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Leonid V. Azarnert, Slava Yakubenko

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Effects of Emigration on Gender Norms in Countries of Origin

Abstract

This paper studies the effect of emigration on gender norms in countries of migrants' origin. We use an instrumental variable strategy that allows us to estimate a causal effect of emigration on gender inequality. Our findings suggest that emigration to countries with low (high) levels of gender inequality is associated with promotion of more (less) progressive gender norms. These effects are observed for a wide range of indicators and are robust to inclusion of a set of control variables. Moreover, countries with high levels of gender inequality benefit from this process disproportionately more. Based on the provided evidence we argue that this effect is channelled through "cultural remittances".

JEL-Codes: F220, F630, J160.

Keywords: migration, gender, cultural remittances.

Leonid V. Azarnert
National Research University – Higher School of Economics, St. Petersburg / Russia
Leonid.Azarnert@gmail.com

Slava Yakubenko
University of Göttingen / Germany
viacheslav.yakubenko@wiwi.uni-goettingen.de

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1 Introduction

Migration is not a new phenomenon. People have been migrating since the very origins of humanity. Over time people spread all over the world and settled down to form different nations with unique cultures. However, this did not stop migration. Nowadays people are still moving across the globe, but hardly can go to *terra incognita*. Instead, they move between established societies with already formed cultures. Exposure to new customs, beliefs and norms is a powerful force that keeps cultures alive and developing. This has always been true for both migrants and the societies they enter. However, development of technologies allowing information transfer, faster and safer travel enables migrants to keep in touch with their origin societies. This has definitely intensified globalisation and made cultural exchange purely multidirectional. In this paper we study the effect of emigration on gender-related norms specifically at origin countries of migrants.

Despite the world becoming so well-connected and technologically advanced, some population groups remain systematically disadvantaged. One of the bright examples is gender inequality. Besides this situation being principally unfair, it also hampers economic growth (Santos & Klasen, 2021). Even though remarkable progress has been made in some areas recently, gender disparities still remain in every country. That is why Sustainable Development Goal 5 aims to "achieve gender equality and empower all women and girls". However, female empowerment is a complex process that might face resistance as it is backed by the norms adopted in the society. The literature has demonstrated that some norms have very deep roots and can be very persistent (Acemoglu et al., 2001; Ashraf & Galor, 2013; Giuliano & Nunn, 2021; Olsson & Paik, 2016). At the same time, a number of articles demonstrates that some attitudes, which might also be considered norms, can be altered very fast. For example, La Ferrara et al. (2012) and Adena et al. (2015) show that media can affect fertility preference or anti-Semitism, respectively, in a relatively short term. Spilimbergo (2009) and Docquier et al. (2016) demonstrate that emigration can promote democracy in the origin countries. Our paper falls into the second strand providing evidence that gender-related attitudes can change fast due to emigration.

The relationship between emigration and gender is not entirely new to the literature. Beine et al. (2013) demonstrate that exposure of migrants to lower fertility norms reduces fertility at their countries of origin. Ferrant and Tuccio (2015) argue that South-South migration leads to a convergence of female discrimination in origin countries towards levels of destination countries. Diabate and Mesplé-Somps (2019) provide evidence that Malian return migrants from countries, where female circumcision is not common, have a significant negative effect on the spread of female genital mutilation. Lodigiani and Salomone (2020) show that emigration induces female political empowerment, but conditional on the female parliamentary participation in destination countries. We contribute to the literature by generalising the relationship between emigration and female well-being. Relying on exogenous instruments, this article provides empirical evidence that emigration has a *causal* effect on a wide range of indicators of female well-being. Considering several dimensions, namely health, education and socio-economic situation, allows us to argue that this influence is complex and not channelled through one particular indicator (e.g., fertility).

In this paper, we primarily focus on the beneficial effect of emigration on gender equality. However, there exists evidence that emigrants can also transmit discriminating norms. Bertoli and Marchetta (2015) show that return migrants in Egypt promote (higher) fertility norms of other Arab countries, they typically go to. Tuccio and Wahba (2018) argue that Jordan returnees from other Arab countries bear more conservative norms on the role of women. The empirical framework of our paper allows us to evaluate the detrimental effect of emigration. We also find that gender inequality might increase in the number of emigrants to

gender-unequal countries. Even though this effect is primarily observed in the health domain, it cannot be ignored.

As in Rapoport et al. (2020), we argue that a diffusion of norms occurs through "cultural remittances" – a transfer of norms from destination to origin countries. For most of the indicators we rely on male-to-female ratios, what allows us to avoid making assumptions about the particular transition channels. The most obvious potential sources of influence can be return migration and cross-border communications with family and friends. For example, Chauvet and Mercier (2014) argue that return migrants transfer political norms to their origin countries. At the same time, Nikolova et al. (2017) and Ivlevs and King (2017) demonstrate that having relatives or friends abroad affects the behaviour of those left behind. The effects we describe in this paper would be observed regardless of the particular diffusion channel. Furthermore, we are aware of the literature arguing that *monetary* remittances can improve health (Adams, 2011) or educational outcomes (Adams & Cuecuecha, 2010; Calero et al., 2009), especially for girls (Antman, 2012). Thus, we explicitly control for monetary remittances and demonstrate that observed effects are not determined by monetary flows from abroad.

Finally, we do acknowledge possible selection into migration of people sharing more progressive gender norms. For example, women and men believing that both genders should have paid jobs might also be younger, active and ready to migrate. Alternatively, if females are systematically discriminated, people practising more equal gender norms might simply have more incentives to migrate. First of all, this would imply that our estimates reveal only the lower bound of the "cultural remittances" effect: people with more conservative gender attitudes stay at origin, but nevertheless adjust and perceive more progressive norms, as we see in the data. Moreover, we employ an instrumental variable strategy that allows us to estimate a causal effect of migration on norms back at countries of origin. Even though we find some evidence that a change in norms associated with "cultural remittances" can also encourage economically more active females (the ones that were more likely to take paid jobs) to emigrate disproportionately more than males, we see that migration can nevertheless facilitate progress in other dimensions.

This paper is organised as follows. The introduction is followed by Section 2 that presents the empirical methodology of the study and addresses the potential challenges that we face. Section 3 discusses the main results of the paper. Section 4 demonstrates a set of robustness checks that we perform. A brief conclusion section summarises the paper.

2 Empirical methodology

Our aim is to empirically analyse the effect of emigration on gender parity in a country of origin. We assume that a larger diaspora abroad has a stronger influence on cultural norms at home: more people exchange information and physically travel across the border. Given that all states enforce different gender-related norms, we expect that emigrants send back to their countries of origin different "cultural remittances". It is logical to assume that emigrants exposed to more equal gender norms are more likely to translate them to their home countries compared to emigrants exposed to gender-unequal norms. To distinguish between the supposed norms that migrants translate we employ the Gender Inequality Index: we split all countries into four quartiles according to their values of GII in 1995, so the first quartile (Q1) represents the most gender-equal countries and the fourth one contains the least equal states (Q4)[1].

[1]We use values of 1995, as this is the first time period available in our sample. However, the rank distribution remains remarkably similar over time: a Spearman's rank correlation coefficient between GII in 1995 and 2015 is equal to 0.895.

GII appears to be a comprehensive indicator for the evaluation of female well-being. By construction it correlates with a number of standard indicators (see Table A2 in the Appendix). However, Figure 1 demonstrates that the index is highly correlated with variables that are not directly used for its calculation, but also reflect the conditions women face in everyday life. In more gender-unequal societies (proxied by higher GII) more women face less physical or sexual violence, consider that being beaten by the husband can be justified and get married by the age of 18. At the same time, lower levels of GII are associated with more women making their own informed decisions regarding sexual relations, contraceptive use and reproductive health care, and actually using contraception.

