

International Migration and Modern Contraceptive Use: A Research Note on African Migrants to France

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ABSTRACT This research note presents a multisited analysis of migration and contraceptive use by standardizing and integrating a sample of African migrants in France from six West and Central African countries in the *Trajectoires et Origines* survey with a sample of women living in the same six African countries in the Demographic and Health Surveys. Descriptive analyses indicate that the contraceptive use of migrants more closely aligns with that of native French women than with that of women from origin countries. In particular, migrants report dramatically higher use of long-acting reversible contraceptives and short-acting hormonal methods and lower use of traditional methods than do women in the countries of origin. Although migrants differ from women in the countries of origin on observed characteristics, including education and family background, reweighting women in the origin countries to resemble migrants on these characteristics does little to explain differences in contraceptive use between the groups. Given that contraceptive use is an important proximate determinant of fertility, our results suggest that contraceptive use should feature more prominently in the dominant demographic paradigms of migrant fertility.

KEYWORDS Migration • Contraception • Africa • France • *Trajectoires et Origines*

Introduction

International migration involves a host of changes to women's reproductive lives, including their access to and use of contraception. Migration exposes women to new norms about the acceptability of contraceptive use and desired family size, new information about different types and efficacy of modern contraceptive methods, access to new health care infrastructures, and new economic opportunities that may also facilitate contraceptive access and use. Nonetheless, demographic research on migration and contraceptive use has been limited in important dimensions. Extant scholarship has compared the contraceptive use of migrants to that of native residents in destination settings (Akinyemi et al. 2017; Garcés-Palacio et al. 2008; Ochako et al. 2016; Tapales et al. 2018) or compared contraceptive use across migrant generations (Diaz et al. 2019; Poncet et al. 2013). Although these studies offer valuable

insights, a better understanding of whether migrants adapt to the contraceptive norms of their destination context requires a multisited perspective that compares migrants with both natives in the destination *and* similar individuals remaining in the place of origin. Such a multisited perspective is also important to understanding how those who migrate differ in observed characteristics in ways that may also contribute to differences in contraceptive use between women in origin and destination settings.

This research note asks a key question: Is there evidence of contraceptive adaptation among African migrants to France when they are compared to similar women in the origin countries? To this end, we standardized and integrated data from two sources—one collected in France (the destination) and one collected in six West and Central African countries (the origin)—to create a novel data source that allows us to weight women in origin countries to resemble migrants to France from the same African countries. Individuals in the six sending countries have considerably higher unmet need for family planning and total fertility rates and lower modern contraceptive prevalence rates than individuals in France, thus making this an interesting setting for a multisited analysis (see the online Appendix Table 1).

Although scholars of migration have noted the importance of transnational and multisited approaches (Beauchemin 2014), limited research has adopted the multisited approach to explore reproductive health outcomes. Existing scholarship that has combined data sources in the spirit we propose focused on aggregated comparisons such as the total fertility rate at the country level (Dubuc 2012; Toulemon 2004). Only a handful of studies have combined microdata from origin and destination contexts to examine fertility (Impicciatore et al. 2020; Lübke 2014; Singley and Landale 1998), and none of these explores contraceptive outcomes. More generally, contraceptive use has largely been absent from the broader literature that investigates whether migrants adapt to the fertility norms of the destination context (Afulani and Asunka 2015; Kulu et al. 2019). Given that contraceptive use is an important proximate determinant of fertility, our focus on migrants' contraceptive behaviors is crucial to understanding whether and why migrants adapt to the fertility regimes of destination settings.

Data and Sample

We created a novel data set by integrating existing data from two sources: the Trajectoires et Origines Survey (TeO) and the Demographic and Health Surveys (DHS).¹ The TeO is a cross-sectional, nationally representative survey of respondents aged 18–60 years in metropolitan France conducted by the French Institute for Demographic Studies and the French National Institute of Statistics and Economic Studies between September 2008 and February 2009.² The DHS is a standardized cross-sectional survey that is nationally representative of women of reproductive age (15–49 years) and is conducted throughout sub-Saharan Africa by host country governments in collaboration with ICF International. Our sample was constructed

¹ Publicly available versions of both data sets are available for download after a short application process. The DHS can be accessed at <https://dhsprogram.com/> and TeO can be accessed at <http://quelet.progedo.fr/>.

