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Research Report

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Changes in Migration Patterns and Remittances: Do Female and Skilled Migrants remit more?*

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Migrants' remittances to developing countries have significantly increased and are the second largest source of finance for developing countries after foreign direct investment. Also, the composition of international migration flows has been characterized by a growing feminization and skill intensity. In reviewing the literature on remittances, we argue that these two recent phenomena cannot be ignored if one aims to explain the role of remittances as a lifeline for developing countries. Using an original dataset on bilateral remittances and estimating a gravity model in which the gender and skill dimensions of the migrants are accounted for, we show that on average, annual remittances received by origin countries increase with the share of women and college graduates in the bilateral corridor. This effect is mainly driven by the presence of high-skilled female migrants.



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According to recent World Bank estimates, officially recorded remittances to developing countries were USD 401 billion in 2012, and remain a key resource flow that far exceeds official development assistance, private debt, and portfolio equity. Moreover, this flow is expected to grow by 12.3 percent and reach \$515 billion in 2015, thus sustaining growth and development in developing countries and serving as a lifeline for the poor. However, to get a more comprehensive picture on the effects and the importance of remittances, the migrants' gender and educational characteristics have to be taken into account as suggested by recent patterns of international migration.

► A growing share of female and skilled migrants

In the last few decades, international migration has been characterized by a rapidly increasing feminization and skill intensity, as shown on Figure 1.

On the one hand, women started to migrate more independently, in search of better work opportunities, rather than for family reunification reasons or as dependent of male migrants. This led the global number of females living outside their origin country to become almost equal to that of men. Using bilateral migration data presented in Artuç et al. (forthcoming), we observe that the mean level of the female share in migration equals 37 percent (48 percent in high income destinations and 16 percent in poor countries), showing a clear feminization of migration to developed countries. At the regional level, migrant women numerically outnumbered men in Europe, Latin America and the Caribbean, North America, and Oceania. In Africa and Asia they were generally under-represented as compared to men. In 2000 females represented the majority of migrants from several countries: El Salvador (60 percent), Philippines (64 percent), Belorussia (65 percent),

Thailand (75 percent), among others. The most feminized corridor appears to be Dominican Republic-Greece, while the largest in terms of high-skilled women is Tajikistan-Portugal.

On the other hand, the quality-selective immigration based policies implemented in many traditional destinations (such as Canada, United States, Germany and United Kingdom) boosted the immigration flows of highly skilled people. Data from Docquier et al. (2013) reveal that between 1990 and 2000, the number of skilled immigrants in OECD countries increased by 64 percent. The rise was stronger for immigrants from developing countries (+93 percent), especially from Africa (+113 percent) and Latin America & Caribbean (+97 percent). The mean level of the high-skill share in 2000 was 23 percent. This proportion increases slightly when considering only high-income countries (30 percent); conversely, it drops dramatically in low-income destinations (6 percent).

► Portrait of remittances drawn from a new bilateral database

In this paper, data for bilateral remittances are drawn from Docquier et al. (2012). To the best of our knowledge, this is the most comprehensive bilateral dataset currently available, which documents bilateral remittances. This bilateral data set combines five existing bilateral databases constructed by other authors or organizations: the EU data set, the IMF database, the Romanian data, the IDB database built by the Inter-American Development Bank, and the ECB database. The merging procedure, as described at length in Docquier et al. (2012), prevents possible self-selection problems, and leads to an annual data set with 8,928 observations for 1,348 country pairs over the period 1985-2005.

This new data set reveals that the most important corridors are Philippines-United States, Bangladesh-Saudi Arabia, Philippines-Saudi Arabia and Philippines-Japan. The largest remittance

recipient is Philippines with more than 6 billion US dollars per year. As regards remittances per migrant, the data show that in 2000 the average level of remittances per migrant amounted to USD 1,023. However, the average amount remitted varies widely with the characteristics of migrants. On average, college-educated and female migrants remit more, with around USD 4,509 and USD 2,550 per individual, respectively. Also, variations in remittances per migrant are very large, depending on the development level of the host country: from USD 25 per migrant in low-income host countries to USD 1,025 dollars per individual in high-income host countries.

► New migration patterns and remittances

A broad strand of literature on the determinants of remittances has focused on the role played by migrants' characteristics. Several papers have studied the financial contribution of female migrant workers to their country of origin, emphasizing how men and women differ in terms of propensity to remit. On the one hand, females may remit more both in USD and as a percentage of income because they tend to maintain stronger ties with their restricted and extended family, and because their remitting behavior is driven more by altruism (Orozco et al., 2006). On the other hand, women may remit less because of disadvantaged labor market conditions (Cortes, 2013) and family reunifications.

Figure 1. High-skilled and female migration in top host countries (1990-2000)