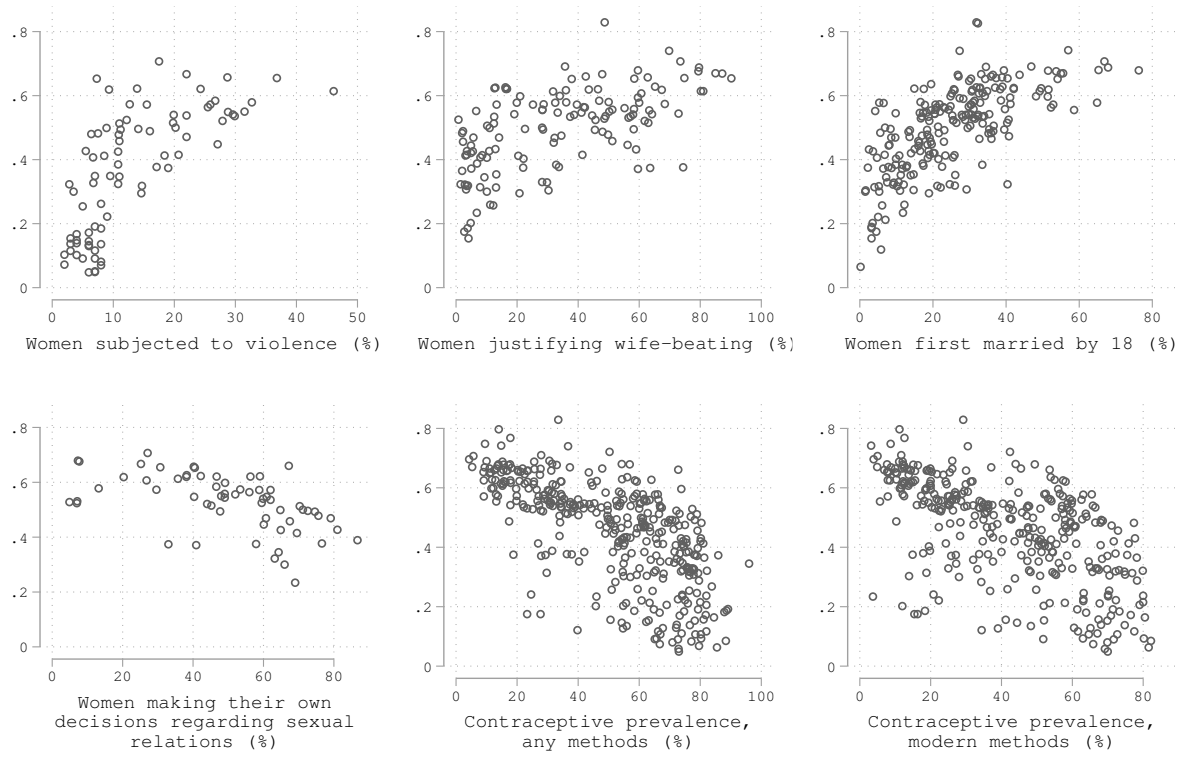

Figure 1: GII and selected indicators of female well-being

Our main explanatory variable is a natural logarithm of a total stock of emigrants, $\ln(M_{it}^{g})$, of a country i living in a particular group of countries g in a year t[2]. This data are provided by the United Nation Population Division. We deliberately choose the logarithm of emigrant stock over the share of emigrants in a total population of a country of origin. The former is distributed much closer to a normal distribution than the latter, as Figure 2 demonstrates. We control for a scale effect by including a population size of a country of origin in all regressions presented below.

We employ several dependent variables, y_{it}, that capture well-being of females. A list of common indicators can be roughly split into three categories: (1) health, (2) education and (3) socio-economic empowerment. The first group includes fertility, female life expectancy, infant and under-five mortality. Prettner and Strulik

[2]As male and female stocks are very closely correlated (correlation coefficient of 0.958), we rely on the total stocks. The similar results obtained for male and female stocks separately could be requested from the authors.

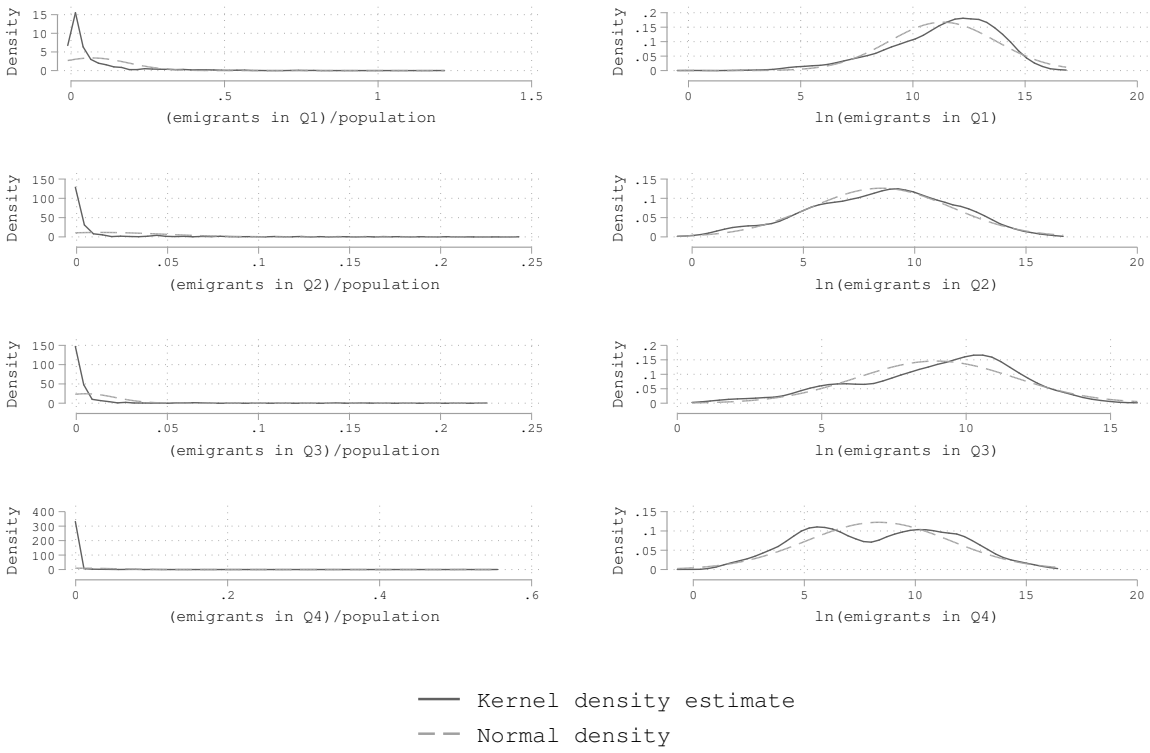

Figure 2: Distributions of emigration indicators

(2017) show that women typically desire less children than men, thus, higher fertility is associated with lower bargaining power of females within a household. Moreover, Maitra (2004) shows that a woman's control over resources is associated with better health outcomes for children. However, given that emigrants can remit not only gender-specific norms, but also promote good health practices (e.g., advertise vaccines or science-based medicine), in some cases we can expect beneficial effects for males. Thus, we also consider male-to-female ratios of life expectancy and mortality rates. To measure education outcomes, we use gross enrolment rates in primary, secondary and tertiary education. Similarly to health indicators, we do not argue that only females benefit from the "cultural remittances" and also consider male-to-female ratios. The last group of indicators includes female labour force participation and "Women, Business and the Law" index (WBL) by the World Bank. WBL analyses laws and regulations that affect economic opportunities of females in 190 countries and evaluates them on a 100-point scale, where higher values imply that a country is closer to gender parity.

2.1 Fixed-effects model

Our data sample is an unbalanced panel with a wide coverage of countries. Migration data available in five-year time intervals from 1990 till 2015 and for 2019 come from United Nations Global Migration Database.

Relying on a panel structure allows us to construct the following baseline regression equation:

$$y_{it} = \beta_0 + \beta_1 \ln(M_{it}^g) + \sum_k \beta_k X_{it}^k + \eta_i + \tau_t + \varepsilon_{it}, \tag{1}$$

where fixed effects η_i control for all time-invariant unobserved heterogeneity at the country level (e.g., geography, legal origin or religion). To control for simultaneity and account for global trends observed all over the world we employ year fixed effect τ_t. A vector of control variables, X_{it}^k, besides a natural logarithm of national population, includes a natural logarithm of per-capita GDP (in PPP terms), shares of trade and oil revenues in aggregate GDP and a share of total population residing in urban areas of origin countries. The link between income and inequality (including a gender one) is well established in the literature (Kopczuk et al., 2010; Piketty et al., 2017). Anderson (2005), Bussmann (2009) and Borrowman and Klasen (2020) have demonstrated that trade openness can have adverse effects of gender inequality. Oil revenues are used as a proxy for natural resource abundance that can hamper economic development (Leamer et al., 1999), increase inequality (Loayza & Rigolini, 2016) and harm institutions (Tsui, 2011). Moreover, Kotsadam and Tolonen (2016) have demonstrated that natural resources discovery can affect gender inequality directly. According to Shackleton et al. (2020) urbanisation can potentially influence allocation of household labour, so we control for its effect too. All the employed dependent and control variables are obtained from the World Bank.

Another advantage of FE estimator is that it allows us to focus only on within variation during our analysis. For example, countries with similar levels of development of gender-related norms had higher mutual stocks of migrants in 1990, as the left panel of Table 1 demonstrates. However, inclusion of country-level fixed effects allows to control for the initial stocks to compare each country with itself over time. Similar to the evidence provided by Artuc et al. (2015), in the right panel of Table 1 we show that countries from Q3 and Q4 groups have experienced the largest relative increase in the stock of emigrants to Q1 countries. In other words, in our data sample migration has intensified the most between countries with initially contrasting gender-related norms. We do not object the findings by Beine et al. (2011) and Beine et al. (2015), who demonstrate that existing diasporas can facilitate migration both to particular countries or metropolitan area, respectively. However, when we consider evolution of the foreign diasporas in groups of countries, existing stocks of migrants become not that important. In other words, diasporas can still affect the choice of a particular destination within each country group, but the choice of a country group is arguably determined by other factors too.