² Immigrant groups were oversampled in TeO, making it an excellent data source for our purposes.

of migrants represented in the TeO and women surveyed in corresponding origin countries through the DHS in a similar time frame (i.e., in 2008–2009). The sample includes respondents from four countries in West Africa (Cameroon, Ivory Coast, Mali, and Senegal) and two countries in Central Africa (Congo-Brazzaville and the Democratic Republic of the Congo) (see online Appendix Table 1), thus representing important streams of the migration from sub-Saharan Africa to France (Adepoju 2004).

Our analytic sample consists of both TeO and DHS respondents of prime reproductive age (18–45 years). Because of the small size of our migrant sample ($n=277$) compared with the large size of our origin-country sample ($n=76,571$), we took a random draw of 350 African women from each of the six origin countries.³ To achieve a harmonized data set, we standardized variables to be consistent across the two data sources, appended the data, and utilized listwise deletion to define our analytic sample. Appendix Table 2 provides detailed information about variable standardization, and Appendix Table 3 provides detailed information about listwise deletion. Our final sample includes migrants from six sub-Saharan African countries who arrived in France at the age of 15 or older ($n=277$) and a sample of women in the corresponding countries of origin ($n=1,483$) (Table 1).⁴ In descriptive comparisons of the levels of contraceptive use, we also include a comparison with a sample of French women of nonmigrant origin ($n=1,393$) from TeO.

Measures

Outcomes

Our analyses consider a range of contraceptive outcomes, all dichotomous indicators of current use of various methods: any modern method; long-acting reversible contraceptives (LARCs; i.e., implants and intrauterine devices); hormonal short-acting contraceptives (SACs; i.e., oral contraceptive pills and injectables); coital short-acting contraceptives (i.e., condoms, diaphragms, and cervical caps); and traditional methods (i.e., withdrawal and rhythm methods and lactational amenorrhea).⁵

Characteristics

Because women who migrate are likely different from those who do not, we controlled for background characteristics that might predict women's likelihood of migration and of contraceptive use: education (indicators for primary or less, secondary, higher education);⁶ number of siblings (indicators for 0–2, 3–4, five or more);

³ Among the 2,100 randomly selected women from the six African origin countries, 1,728 were in the correct age range (18–45). Of those, 1,483 were not missing any key variables (see the online Appendix Table 3).

⁴ We excluded migrants who came under the age of 15 (the so-called “1.5 generation”) because they are often qualitatively different.

⁵ In cases of multiple reported contraceptive methods, DHS uses the most effective method as the main one. The TeO sample was recoded accordingly.

⁶ For migrant women, we used education prior to arrival in France to account for the fact that migration might impact educational trajectories.

religion (indicators for Muslim, Christian, other religion); indicators for whether the respondent is the first-born child; and birth cohort. We also included country of origin fixed effects, which control for country-level confounders such as different reproductive health policies and migration histories. A subset of models also includes controls for current characteristics that might be affected by migration and might in turn affect contraceptive use. These include continuous measures of current parity and ideal family size and dichotomous measures of current employment, insurance, and partnership in a marriage or cohabiting union.

Methods

In the first part of our analysis, we assessed descriptively how the contraceptive use of African migrants in France compares with that of native French women in France and with nonmigrant African women in the corresponding African countries. Next, we investigated whether differences in observed characteristics between migrants and women in origin countries explain differences in contraceptive use between the two groups. To do so, we used entropy balancing to weight the background characteristics of women in origin countries so that they resembled migrants on mean, variance, and skew (Hainmueller and Xu 2013; Zhao and Percival 2017).⁷ We then conducted multivariate analyses of the association between migration status and current modern contraceptive use using these weights.⁸ Entropy balancing is preferred to propensity score matching for our small sample sizes given that the latter assumes a functional form, which may cause more unbalance than balance. The main limitation of the entropy balancing approach is that it controls for observed covariates only and cannot address unobserved selectivity into migration.

Results

Table 1 shows that the current contraceptive behaviors of African migrants to France in our harmonized sample more closely resemble those of nonmigrant French women than of women in the six African countries of origin. For example, 56% of migrants use a modern method, as do 67% of French women and 12% of women in the countries of origin. Similar patterns hold for current use of hormonal SACs (38% of French women, 29% of migrants, and 4% of women in the origin countries) and LARCs (18% of French women, 19% of migrants, and less than 1% of women in the origin countries). Meanwhile, women in the African countries of origin report significantly higher use of traditional contraceptive methods than do the other two groups (10% versus 0% of French women and migrants). Only the use of short-acting coital methods is similar across all three groups (7% of French women, 4% of migrants, and 7% of women in the origin countries).

