are, on average, 0.03 (non-statistically different from 0, p-value=0.515). This very low average difference occurs because the adjusted-TFR of migrants is generally lower than the conventional TFR. Moreover, region-specific differences in migrant vs. non-migrant fertility change substantially due to this adjustment. In Asia and MENA the difference reverses, from an excess fertility among migrants to a level that is 0.3 and 0.6 children lower than that of non-migrant's in these two regions respectively. In the Former USSR and SSA, the difference diminishes substantially from 1.27 to 0.39 excess children among migrants in the former region, and from 0,26 to 0.05 in the latter. In the

Americas, the change in the difference is more moderate, declining from 0.64 to 0.41 children. In this latter case the difference is still statistically different from 0 (p-value=0.000).

Another consequence of adjusting the TFR of migrant is a reduction in the variability of the country-level migrant vs. non-migrant difference in the TFR. Without adjustment, the standard deviation of this difference is 0.87 children, after adjustment the standard deviation goes down to 0.62 children, i.e., a 30% reduction in the variability. In other words, although migrants and non-migrants have different fertility, migrant's fertility is more similar to non-migrant's that we would have asserted considering conventional TFR.

Now, we explore the sources of this variation by predicting difference in the TFR based on pre- and post-migratory fertility conditions. Coefficients represent the marginal change in the migrant vs. non-migrant difference in the TFR by one-standard-deviation change in the explanatory variables. The first column reports results for all country-years combined. The other five columns correspond to the five world regions.

Table 1 – Standardized association between migration-related factors and differences in the TFR of migrant and non-migrant women

	Pooled	Americas	Asia	Former USSR	MENA	SSA
Constant	0.44 ***	0.64 ***	0.32 ***	1.27 ***	0.51 ***	0.26 ***
Fertility at origin relative to destination	0.27 ***	0.32 ***	0.02	-0.20	0.64 ***	0.17 **
Pace of fertility decline after migration	-0.28 ***	-0.09	-0.12	-0.35 **	-0.27 *	-0.09
Mean age at migration	0.01	-0.13 *	0.09	-0.01	-0.13	-0.01
N	159	26	24	13	13	83

In the pooled model, the coefficients for pre- and post-migratory fertility are large, statistically significant and they have the expected sign. Higher fertility at origin relative to destination increases the migrant vs. non-migrant differences in the TFR. Likewise, steep declines in fertility after migration (negative slope) increase the difference in the TFR of migrants and non-migrant women. These two coefficients are about the same size meaning that one-standard deviation change in any of this two variable would increase migrant vs. non-migrant difference in TFR, on average, by 0.27 children. The size of this association is significant given that the average difference is 0.44.

Across regions, these relationships vary substantially meaning that migration and fertility are related in different ways across the world. In the Americas and SSA, only the indicator for pre-migration fertility is significantly associated with the difference of the migrant vs. non-migrant TFR. Among Asian countries, none of the two indicators is significant. Among countries in the Former USSR, one standard deviation increase in the pace of fertility decline after migration reduces migrant vs. non-migrant difference in TFR by 0.35 children (as in the pooled model), meaning that high fertility right after migration inflates the conventional TFR among migrants in these countries. In MENA, both coefficients are significant and large.

Further steps

We expect to include the following analysis and results in the final version of this work:

- A precise assessment of the overestimation of the national TFR based on the adjusted TFR for both, rural-to-urban and urban-to-urban migrant women. This will be the main contribution of the paper.
- A further examination of region-specific relationships between the differences in the conventional TFR for migrants vs. non-migrants and the pre- and post-migration indicators of fertility (Table 1). This examination includes the revision of the current geographical categories.

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