2.2 FE2SLS model

Even though a fixed-effects estimator controls for unobserved country-specific characteristics, indicators of female well-being can still be endogenous to migration. Two possible types of reverse causality appear very plausible. Firstly, migrants often self-select themselves, if they already share the values of destination countries (Docquier et al., 2016; Docquier et al., 2020). In other words, people can be more willing to emigrate from countries, where females are systematically disadvantaged. Secondly, if women have less rights, emigration can be too costly (both for females and males). Moreover, an omitted variable bias could be a serious issue in our case. For example, if local changes in the political regime or some kind of national conflict can affect both emigration and gender equality. In all three mentioned cases estimated regression coefficients are likely to be biased, but the direction of this bias is not universal and depends on a particular country. For this reason we use a fixed-effects two-stage least squares strategy (FE2SLS) with

Table 1: Mutual stocks of emigrants in different groups of countries

	Emigrants stock in 1990 ('000 people)				Δ emigrants stock 1990-2019 (%)			
Destination:	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Q1	734.484	52.550	58.620	8.396	67.055	152.777	243.776	52.170
	(821.135)	(92.032)	(98.297)	(15.562)	(63.846)	(115.538)	(689.441)	(159.061)
Q2	308.336	633.907	64.208	18.589	281.699	57.110	45.625	455.644
	(338.378)	(1793.642)	(154.762)	(57.639)	(500.392)	(115.538)	(161.832)	(1792.826)
Q3	355.914	71.273	66.432	21.303	484.868	422.444	464.992	246.269
	(886.647)	(130.785)	(147.022)	(58.236)	(538.525)	(591.181)	(1384.626)	(453.604)
Q4	218.166	12.442	75.250	440.663	397.046	563.339	411.986	77.390
	(401.066)	(25.323)	(170.946)	(1009.917)	(786.024)	(926.875)	(567.218)	(275.004)

Each row presents information on the average level or the average growth factor of emigration stock from a respective group of origin countries. Standard deviations in parentheses.

a "zero stage" that predicts bilateral migration stocks. Predicted number of emigrants is aggregated over a group of destination countries and is used as an instrument variable on the first stage of FE2SLS regression.

First of all, we employ a standard pseudo-gravity model to predict bilateral migration stocks, m_{ijt}, from a country of origin i to a country of destination j in year t with "relative geography" variables. The regression equation of the "zero stage" takes the following form:

$$m_{ijt} = \beta_0^{zero} + \beta_1^{zero} Cont_{ij} + \beta_2^{zero} Lang_{ij} + \sum_t \beta_t^{zero} \tau_t \ln(Dist_{ij}) + \mu_{jt} + \epsilon_{ijt}, \tag{2}$$

where variables $Cont_{ij}$ and $Lang_{ij}$ stand for contiguity and common language spoken by, at least, 9 percent of populations of countries i and j[3]. We follow Feyrer (2009) and allow for time variation in the effects of bilateral distance, $Dist_{ij}$. For example, advances in technology and increased level of globalisation have decreased migration-inhibiting effect of distance. All "relative geography" variables are taken from the CEPII database. We include destination-year fixed effects, μ_{jt}, to capture both attractiveness and accessibility of destinations in a particular year. For example, Bertoli and Fernández-Huertas Moraga (2013) highlight the importance of visa regulations and Beine et al. (2020) argue that better migrant rights significantly affect the choice of potential destinations. Given that bilateral migration stocks for most of country pairs are zeros, ordinary least squares estimator is likely to be biased. The Poisson pseudo-maximum-likelihood (PPML) estimator proposed by Santos Silva and Tenreyro (2006) appears more appropriate in this case. However, alternative estimators provided similar results (see Table A3 in the Appendix). Once we predict migration stocks with "relative geography" for all origin-destination pairs, we aggregate them at the level of GII quartile separately for each origin country and use these *predicted* stocks as an instrument for actual stocks at the first stage of our regression.

Relying on "relative geography" is a well-established approach in the literature (e.g., Alesina et al., 2016; Beine and Parsons, 2015; Docquier et al., 2016; Docquier et al., 2014; Spilimbergo, 2009). However, we slightly modify this strategy and do not use any variable describing countries of origin, besides their geographic position relative to destination countries and an existence of a common language. This allows us to predict stocks of emigrants that are by construction exogenous to any characteristic of origin countries, including indicators of female well-being. Having time variation in the effects of distance and attractiveness

[3]The common language spoken by 9 percent of populations is a standard variable provided by CEPII and is widely used in the literature. For example, see Alesina et al. (2016), Beine and Parsons (2015) or Docquier et al. (2016).

of destinations ensures that predicted stocks are not constant within countries and allows us to include country and year fixed effects in 2SLS estimation. Even though we include only pull factors in our model, it predicts bilateral migration relatively well: the PPML model we rely on yields a pseudo R-squared of more than 60 percent. This goes in line with Dao et al. (2018) arguing that the effect of financial constraints at origin is limited and Mayda (2010) demonstrating that pull factors in destination countries significantly increase migration.

2.3 Addressing possible selection into emigration

Relying on FE2SLS estimator allows us to argue about causality. However, this does not solve the selection problem completely. Even though, we predict stocks that are exogenous to norms at origin, we cannot ignore the fact that existing diasporas attract new migrants (Beine & Salomone, 2013). This implies that some indicators could be mechanically reduced by emigration and not as a result of a transfer of norms. Given that a larger foreign diaspora is likely to facilitate emigration of young and active individuals, we might expect it to primarily reduce fertility, enrolment into education (especially tertiary) and labour force participation.

First of all, we argue that the mechanical effect of emigration on the total fertility rate provided by the World Bank is diluted in a number of ways. According to the World Bank, *"total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year"*. In other words, fertility rates account for the age structure of the population remaining at origin. Of course, not all emigrants are properly accounted, so the age-specific fertility rates can be underestimated for younger cohorts that leave the country and give birth to their children elsewhere. However, this effect should be not overestimated, as there is a wide body of the literature allowing us to assume that emigrants typically have lower fertility. For example, in their studies of global migration, Beine et al. (2008), Docquier et al. (2015) and Delogu et al. (2018) argue that, in general, emigrants are more educated than those left behind in their countries of origin. Combining this argument with the literature studying fertility, we expect emigrants to desire less children even if they stay at countries of origin (Keats, 2018; Lam & Duryea, 1999). Finally, in our sample emigrants on average constitute less than 9 percent of the national population, so their potential influence on total fertility rate is rather restricted. Overall, we do not object the fact that emigration can naturally reduce fertility, but we provide evidence that the magnitude of this effect is substantially limited by a number of factors named above.

Speaking about education enrolment ratios, the existence of a large foreign diaspora can provide better opportunities to continue education abroad. As will be demonstrated further, this is especially relevant for a tertiary level, when students reach the age, when they can travel alone. However, this effect should be not gender specific. Thus, if we employ male-to-female ratios of school enrolment, we can focus on the relative effect of emigration on gender-related norms. We argue that if the ratio decreases in emigration, this fact indicates the shift of norms in favour of women. Theoretically, same logic applies to labour force participation. However, later on this paper we find a detrimental effect of emigration on both level and male-to-female ratio of labour force participation. This result does not confront our story, but suggests a possible presence of ability drain. Society at origin can still receive more progressive norms, but this results into emigration of the most active females that would alternatively enter the local labour marker.

3 Emigration to Q1 countries and selected indicators at origin

In this section we present regression results of a wide range of indicators of gender empowerment on the size of foreign diaspora in Q1 countries. We start with health-related outcomes, followed by education and socio-economic variables.

Estimation results in Table 2 demonstrate significant effect of the size of diaspora living in Q1 countries on all considered indicators of female health. All regressions include per-capita GDP and year fixed effects allowing us to control for the effect of income and the time trend, respectively[4]. Nevertheless, a larger stock of emigrants is still significantly associated with all dependent variables. A negative relationship is observed for fertility and male-to-female life expectancy. At the same time, a bigger diaspora abroad increases boys-to-girls mortality ratios for infants and children under five. An increase in mortality rates ratios implies that girls enjoy lower risk of death relative to boys if more of their compatriots reside in Q1 countries. We have also run the regressions for female and male health outcomes in absolute terms (see Tables A4 and A5) and found similar effects for both genders: no significant association with life expectancy and a negative effect on both indicators of child mortality. Our findings go in line with the existing literature arguing that female empowerment is positively associated with children's health (Maitra, 2004). This implies that both girls and boys benefit from a larger diaspora abroad: for example, emigrants can advertise vaccination or science-based medicine for their friends and relatives left at the countries of origin. However, the results suggest that girls benefit from this influence disproportionately more than boys. The magnitude of the described effects is not negligible: for example, a 20-percent increase in emigrant stock in Q1 countries results into 0.161 children less born by a woman or increases under-five mortality ratio by 22 percent of a standard deviation.