⁷ Entropy balancing was conducted using the *ebalance* command in Stata 15. Generated weights were then used in regression analyses with the *pweight* specification.

⁸ Because we conducted entropy balancing in this analysis, we did not employ the sampling weights provided by DHS and TeO.

Table 1 Descriptive statistics (proportions and means) comparing migrants in France from six African countries with women living in those countries and with nonmigrants in France

Measure	Migrants in France (n=277)	Women Living in Africa (n=1,483)	Nonmigrant Women in France (n=1,393)
Contraceptive Use			
Modern method	.56	.12	.67
Traditional method	.00	.10	.00
Coital short-acting method	.04	.07	.07
Hormonal short-acting method	.29	.04	.38
Long-acting reversible method	.19	.00	.18
Education			
Primary or less	.33	.67	.12
Secondary	.45	.29	.59
Higher education	.21	.03	.29
No. of Siblings			
0–2	.11	.10	.53
3–4	.26	.17	.32
≥5	.63	.73	.15
Religion			
Christian	.58	.54	.45
Muslim	.32	.40	.03
Other	.10	.06	.52
First-Born			
Birth Cohort	.23	.20	.27
1960–1965	.12	.03	.18
1966–1970	.27	.11	.22
1971–1975	.25	.15	.18
1976–1980	.21	.18	.15
1981–1985	.12	.23	.15
1986 or later	.03	.30	.13
Country			
Cameroon	.17	.18	.00
Congo-Brazzaville	.12	.17	.00
Congo (Democratic Republic of)	.15	.17	.00
Ivory Coast	.18	.18	.00
Mali	.10	.15	.00
Senegal	.28	.15	.00
No. of Children Living (mean)			
Ideal Family Size (mean)	2.09	2.63	1.25
Married or Cohabiting	3.43	5.67	2.53
Employed	.70	.73	.67
Has Health Insurance	.61	.56	.78
Age Arrived in France (mean)	1.00	.03	.99

Notes: All individuals were aged 18–45. Bold numbers indicate statistically significant ($p < .05$) differences between migrants in France and either women living in the six African countries or nonmigrant women in France; two-sample t tests were used for continuous measures and chi-square tests were used for all other variables. All variables are dichotomous except for number of living children (range, 0–11) and ideal family size (range, 0–20). The health insurance question was asked in only four of the origin countries ($n=858$). Age at arrival in France is available only for migrants and is not included in multivariate models, but is provided in Table 1 for context.

Table 2 Overview of differences in mean, variance, and skew of key variables between migrants in France from six African countries and women living in those countries, after entropy balancing

Measure	Migrants in France			Women Living in Africa		
	Mean	Variance	Skewness	Mean	Variance	Skewness
Secondary School	.45	.25	0.18	.45	.25	0.18
Higher Education	.21	.17	1.40	.21	.17	1.40
3–4 Siblings	.26	.19	1.10	.26	.19	1.10
≥5 Siblings	.63	.23	-0.53	.63	.23	0.53
Muslim	.32	.22	0.78	.32	.22	0.78
Other Religion	.10	.09	2.58	.10	.09	2.58
First-born	.23	.18	1.28	.23	.18	1.28
Born 1966–1970	.27	.20	1.03	.27	.20	1.03
Born 1971–1975	.25	.19	1.14	.25	.19	1.14
Born 1976–1980	.21	.17	1.40	.21	.17	1.40
Born 1981–1985	.12	.11	2.35	.12	.11	2.35
Born 1986 or Later	.03	.03	5.63	.03	.03	5.61
Congo-Brazzaville	.12	.10	2.41	.12	.10	2.41
Congo (Democratic Republic of)	.15	.13	1.98	.15	.13	1.98
Ivory Coast	.18	.15	1.66	.18	.15	1.66
Mali	.10	.09	2.65	.10	.09	2.65
Senegal	.28	.20	0.97	.28	.20	0.97

The large differences in contraceptive use observed between African migrants in France and women in the corresponding origin countries could reflect the fact that migrants adapt to the contraceptive norms of their destination. Alternatively, migrants to France might reflect a selected group that would have had different contraceptive use irrespective of migration. In support of the latter perspective, Table 1 shows that African migrants to France have a higher average level of education and come from smaller families than their counterparts in the countries of origin. Yet at the same time, migrants report less education and come from larger families than nonmigrant French women.