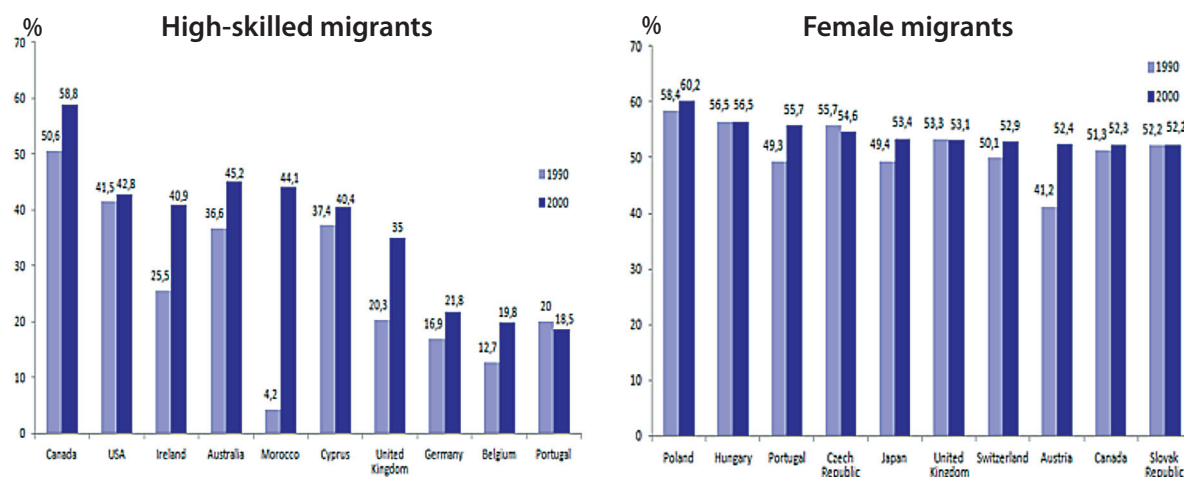


Table 1. Poisson estimations accounting for gender and education

	Poisson R_{ijdt} (1)	Poisson R_{ijdt} (2)	Poisson R_{ijdt} (3)	Poisson R_{ijdt} (4)	Poisson R_{ijdt} (5)
Number of migrants at dest. (log)	0.771*** (0.033)	0.820*** (0.036)	0.795*** (0.035)	0.795*** (0.033)	0.778** (0.033)
Share of females at dest.	1.217*** (0.382)		1.161*** (0.375)		
Share of skilled people at dest.		0.967* (0.552)	0.813 (0.548)		
Share of skilled females at dest.				2.312*** (0.633)	
Share of unskilled females at dest.					0.652* (0.388)
GDP at origin (log)	2.417*** (0.875)	2.336*** (0.894)	2.444*** (0.876)	2.510*** (0.887)	2.300*** (0.844)
GDP at dest. (log)	1.153*** (0.318)	1.529*** (0.320)	1.152*** (0.321)	1.147*** (0.319)	1.554*** (0.314)
Interest Rate	-0.022 (0.015)	-0.022 (0.015)	-0.022 (0.015)	-0.022 (0.015)	-0.023 (0.015)
Exchange Rate	-0.023 (0.019)	-0.016 (0.018)	-0.020 (0.019)	-0.019 (0.018)	-0.022 (0.019)
Contiguity	0.962*** (0.311)	1.123*** (0.289)	0.944*** (0.311)	1.134*** (0.289)	1.054*** (0.304)
Distance (log)	-0.008 (0.016)	-0.015 (0.016)	-0.008 (0.016)	-0.018 (0.016)	-0.011 (0.016)
Common language (dummy)	0.417*** (0.159)	0.375*** (0.168)	0.337* (0.173)	0.268 (0.171)	0.521*** (0.156)
Colony (dummy)	0.808*** (0.168)	0.658** (0.167)	0.812*** (0.168)	0.767*** (0.170)	0.740*** (0.163)
Constant	-39.43** (16.47)	-44.76** (17.21)	-40.81** (16.43)	-41.04** (16.71)	-36.33** (16.64)
Pseudo log-likelihood	-4.58E+13	-4.57E+13	-4.52E+13	-4.53E+13	-4.57E+13
Observations	8,888	8,888	8,888	8,888	8,888
R-squared	0.927	0.927	0.927	0.927	

Robust standard errors in parentheses below the estimates. Significant at 10% level ** 5% level *** 1% level.
All regressions include origin, destination, year and database fixed effects.

The effect of migrants' education is also unclear. At the macro and micro level, it has been found that migrants' remittances decrease with the proportion of skilled individuals among emigrants. Different conclusions were reached by Docquier et al. (2012) who highlighted the role of immigration policies in determining the sign and magnitude of the relationship between remittances and migrants' education. At a micro level, Bollard et al. (2011) found, a mixed pattern between higher education and the likelihood of remitting, and a strong positive relationship between higher education and the amount remitted (conditional on remitting).

Our paper sheds light on this issue, relying on bilateral remittance data and the same gravity model as in Docquier et al. (2012). Using the Poisson pseudo-maximum likelihood estimator, which addresses the issue of the large proportion of zeroes in our dependent variable, we regress the amount of remittances on the share of women, the share of college-educated migrants, and a combination of both. Our results, presented in Table 1, show that the share of females and the share of college graduates at destination are always positive and significant. We find that a 1 percent increase in the share of women in the migration diaspora leads to an 11

percent increase in annual remittances. A 1 percent increase in the share of college graduates leads to an 8 percent increase in annual remittances. Moreover, the number of migrants at destination is also positive and significant. As regards the validity of the gravity factors (see Lueth and Ruiz-Arranz, 2008), geographical distance is negative but not significant, linguistic and cultural proximity are positive and highly significant. As far as nominal GDP variables are concerned, the positive sign for both the level of GDP at origin and that at destination confirms that larger countries receive (and send) larger amounts of remittances.

Finally, as an additional empirical exercise, the shares of high-skilled and low-skilled women in the diaspora are presented in columns 4 and 5. It shows that the remitting propensity by females is clearly more for college-educated women than for less educated women. A single-unit change in the share of females and skilled in the migration diaspora leads to an increase of 2.3% and 1.6% in bilateral remittances. If skilled females are instead considered, remittances increase by 8.7%.

In summary, the estimation of a gravity model of remittances reveals that the education level and gender of migrants matter significantly in determining the size of remittance flows. We show that the shares of females and college-educated in the diaspora significantly increase annual remittances received in the country of origin. Moreover, we find that the positive effect of women's share on remittances is mainly driven by high-skilled women relative to less educated ones. Given these findings, we can expect a positive effect of the recent feminization and the increasing education of migrants on annual remittance inflows received by developing countries.

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