In contrast to emigration, remittances do not demonstrate robust effect on the selected indicators. Moreover, statistically significant coefficients in columns (2), (4), (5) and (7) are quantitatively negligible: doubling remittances received by a country translates into less than five percent of a standard deviation of all dependent variables. The only positive effect is observed for fertility: removing financial constraints might allow people to have more children. However, quantitatively this effect is much smaller compared to the one of "cultural remittances". We acknowledge the fact that monetary and "cultural remittances" are collinear. Thus, we also run all the regression specifications of this section without monetary remittances and show that the cultural effects of diaspora are robust to exclusion of monetary ones (see Table A6).

The results in Table 2 go in line with the hypothesis that a transfer of norms from Q1 countries promotes gender equality. It is important to note that results remain significant under both FE and FE2SLS estimators, but the latter demonstrates stronger quantitative effects. This suggests a potential presence of reverse causality that biases the coefficients toward zero: more gender-equal norms at origin might decrease incentives to emigrate. Once we isolate the causal effect of emigration, its magnitude increases two to five times, depending on the indicator of female well-being. Kleibergen–Paap Wald rk (KP) F-statistics for all regressions lie well above the most conservative values for a case of one instrumented variable and one excluded instrument developed by Stock and Yogo (2005), suggesting that our first stage is not weakly identified.

Table 3 demonstrates that the size of diaspora has a significant negative effect on male-to-female ratios in gross school enrolment rates. Notably, the magnitude of these effects increases in the level of education and peaks for tertiary one, where a 50-percent increase of emigrants stock in Q1 decreases the ratio by one standard deviation. This difference can be explained by the age of eligible children. Kids going to primary schools are typically too young to be efficient workers or consider marriage, so alternative costs at

[4]Moreover, all regression include the full list of auxiliary controls described above. For compactness, we do not present them, but the full-version tables can be seen in the Online Appendix

Table 2: Emigration to Q1 and health

Dep. variable:	fertility		LE ratio		IM ratio		U5 ratio	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(M_{it}^{Q1})$	-0.398***	-0.804***	-0.009***	-0.016**	0.010***	0.049**	0.015***	0.077***
	(0.100)	(0.212)	(0.002)	(0.007)	(0.003)	(0.022)	(0.004)	(0.026)
$\ln(\text{remittances}_{pc})$	0.014	0.049**	0.001	0.001*	0.002***	-0.001	0.002***	-0.003
	(0.017)	(0.024)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)
N of obs.	797	788	799	790	802	798	802	798
N of countries	159	156	159	156	160	158	160	158
Adj. R-squared	0.969		0.910		0.917		0.927	
KP F-statistic		31.284		21.142		20.879		20.879

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

this education level are low. As a result, parents send their offspring to primary school, if they have such an opportunity, regardless of their gender attitudes. However, secondary and especially tertiary education can be seen as competing activities to work and marriage, especially for older children (Delprato et al., 2017; Delprato et al., 2015) and young adults (Goldin & Katz, 2002). Our results suggest that a stronger cultural influence from Q1 countries proxied by emigrants' stock can promote education and postpone alternative activities. We do not find any significant association between remittances and male-to-female ratios in school enrolment rates. This suggests that we find no binding effect of financial constraints for education in our sample, at least, at the country level.

It is important to address the contrast between FE and FE2SLS estimates. For all educational levels the effect of the former estimator is quantitatively smaller or even insignificant for tertiary education. As in the case with health outcomes, one possible explanation for this could be reverse causality. The contrast between the two estimators is especially pronounced for tertiary education. Despite a substantial progress, females still face more obstacles to pursue their education (The Global Education Monitoring Report team, 2020). If females are systematically disadvantaged at their countries of origin, they can consider entering a university abroad, where gender barriers are lower. Nevertheless, when we employ an FE2SLS estimator to establish the causal effect of emigration on male-to-female ratio in tertiary education we observe a significant negative effect. This result suggests that more females relative to males decide to pursue a university degree at their country of origin, if their country's diaspora in Q1 increases.

Table 4 demonstrates the effects of the emigration to Q1 countries on a range of social and economic indicators. In column (1) we observe no significant effect on WBL index if we employ a single-stage FE estimator. This can be explained by the presence of reverse causality: low levels of the index suggesting systematic discrimination of women that can constrain migration. However, when we estimate the causal effect of emigration via FE2SLS estimator, we see a significant positive coefficient in column (2). This suggests a beneficial influence of the diaspora in Q1 countries on the laws and regulations affecting women's economic inclusion at countries of origin.

Results presented so far have demonstrated only beneficial effect of emigration to Q1 on female well-being. However, we observe negative coefficients of emigration on female labour force participation both

Table 3: Emigration to Q1 and male-to-female ratios in education

Education level:	Primary		Secondary		Tertiary	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	-0.038*	-0.175**	-0.089***	-0.355*	-0.222	-2.228***
	(0.022)	(0.083)	(0.034)	(0.201)	(0.215)	(0.814)
$\ln(\text{remittances}_{pc})$	-0.001	0.010	0.000	0.021	-0.045	0.099
	(0.004)	(0.008)	(0.006)	(0.017)	(0.033)	(0.071)
N of obs.	684	677	568	561	478	472
N of countries	147	144	136	133	117	115
Adj. R-squared	0.701		0.836		0.784	
KP F-statistic		14.543		9.333		11.015

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

under single- and two-stage FE estimators. This effect has to be considered thoroughly. First of all, labour force participation captures only paid market activities and ignores home labour, which can also be time- and effort-consuming to the extent that varies across countries. Nevertheless, the negative effect of emigration on female labour force participation suggests that for many females emigration and entering the domestic labour market are competing activities: the most active or qualified women that could alternatively enter the formal domestic labour market are more likely to emigrate. At the same time, we observe no significant relationship between emigration and male labour force participation in columns (5) and (6), as there is no known evidence for the selection of males into the labour force at the aggregate level. The negative coefficients in columns (3) and (4) go in line with the studies arguing that a larger foreign diaspora can lower associated costs and facilitate emigration. Moreover, it can also be seen as an evidence of the cultural influence: women endowed with less opportunities at the domestic labour market, but nevertheless willing to pursue their careers, are more likely to emigrate. However, despite being good for single individuals this type of selection is not necessarily good for the country as a whole, as a male-to-female ratio in labour force ratio is increasing in the stock of emigrants in Q1 countries. This finding can be viewed as a potential sign of a female ability drain.

4 Robustness checks

In this section we provide evidence that the results demonstrated above are robust in several ways. First, we demonstrate that emigration affects gender-related outcomes directly and not through one single factor. Then, we show that not all destinations affect gender norms equally. Finally, we provide evidence that origin countries benefit from "cultural remittances" not uniformly, but depending on their current level of gender inequality.

Table 4: Emigration to Q1 and socio-economic indicators

Dep. variable:	WBL		female LFP		male LFP		LFP ratio	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(M_{it}^{Q1})$	-0.190	12.919**	-2.432***	-8.670***	-0.074	-0.175	0.071**	0.725***
	(1.086)	(6.093)	(0.675)	(2.426)	(0.410)	(1.667)	(0.036)	(0.244)
$\ln(\text{remittances}_{pc})$	0.121	-0.999	-0.458***	0.082	0.117	0.127	0.031***	-0.026
	(0.253)	(0.619)	(0.131)	(0.241)	(0.095)	(0.173)	(0.009)	(0.024)
N	798	794	773	769	773	769	773	769
Number of countries	158	156	154	152	154	152	154	152
Adj. R-squared	0.902		0.965		0.936		0.946	
KP F-statistic		21.018		31.140		31.140		31.140

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

4.1 Separating fertility effect

Fertility is an important factor that has a strong impact on various aspects of female's life. First of all, even in highly-developed countries childbearing can harm women's health, so that female life expectancy is closely correlated with fertility. Secondly, according to a standard Becker's theory, a higher number of kids can financially constrain parents, what might result into higher child mortality. Thirdly, it has been broadly demonstrated (e.g., by Fletcher & Wolfe, 2009; Miller, 2010; Ribar, 1994) that childbearing early in life decreases potential education outcomes, so we can expect a negative effect of fertility on school enrolment rates. Finally, child rearing is a time-consuming activity, thus, it significantly reduces females' labour market outcomes (Bloom et al., 2009). We do not aim to neglect these relationships. Instead, we argue that the effects of emigration on female well-being demonstrated above are not translated solely through fertility decisions.