To explore whether differences in observed characteristics explain the differences in contraceptive use between migrants and women in origin countries, we reweighted women in origin countries to resemble migrants on observed background characteristics. As Table 2 shows, after reweighting, migrants and women in origin countries look virtually identical on key background characteristics, including education, sibling number, religion, birth order, birth cohort, and country of origin. Multivariate analyses presented in Table 3 show that migration to France is associated with dramatic differences in women's contraceptive use when women in origin settings are reweighted to resemble migrants on observed characteristics. Specifically, migration is associated with a 36-percentage-point higher probability of currently using a modern contraceptive method, a 20-percentage-point higher probability of using a hormonal short-acting method, a 17-percentage-point higher probability of using a LARC, and a 10-percentage-point lower probability of using a traditional method. One notable exception is that migration is not associated with coital SAC use, which may reflect similar levels of use in both origin and destination contexts (Table 1).

Table 3 Analysis of the association between migration and contraceptive use comparing migrants in France from six African countries with women living in those countries

	Modern Method (1a)	Modern Method (1b)	Hormonal Short-Acting Method (2a)	Hormonal Short-Acting Method (2b)	Coital Short-Acting Method (3a)	Coital Short-Acting Method (3b)	Long-Acting Reversible Method (4a)	Long-Acting Reversible Method (4b)	Traditional Method (5a)	Traditional Method (5b)
Migrant (ref. = women living in Africa)	.36*** (.04)	.37*** (.05)	.20*** (.04)	.21*** (.04)	-.03 (.02)	-.04 (.03)	.17*** (.03)	.18*** (.03)	-.10*** (.02)	-.10*** (.02)
Controls for Background Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for Current Characteristics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R ²	.19	.26	.13	.16	.07	.07	.10	.14	.12	.12

Notes: *n*=1,760. Linear probability models used entropy balancing to weight women in origin countries to reflect migrants' background characteristics on mean, variance, and skew. Robust standard errors are shown in parentheses. Yes/No indicates whether controls in question were included in the model. Background characteristics include number of siblings, religious affiliation, first-born status, birth cohort, and education. Current characteristics include current parity, ideal family size, employment, and partnership. Entropy balancing was conducted on background characteristics in both models a and b.

****p*<.001

Robustness Checks

The multivariate results in [Table 3](#) are robust to logistic and multinomial logistic regression specifications (available upon request),⁹ including controls for current ideal family size, parity, employment, and partnership (see the b models in [Table 3](#));¹⁰ limiting the sample to migrants who arrived in France more recently (i.e., in the last five years) (see online Appendix Figure 1); limiting the control comparison to women in urban areas (since migrants may be more likely to originate from urban areas, where contraceptive use is higher; see [Mbacké 2017](#)) (Appendix Figure 1); and using seeded random samples of different sizes (Appendix Figure 2).

Discussion

Our multisited analysis suggests that the contraceptive use of African migrants in France in our harmonized sample aligned more closely with that of French women than of women from the six origin countries. Some of these differences were quite dramatic; for example, among women in origin countries, use of LARCs was less than 1% and use of hormonal SACs was 4%, whereas use of these methods for migrants was 19% and 29%, respectively. The striking differences in contraceptive use could reflect that migrants adapted to the contraceptive norms of destination contexts. In part, this could be related to the fact that migrants had greater access to health care than did women in origin countries, which might facilitate access to LARCs or hormonal SACs, which require outside medical assistance.

At the same time, we cannot rule out selection. In multivariate analyses, we showed that migration is associated with dramatic differences in contraceptive use even after accounting for observed background differences between migrants and women in origin settings. Nonetheless, we were limited to a restricted group of variables and could not account for unobserved characteristics such as gender ideology, religiosity, and contraceptive attitudes, which might further affect propensities to migrate and to use contraceptives. Furthermore, there might be additional selectivity in our sample composition because migrants who did not adopt mainstream behaviors might have had a higher propensity for return migration (and thus would not have appeared in our sample).

Although contraceptive use is an important proximate determinant of fertility, it has generally been absent from the scholarship that investigates whether migrants adapt to the fertility norms of the destination context. Our findings complement and enhance the existing literature on migration and reproduction by highlighting that migrants' contraceptive behaviors should feature more prominently in dominant demographic paradigms of migrant fertility. Hence, there is a need for better multisited data on a wide range of reproductive health outcomes that includes contraceptive use. Finally, our results point to the importance of reproductive health

⁹ Because the migrant variable perfectly (or almost perfectly) predicts some of the contraceptive outcomes, we used Firth logistic regression.