Table 5 shows that most of the relationships established so far in this paper are robust to inclusion of fertility. The only exception is male-to-female enrolment in secondary education, where we no longer observe a significant relationship. As one possible explanation we can suggest that early marriage (partially indicated by high fertility) can lead to a school dropout, which is especially pronounced for female students (Azarnert, 2009; Caldwell et al., 1992). Other coefficients support the statement that emigration significantly influences a whole array of outcomes for females and this effect is not solely channelled through fertility. This is especially important in the context of emigration-fertility relationship. Even if there is a mechanic component in it, we provide evidence that other indicators of norms are not driven by fertility. Hence, we argue that emigration is very likely to affect the whole array of gender-related norms at countries of origin.

4.2 Sensitivity to different destinations

We have provided evidence that emigration to Q1 states improves well-being of females in countries of origin. Moreover, we argued that this is a result of "cultural remittances": emigrants translate back home more gender-equal norms. However, this argument implies that migration can affect norms in various ways and cultural influence from other parts of the world is principally different. To show that this is indeed the

Table 5: Robustness to inclusion of fertility. FE2SLS estimates

Dep. variable:	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\ln(\text{Mit}^{Q1})$	-0.013**	0.035*	0.062**	-0.179**	-0.343	-2.955***	12.942**	-10.134***	0.993***
	(0.006)	(0.021)	(0.025)	(0.090)	(0.228)	(1.053)	(6.268)	(2.982)	(0.270)
$\ln(\text{remittances}_{pc})$	0.001	0.000	-0.002	0.010	0.021	0.134	-0.986	0.171	-0.042
	(0.001)	(0.002)	(0.002)	(0.008)	(0.019)	(0.083)	(0.610)	(0.276)	(0.026)
fertility	0.005**	-0.008	-0.006	-0.018	-0.025	-0.642*	0.581	-1.814**	0.332***
	(0.002)	(0.006)	(0.007)	(0.024)	(0.067)	(0.353)	(1.730)	(0.905)	(0.086)
N	788	788	788	670	555	472	786	769	769
Number of countries	156	156	156	143	132	115	155	152	152
KP F-statistic	28.340	28.340	28.340	16.747	10.722	8.884	28.384	28.102	28.102

LE, IM, U5M, PE, SE, TE stand for life expectancy, infant and under-five mortality, gross enrolment into primary, secondary and tertiary education, respectively. All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

case, we also consider migration to destinations belonging to other quartiles of GII index.

Results presented in Table 6 demonstrate that the effects of emigration on outcomes at origin can differ substantially between destination. Results in Panel A suggest that emigration to Q2 has a significant negative effect on fertility, male-to-female life expectancy ratio and increases infant and under-five mortality, primary education and labour force participation rates. Except for primary education, these effects follow rather similar pattern to the ones observed for Q1 countries, but are generally smaller in magnitude and we no longer observe a significant effect on SE, TE, WBL index, and female labour force participation. However, in Panels B and C coefficients reveal a strikingly different picture for Q3 and Q4 destinations. We no longer observe the inhibiting effect of emigration on fertility in Q3 case and even see a significant positive effect for Q4 destinations. The latter finding is in line with Bertoli and Marchetta (2015) arguing that returnees from high-fertility countries generally have more children. At the same time, male-to-female ratios in infant (for Q3 and Q4) and under-five (Q4) mortality ratios are negatively affected by emigration. This implies that girls face higher mortality rates relative to boys, if emigration to Q3 and Q4 countries intensifies. Moreover, a larger diaspora in Q3 states is associated with significantly lower WBL at origin. The only beneficial effects for gender parity in Panel B are observed for male-to-female ratios of gross enrolment in primary and secondary education. The beneficial effect on primary and secondary schooling can be explained by the fact that Q3 countries are the group with the highest gross enrolment rate in primary education for both females and males – both above 100 percent. Apparently, this outcome is partially achieved because even children older than eligible age are going to school, at least, to get some basic schooling. Even though, the male-to-female ratio is already higher than in Q1 and Q2, suggesting that boys can be favoured or simply repeat grades more often, the supposed norm to which immigrants are exposed to postulates that all kids go to primary school, irrespective of their gender. Exposure to this norm might reduce the bias against girls at primary school enrolment. This effect can span a bit further, if children (including girls) remain at school a bit longer and get, at least, a few years of secondary education. This finding implies that not only Q1 states can translate norms (including good ones) to origin countries. However, quantitatively the effects of emigration to Q3 on male-to-female ratios remain modest: doubling a foreign diaspora size translates in a reduction equivalent to 0.85 and 0.55 standard deviations, respectively. Overall, the empirical evidence suggests that the net effect of emigration to Q3 and Q4 countries is not associated with a clear adjustment of norms towards gender parity and has a detrimental effect on more indicators of female well-being.

As a consequence, another important fact implied by the coefficients from Table 6 is that the beneficial effect of emigration is sensitive to destinations. We provide empirical evidence that gender-related norms at origins are generally improving in the size of diaspora in Q1 countries, but not so much for other GII quartiles. Thus, we can argue that the observed beneficial effect is not driven by a raw outflow of population. For example, reduced competition for resources can provide new opportunities to previously disadvantaged groups. However, this is not what we universally observe in the data: emigration to Q3 and Q4 countries does not alter the norms in a desired way, while a larger stock of emigrants in Q1 and (to a smaller extend) Q2 does. We emphasise the effect of "cultural remittances" as one of the plausible explanations.

4.3 Comparing effects of norms and income

We do not object the fact that Q1 countries enjoy not only a relatively high level of gender equality, but also high level of income. Thus, we can expect that immigrants in these countries are also expected to earn higher incomes and can potentially send higher monetary remittances, as was demonstrated above. For this reason, we have to demonstrate that the beneficial effect of emigration on female well-being is channelled through

Table 6: Sensitivity to emigration to different country groups. FE2SLS estimates

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Emigration to Q2										
$\ln(M_{it}^{Q2})$	-0.691***	-0.016***	0.016*	0.032***	0.080**	0.148	-0.480	-0.465	1.093	0.406***
	(0.183)	(0.005)	(0.009)	(0.010)	(0.035)	(0.099)	(0.399)	(2.982)	(1.703)	(0.127)
N	788	790	798	798	677	561	472	794	769	769
Number of countries	156	156	158	158	144	133	115	156	152	152
KP F-statistic	46.215	48.717	47.606	47.606	60.051	19.577	41.156	47.596	52.299	52.299
Panel B: Emigration to Q3										
$\ln(M_{it}^{Q3})$	0.063	0.002	-0.011*	-0.010	-0.128***	-0.192**	0.031	-6.480***	-2.051*	-0.227**
	(0.160)	(0.004)	(0.007)	(0.008)	(0.037)	(0.080)	(0.383)	(2.344)	(1.174)	(0.104)
N	762	764	770	770	658	550	470	768	744	744
Number of countries	151	151	152	152	138	129	114	151	147	147
KP F-statistic	33.059	33.317	33.881	33.881	38.473	22.580	14.652	33.897	31.693	31.693
Panel C: Emigration to Q4										
$\ln(M_{it}^{Q4})$	0.965***	0.007	-0.021*	-0.041***	-0.052	0.166	-0.847	-3.824	1.517	0.179
	(0.296)	(0.006)	(0.011)	(0.015)	(0.079)	(0.135)	(0.557)	(3.598)	(1.974)	(0.210)
N	673	675	675	675	576	472	422	673	661	661
Number of countries	135	135	135	135	123	112	102	134	132	132
KP F-statistic	17.287	17.023	17.023	17.023	15.495	12.776	20.226	17.069	17.285	17.285

LE, IM, U5M, PE, SE, TE stand for life expectancy, infant and under-five mortality, gross enrolment into primary, secondary and tertiary education, respectively. All regressions include year and country-of-origin FEs, and a vector of the following controls: log of monetary remittances, log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

a transfer of norms and not higher disposable incomes at origin. For this reason we consider migration to rich, but not Q1 countries. To distinguish those, we divide all non-Q1 states into three terciles according to the levels of income. Top tercile (T3) are the countries that had the highest income in 1995, but were not in the top quartile of GII[5]. Full list of T3 countries can be found in the Appendix.

It is natural to expect many Q2 countries to be in the T3 group. However, the two groups are not completely identical: only 16 countries are included in both groups (out of 30 in each group). The average level of GII is higher in T3: 0.486 compared to 0.425 in Q2. Moreover, Q2 is by construction a group with rather homogenous levels of gender inequality, but T3 were grouped according to similar levels of income. As a result, the GII of the latter group has a much higher spread: standard deviation of 0.104 (against 0.052 in Q1) and the maximum level of 0.679 observed in Algeria actually belonging to Q4 group. Overall, we see that T3 is a very heterogeneous group in terms of gender-related norms. Thus, we do not expect migrants in these states to translate similar norms back to their origin countries.

Results presented in Table 7 demonstrate almost no significant effect of emigration to T3 destinations on gender-related indicators at origin countries. A larger diaspora in T3 even has a negative effect on WBL, but it is only weakly significant. Moreover, we see a negative effect on female labour force participation, which most likely indicates that emigration, regardless of the destination, attracts active females, who could enter the labour force, if they stayed at their countries of origin. Same holds for male-to-female ratio of labour force participation: while there exists some sort of selection into the labour force and emigration for females, males are typically expected to be part of the labour force regardless of their personal qualities. Overall, we see that exposure of emigrants to higher incomes alone is not associated with any movement towards gender parity in their countries of origin.

4.4 Sensitivity to different origins

Given that different migration destinations affect norms at origins differently, we can also expect that the effects of "cultural remittances" vary between origin countries. As Table 1 demonstrates, migrants from Q1 countries still constitute a substantial part of newcomers to other Q1 destinations. Thus, we need to show that the observed effects of emigration on gender-related norms are not driven by countries belonging to the similar quartiles of GII. To do so, we allow for heterogenous effects of emigration to Q1 between four quartile groups. Allowing for a separate slope for each of the country groups, we can compare the effects of emigration to Q1 between countries according to their relative level of gender inequality. However, before we start with this exercise, we need to address the associated econometric issues. As was demonstrated above, a simple FE estimator is likely to be inconsistent, as emigration is expected to be endogenous to norms. At the same time, instrumenting four interaction terms with the GII quartiles will highly correlate with origin fixed effects and lead to a weak instruments problem. For this reason, we run reduced-form regressions with predicted emigration from the "zero stage" as the main explanatory variable. It is by construction exogenous to norms at origin and still allows to analyse the causal effect of emigration. Results presented in Table A7 demonstrate that in the reduced-form equations predicted stocks of emigrants affect our indicators of female well-being in a very similar way to the actually observed stocks.

Results presented in Table 8 reveal differential effects of emigration across groups of origin countries. We see very little effects on norms in Q1 origin countries. However, other country groups adjust their norms faster, if the stock of emigrants in Q1 becomes larger. Judging by the number of indicators of female well-

[5]Similar to GII, income rank distribution of countries has not changed dramatically in our study period. Correlation coefficient of the terciles in 1995 and 2015 was 0.85.

Table 7: Emigration to rich non-Q1 countries. FE2SLS regressions

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(M_{it}^{T3})$	-0.008	-0.006	-0.019	-0.016	-0.022	0.090	-0.969	-8.680*	-9.616**	0.637*
	(0.274)	(0.006)	(0.014)	(0.015)	(0.062)	(0.165)	(0.867)	(4.688)	(4.343)	(0.333)
$\ln(\text{remittances}_{pc})$	-0.019	0.000	0.004***	0.004***	-0.004	-0.010	-0.026	0.336	-0.416*	0.021
	(0.018)	(0.000)	(0.001)	(0.001)	(0.004)	(0.007)	(0.041)	(0.314)	(0.229)	(0.015)
N	784	786	794	794	673	558	472	790	765	765
Number of countries	155	155	157	157	143	132	115	155	151	151
KP F-statistic	8.909	9.045	9.115	9.115	7.033	4.057	6.114	9.031	7.083	7.083

LE, IM, U5M, PE, SE, TE stand for life expectancy, infant and under-five mortality, gross enrolment into primary, secondary and tertiary education, respectively. All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

being that are significantly affected by emigration, Q3 and Q4 states are the ones that exceptionally benefit form this process. This finding supports our story: for countries lagging behind in terms of women's rights exposure to more advanced norms or even information about them from friends and relatives can yield large benefits. However, as countries move closer to full gender parity, the speed of convergence slows down: many people already accept equal gender norms, so the informative effect of "cultural remittances" is not strong any more. The only indicators that are significantly affected by emigration to Q1 in other Q1 countries are WBL index and indicators of labour force participation. The former effect can be explained by the fact that adjustment of legislation in Q1 is easier compared to higher quartiles of GII, where pro-female laws are likely to face resistance of the ruling elites.

Finally, we have to address the negative effect of emigration on female labour force participation in all groups of origin countries. This finding supports the hypothesis that there might exist significant selection into migration and females that were more likely to formally enter the local labour force decide to emigrate. Notably, this effect is observed in all groups of countries, but it is the strongest for Q4 origins: a one-standard-deviation increase in emigration to Q1 translates into a decrease in female labour force participation equivalent to 11 percent of the mean in Q4 countries and only 8 percent in Q1. Interestingly, this kind of selection appears similar for males in Q4 countries – thus, we do not observe a significant effect on male-to-female ratio.

5 Conclusion

This article develops the argument that emigration can affect gender norms at the countries of migrant's origin. We provide extensive empirical evidence demonstrating that the size of foreign diaspora affects a wide range of indicators of female well-being. Relying on an instrumental variable strategy allows us to argue that the observed effects are causal. The empirical results suggest that emigrants residing in countries with low levels of gender inequality facilitate transition towards lower fertility, WBL index, smaller male-to-female ratios in life expectancy and school enrolment, but higher male-to-female mortality ratios. These results are robust to inclusion of monetary remittances and income, implying that the effect is likely coming through the adjustment of norms. Moreover, we demonstrate that not all migration destinations translate equally good gender norms. In contrast, a larger diaspora in countries with high gender inequality is associated with no or even detrimental effect on female well-being. Finally, we demonstrate that countries lagging behind in terms of gender equality benefit from receiving "cultural remittances" disproportionately more than relatively more advanced countries. The findings of this paper provide a positive example of cultural convergence in a very important dimension.

Table 8: Differential effects of emigration to Q1 across origins. FE regressions.

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(\widehat{M}_{it}^{Q1})\times$Q1	0.235	0.001	-0.010	0.016	-0.024	-0.049	-0.752*	10.642**	-5.572**	0.767***
	(0.196)	(0.005)	(0.018)	(0.019)	(0.036)	(0.069)	(0.390)	(4.297)	(2.167)	(0.199)
$\ln(\widehat{M}_{it}^{Q1})\times$Q2	-0.477***	-0.017***	0.006	0.024	-0.018	-0.054	-0.802**	8.977*	-7.571***	0.605***
	(0.178)	(0.005)	(0.016)	(0.017)	(0.035)	(0.068)	(0.383)	(4.698)	(2.248)	(0.194)
$\ln(\widehat{M}_{it}^{Q1})\times$Q3	-0.987***	-0.017**	0.061***	0.104***	-0.008	-0.242**	-1.236**	18.761***	-4.703*	0.681***
	(0.220)	(0.007)	(0.019)	(0.020)	(0.050)	(0.095)	(0.612)	(4.517)	(2.665)	(0.232)
$\ln(\widehat{M}_{it}^{Q1})\times$Q4	-1.196***	-0.023***	0.060***	0.094***	-0.327***	-0.742***	-2.851***	9.188**	-10.821***	0.365
	(0.225)	(0.008)	(0.019)	(0.020)	(0.066)	(0.128)	(0.628)	(4.306)	(2.461)	(0.274)
$\ln(\text{remittances}_{pc})$	0.007	0.000	0.001	0.001	-0.002	0.001	-0.057**	0.050	-0.783***	0.038***
	(0.015)	(0.001)	(0.001)	(0.001)	(0.003)	(0.006)	(0.027)	(0.279)	(0.171)	(0.011)
N	602	602	602	602	530	458	394	602	602	602
Number of countries	114	114	114	114	108	102	94	114	114	114

LE, IM, U5M, PE, SE, TE stand for life expectancy, infant and under-five mortality, gross enrolment into primary, secondary and tertiary education, respectively. All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

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Appendix

Countries included in the dataset:

Q1 countries:

Australia, Austria, Belgium, Canada, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Republic of Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States.

Q2 countries:

Argentina, Armenia, Barbados, Bulgaria, Chile, Costa Rica, Cyprus, Estonia, Georgia, Hungary, Jamaica, Kazakhstan, Latvia, Lithuania, Malaysia, Malta, Mauritius, Moldova, Philippines, Romania, Russian Federation, South Africa, Sri Lanka, Thailand, Ukraine, Uruguay, Vietnam.

Q3 countries:

Belize, Botswana, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Gabon, Ghana, Guatemala, Indonesia, Kuwait, Kyrgyz Republic, Lesotho, Mexico, Mongolia, Namibia, Nicaragua, Panama, Paraguay, Peru, Rwanda, Tajikistan, Tunisia, Turkey, Venezuela, Zambia, Zimbabwe.