¹⁰ Respondents were weighted on background characteristics in these supplementary models.

policies that make highly effective forms of contraception widely available to migrant populations. ■

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References

Adepoju, A. (2004). Trends in international migration in and from Africa. In D. S. Massey & J. E. Taylor (Eds.), *International migration: Prospects and policies in a global market* (pp. 59–76). Oxford, UK: Oxford University Press. Retrieved from https://books.google.com/books?hl=en&lr=&id=fEG2-E13fO4C&oi=fnd&pg=PA59&dq=.+Trends+in+international+migration+in+and+from+Africa&ots=vJ8Gi6004Z&sig=e-9GrS-6z3hle83VT2_t3Vg1qOE#v=onepage&q=.%20Trends%20in%20international%20migration%20in%20and%20from%20Africa&f=false

Afulani, P. A., & Asunka, J. (2015). Socialization, adaptation, transnationalism, and the reproductive behavior of sub-Saharan African migrants in France. *Population Research and Policy Review*, 34, 561–592.

Akinyemi, J. O., Odimegwu, C. O., & Adebawale, A. S. (2017). The effect of internal migration, individual and contextual characteristics on contraceptive use among Nigerian women. *Health Care for Women International*, 38, 1075–1094.

Beauchemin, C. (2014). A manifesto for quantitative multi-sited approaches to international migration. *International Migration Review*, 48, 921–938.

Diaz, E., Omland, G., Hannestad, Y., & Ruths, S. (2019). Use of hormonal contraceptives among immigrant women and their daughters in Norway: Data from the Norwegian prescription database. *Acta Obstetricia Et Gynecologica Scandinavica*, 98, 232–239.

Dubuc, S. (2012). Immigration to the UK from high-fertility countries: Intergenerational adaptation and fertility convergence. *Population and Development Review*, 38, 353–368.

Garcés-Palacio, I. C., Altarac, M., & Scarinci, I. C. (2008). Contraceptive knowledge and use among low-income Hispanic immigrant women and non-Hispanic women. *Contraception*, 77, 270–275.

Hainmueller, J., & Xu, Y. (2013). ebalance: A Stata package for entropy balancing. *Journal of Statistical Software*, 54(7). <https://doi.org/10.18637/jss.v054.i07>

Impicciatore, R., Gabrielli, G., & Paterno, A. (2020). Migrants' fertility in Italy: A comparison between origin and destination. *European Journal of Population*, 36, 799–825.

Kulu, H., Milewski, N., Hannemann, T., & Mikolai, J. (2019). A decade of life-course research on fertility of immigrants and their descendants in Europe. *Demographic Research*, 40, 1345–1374. <https://doi.org/10.4054/DemRes.2019.40.46>

Lübke, C. (2014). How migration affects the timing of childbearing: The transition to a first birth among Polish women in Britain. *European Journal of Population*, 31, 1–20.

Mbacké, C. (2017). The persistence of high fertility in sub-Saharan Africa: A comment. *Population and Development Review*, 43(S1), 330–337.

Ochako, R., Askew, I., Okal, J., Oicho, J., & Temmerman, M. (2016). Modern contraceptive use among migrant and non-migrant women in Kenya. *Reproductive Health*, 13, 67. <https://doi.org/10.1186/s12978-016-0183-3>

Poncet, L. C., Huang, N., Rei, W., Lin, Y.-C., & Chen, C.-Y. (2013). Contraceptive use and method among immigrant women in France: Relationship with socioeconomic status. *European Journal of Contraception and Reproductive Health Care*, 18, 468–479.

Singley, S. G., & Landale, N. S. (1998). Incorporating origin and process in migration-fertility frameworks: The case of Puerto Rican women. *Social Forces*, 76, 1437–1464.

Tapales, A., Douglas-Hall, A., & Whitehead, H. (2018). The sexual and reproductive health of foreign-born women in the United States. *Contraception*, 98, 47–51.

Toulemon, L. (2004). Fertility among immigrant women: New data, a new approach. *Population and Societies*, 400, 1–4.

Zhao, Q., & Percival, D. (2017). Entropy balancing is doubly robust. *Journal of Causal Inference*, 5, 20160010. <https://doi.org/10.1515/jci-2016-0010>

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