Q4 countries:

Algeria, Bangladesh, Benin, Cambodia, Cameroon, Cote d'Ivoire, Egypt, Eswatini, the Gambia, India, Iran, Iraq, Jordan, Kenya, Malawi, Maldives, Mali, Mauritania, Morocco, Nepal, Niger, Pakistan, Papua New Guinea, Senegal, Sudan, Tanzania, Togo, Tonga, Uganda.

T3 countries: Algeria, Argentina, Barbados, Botswana, Brazil, Colombia, Costa Rica, Cyprus, Estonia, Gabon, Hungary, Iran, Jamaica, Malaysia, Malta, Mauritius, Mexico, Panama, Paraguay, South Africa, Thailand, Turkey, Venezuela.

Data sources

Data on fertility, life expectancy, school enrolment and mortality rates, WBL index, remittances, GDP per capita, population, trade and oil revenues are from the World Bank. Gender inequality index (GII) is from United Nations Development Programme.

Table A1: Summary statistics of used variables

Variable	Mean	Std. Dev.	Min	Max
GII	0.414	0.196	0.044	0.841
fertility	3.274	1.700	1.076	8.606
LE ratio	0.930	0.030	0.812	1.009
IM ratio	1.210	0.063	0.753	1.376
U5 ratio	1.185	0.069	0.806	1.410
PE ratio	1.062	0.150	0.798	2.260
SE ratio	1.096	0.351	0.691	4.487
TE ratio	1.288	1.241	0.129	15.523
WBL	64.983	18.475	17.5	100
female LFP	50.542	16.495	5.834	90.77
LFP ratio	1.732	1.086	0.929	12.03
ln(remittances$_{pc}$)	3.744	2.106	-5.072	10.131
ln(GDP$_{pc}$), PPP CD	8.880	1.258	5.675	11.791
ln(population)	15.197	2.355	9.095	21.058
share urban	56.746	24.039	5.416	100
oil share in GDP	4.023	10.343	0	78.541
trade share in GDP	85.287	52.906	0.021	583.314

Table A2: Means of used dependent variables (by GII quartile)

GII quartile	GII	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
1	0.144	1.667	0.929	1.213	1.216	1.004	0.986	0.873	84.762	52.718	1.333
2	0.352	2.020	0.907	1.239	1.234	1.010	0.973	0.802	71.340	50.025	1.476
3	0.500	3.382	0.924	1.231	1.202	1.022	1.003	1.025	64.698	48.963	1.772
4	0.630	4.747	0.948	1.169	1.121	1.140	1.337	2.167	52.076	46.782	2.366

Table A3: "Zero-stage" regressions

	(1)	(2)	(3)	(4)	(5)
Estimator:	OLS	OLS	ZIP	ZINB	PPML
Dependent variable:	$\ln(m_{ijt})$	$\ln(m_{ijt}+1)$	m_{ijt}	m_{ijt}	m_{ijt}
contiguity	1.935***	4.919***	1.606***	5.618***	2.167***
	(0.166)	(0.215)	(0.114)	(0.115)	(0.255)
com. language	0.877***	1.025***	0.600***	2.244***	0.757***
	(0.154)	(0.148)	(0.060)	(0.038)	(0.155)
$\ln(\text{distance})_{1990}$	-0.832***	-0.889***	-0.536***	-1.845***	-0.766***
	(0.083)	(0.049)	(0.081)	(0.047)	(0.090)
$\ln(\text{distance})_{1995}$	-0.856***	-0.931***	-0.538***	-1.834***	-0.725***
	(0.083)	(0.049)	(0.082)	(0.047)	(0.084)
$\ln(\text{distance})_{2000}$	-0.854***	-0.940***	-0.548***	-1.826***	-0.705***
	(0.082)	(0.050)	(0.086)	(0.047)	(0.081)
$\ln(\text{distance})_{2005}$	-0.861***	-0.970***	-0.507***	-1.840***	-0.651***
	(0.082)	(0.051)	(0.082)	(0.046)	(0.079)
$\ln(\text{distance})_{2010}$	-0.891***	-0.986***	-0.477***	-1.849***	-0.614***
	(0.082)	(0.052)	(0.080)	(0.046)	(0.080)
$\ln(\text{distance})_{2015}$	-0.906***	-1.002***	-0.459***	-1.887***	-0.607***
	(0.082)	(0.053)	(0.076)	(0.047)	(0.083)
$\ln(\text{distance})_{2019}$	-0.899***	-1.015***	-0.441***	-1.888***	-0.588***
	(0.082)	(0.053)	(0.073)	(0.046)	(0.086)
Excess zeros prediction:					
ln(population)			-0.266***	-0.481***	
			(0.003)	(0.006)	
N	66838	242172	241800	241800	242172
Number of countries	186	186	186	186	186
R-squared	0.533	0.521			0.608

All regressions include a constant term and destination-country fixed effects. Columns (3) and (4) present results of zero-inflated Poisson model and zero-inflated negative binomial models, respectively. Excess zeros are predicted using the logit model. R-squared is a pseudo R-squared in column (5). Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Emigration to Q1 and female health

Dep. variable:	LE		IM		U5	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	0.220	3.340	-3.540**	-28.652***	-5.485**	-50.515***
	(0.494)	(2.084)	(1.426)	(8.838)	(2.697)	(17.518)
$\ln(\text{remittances}_{pc})$	0.126	-0.142	-1.334***	0.790	-2.367***	1.443
	(0.115)	(0.212)	(0.316)	(0.869)	(0.629)	(1.691)
N	799	790	802	798	802	798
Number of countries	159	156	160	158	160	158
Adj. R-squared	0.956		0.951		0.926	
KP F-statistic		21.142		20.879		20.879

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

Table A5: Emigration to Q1 and male health

Dep. variable:	LE		IM		U5	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	-0.425	1.614	-4.483***	-32.866***	-5.972**	-53.923***
	(0.486)	(2.003)	(1.554)	(9.933)	(2.752)	(18.405)
$\ln(\text{remittances}_{pc})$	0.147	-0.028	-1.531***	0.871	-2.599***	1.458
	(0.109)	(0.203)	(0.350)	(0.972)	(0.661)	(1.774)
N	799	790	802	798	802	798
N countries	159	156	160	158	160	158
Adj. R-squared	0.952		0.956		0.934	
KP F-statistic		21.142		20.879		20.879

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

Table A6: Emigration to Q1 and selected indicators absent monetary remittances. FE2SLS regressions

	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(M^g_{it})$	-0.685***	-0.011**	0.049***	0.070***	-0.150***	-0.282**	-1.542***	7.238**	-6.701***	0.449***
	(0.145)	(0.005)	(0.013)	(0.014)	(0.053)	(0.116)	(0.543)	(3.002)	(1.532)	(0.138)
$\ln(GDP_{pc})$	-0.069	0.002	0.006	0.015***	-0.015	-0.060	-0.034	4.087***	-0.678	0.049
	(0.076)	(0.003)	(0.005)	(0.006)	(0.025)	(0.059)	(0.300)	(1.187)	(0.749)	(0.046)
ln(population)	-1.214***	-0.002	0.068***	0.054***	-0.294***	-0.616***	-1.369**	-9.454***	5.914***	-0.474***
	(0.147)	(0.004)	(0.013)	(0.014)	(0.067)	(0.151)	(0.652)	(2.204)	(1.650)	(0.119)
urban (% of population)	-0.022***	-0.000	-0.000	-0.000	0.002	0.003	0.009	-0.048	0.023	-0.011**
	(0.006)	(0.000)	(0.000)	(0.000)	(0.002)	(0.004)	(0.020)	(0.080)	(0.056)	(0.004)
oil revenue (% of GDP)	-0.001	0.000	0.000	-0.000	-0.003**	-0.015***	0.034	-0.037	-0.005	-0.003
	(0.004)	(0.000)	(0.000)	(0.000)	(0.001)	(0.004)	(0.055)	(0.047)	(0.032)	(0.004)
trade (% of GDP)	0.000	0.000**	-0.000	-0.000	-0.000*	-0.000	-0.000	0.045***	0.009	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.010)	(0.008)	(0.000)
N	931	933	941	941	773	639	533	934	909	909
Number of countries	166	166	168	168	155	144	127	166	162	162
KP F-statistic	41.128	34.657	34.462	34.462	16.140	12.271	11.306	34.397	40.712	40.712

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses.

Table A7: Predicted emigration to Q1 and outcomes at origin. FE regressions.

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(\widehat{M_{it}^{Q1}})$	-0.723***	-0.013**	0.038**	0.060***	-0.117**	-0.190*	-1.518***	10.189**	-7.804***	0.653***
	(0.221)	(0.006)	(0.017)	(0.017)	(0.048)	(0.097)	(0.533)	(4.218)	(2.158)	(0.204)
$\ln(\text{remittances}_{pc})$	-0.016	-0.000	0.003***	0.003***	-0.004	-0.006	-0.059**	0.052	-0.628***	0.034***
	(0.015)	(0.000)	(0.001)	(0.001)	(0.004)	(0.005)	(0.027)	(0.232)	(0.126)	(0.008)
N	788	790	798	798	677	561	472	794	769	769
Number of countries	156	156	158	158	144	133	115	156	152	152

All regressions include year and country-of-origin FEs, and a vector of the following controls: log of population size, log of GDP per capita, share of population in urban areas, shares of trade and oil revenues in GDP. Heteroscedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Online Appendix - not for publication

Table OA1: Emigration to Q1 and health

Dep. variable:	fertility		LE ratio		IM ratio		U5 ratio	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(M_{it}^{Q1})$	-0.398***	-0.804***	-0.009***	-0.016**	0.010***	0.049**	0.015***	0.077***
	(0.100)	(0.212)	(0.002)	(0.007)	(0.003)	(0.022)	(0.004)	(0.026)
$\ln(\text{remittances}_{pc})$	0.014	0.049**	0.001	0.001*	0.002***	-0.001	0.002***	-0.003
	(0.017)	(0.024)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)
$\ln(\text{GDP}_{pc})$	-0.111	-0.090	-0.005	-0.004	0.008	0.006	0.018***	0.016**
	(0.093)	(0.103)	(0.003)	(0.003)	(0.005)	(0.006)	(0.005)	(0.007)
ln(population)	-1.859***	-1.539***	-0.012**	-0.007	0.131***	0.102***	0.130***	0.084***
	(0.195)	(0.246)	(0.006)	(0.008)	(0.010)	(0.019)	(0.010)	(0.023)
urban (% pop.)	-0.019***	-0.016***	-0.000	-0.000	-0.000	-0.001*	-0.000	-0.001
	(0.005)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
oil revenue (% GDP)	-0.006	-0.006	-0.000	-0.000	0.000	0.000	0.000	-0.000
	(0.005)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
trade (% GDP)	0.000	0.000	0.000***	0.000**	0.000	0.000	-0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	797	788	799	790	802	798	802	798
Number of countries	159	156	159	156	160	158	160	158
Adj. R-squared	0.969		0.910		0.917		0.927	
KP F-statistic		31.284		21.142		20.879		20.879

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA2: Emigration to Q1 and male-to-female ratios in education

Education level:	Primary		Secondary		Tertiary	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	-0.038*	-0.175**	-0.089***	-0.355*	-0.222	-2.228***
	(0.022)	(0.083)	(0.034)	(0.201)	(0.215)	(0.814)
$\ln(\text{remittances}_{pc})$	-0.001	0.010	0.000	0.021	-0.045	0.099
	(0.004)	(0.008)	(0.006)	(0.017)	(0.033)	(0.071)
$\ln(\text{GDP}_{pc})$	-0.013	-0.009	-0.042	-0.017	-0.158	0.004
	(0.024)	(0.026)	(0.044)	(0.056)	(0.211)	(0.321)
ln(population)	-0.390***	-0.293***	-0.740***	-0.580***	-2.755***	-1.303*
	(0.057)	(0.081)	(0.116)	(0.159)	(0.515)	(0.741)
urban (% of pop.)	0.002**	0.004**	0.003	0.005	0.005	0.015
	(0.001)	(0.001)	(0.003)	(0.003)	(0.012)	(0.018)
oil revenue (% GDP)	0.000	-0.000	-0.006***	-0.009**	-0.025**	-0.041
	(0.001)	(0.002)	(0.002)	(0.004)	(0.011)	(0.029)
trade (% GDP)	-0.000	-0.000	-0.000	-0.001	-0.002	-0.003
	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.003)
N of obs.	684	677	568	561	478	472
N of countries	147	144	136	133	117	115
Adj. R-squared	0.701		0.836		0.784	
KP F-statistic		14.543		9.333		11.015

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA3: Emigration to Q1 and female health

Dep. variable:	LE		IM		U5	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	0.220	3.340	-3.540**	-28.652***	-5.485**	-50.515***
	(0.494)	(2.084)	(1.426)	(8.838)	(2.697)	(17.518)
$\ln(\text{remittances}_{pc})$	0.126	-0.142	-1.334***	0.790	-2.367***	1.443
	(0.115)	(0.212)	(0.316)	(0.869)	(0.629)	(1.691)
$\ln(\text{GDP}_{pc})$	3.195***	3.019***	-13.134***	-12.149***	-20.619***	-18.855***
	(0.741)	(0.815)	(2.189)	(2.975)	(4.424)	(5.580)
ln(population)	9.589***	7.158***	-54.709***	-35.967***	-118.018***	-84.411***
	(1.742)	(2.530)	(4.982)	(8.391)	(12.495)	(18.556)
urban (% pop.)	0.026	-0.001	-0.024	0.188	0.222	0.601*
	(0.035)	(0.039)	(0.115)	(0.152)	(0.268)	(0.330)
oil revenue (% GDP)	0.000	-0.004	-0.004	0.027	-0.137	-0.080
	(0.022)	(0.025)	(0.083)	(0.147)	(0.169)	(0.284)
trade (% GDP)	0.005	0.010*	0.009	-0.034	0.010	-0.066
	(0.004)	(0.006)	(0.015)	(0.028)	(0.030)	(0.052)
N	799	790	802	798	802	798
Number of countries	159	156	160	158	160	158
Adj. R-squared	0.956		0.951		0.926	
KP F-statistic		21.142		20.879		20.879

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA4: Emigration to Q1 and male health

Dep. variable:	LE		IM		U5	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	-0.425	1.614	-4.483***	-32.866***	-5.972**	-53.923***
	(0.486)	(2.003)	(1.554)	(9.933)	(2.752)	(18.405)
$\ln(\text{remittances}_{pc})$	0.147	-0.028	-1.531***	0.871	-2.599***	1.458
	(0.109)	(0.203)	(0.350)	(0.972)	(0.661)	(1.774)
$\ln(\text{GDP}_{pc})$	2.630***	2.489***	-14.886***	-13.773***	-22.047***	-20.168***
	(0.705)	(0.747)	(2.406)	(3.311)	(4.610)	(5.868)
ln(population)	7.988***	6.387***	-58.618***	-37.431***	-121.116***	-85.326***
	(1.711)	(2.452)	(5.369)	(9.340)	(12.682)	(19.185)
urban (% pop.)	0.009	-0.010	-0.070	0.169	0.163	0.566*
	(0.034)	(0.038)	(0.127)	(0.170)	(0.270)	(0.338)
oil revenue (% GDP)	-0.007	-0.009	-0.003	0.033	-0.140	-0.080
	(0.020)	(0.022)	(0.091)	(0.163)	(0.173)	(0.294)
trade (% GDP)	0.011***	0.014***	0.011	-0.037	0.015	-0.067
	(0.004)	(0.005)	(0.016)	(0.031)	(0.031)	(0.055)
N	799	790	802	798	802	798
Number of countries	159	156	160	158	160	158
Adj. R-squared	0.952		0.956		0.934	
KP F-statistic		21.142		20.879		20.879

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA5: Emigration to Q1 and female gross enrolment rates in education

Education level:	Primary		Secondary		Tertiary	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	3.242	26.688**	7.526***	7.421	-4.590**	-28.151**
	(2.328)	(11.620)	(2.030)	(21.458)	(2.183)	(13.594)
$\ln(\text{remittances}_{pc})$	0.952*	-0.917	-1.246***	-1.248	-0.591	1.161
	(0.510)	(1.038)	(0.476)	(1.781)	(0.531)	(1.180)
$\ln(\text{GDP}_{pc})$	-2.594	-3.470	7.128**	7.169*	2.282	2.804
	(3.282)	(3.808)	(3.208)	(3.779)	(3.874)	(4.962)
ln(population)	53.248***	36.578***	7.060	7.049	-50.120***	-33.524***
	(7.459)	(11.165)	(6.418)	(14.259)	(6.594)	(12.330)
urban (% pop.)	-0.285*	-0.488**	1.041***	1.044***	-0.220	-0.151
	(0.155)	(0.211)	(0.213)	(0.253)	(0.243)	(0.291)
oil revenue (% GDP)	-0.244	-0.189	-0.017	-0.016	-0.822***	-0.997**
	(0.151)	(0.202)	(0.173)	(0.253)	(0.251)	(0.392)
trade (% GDP)	0.039*	0.084**	-0.036	-0.037	0.044	0.029
	(0.023)	(0.040)	(0.027)	(0.048)	(0.029)	(0.040)
N	684	677	568	561	478	472
Number of regions	147	144	136	133	117	115
Adj. R-squared	0.723		0.930		0.906	
KP F-statistic		14.543		9.333		11.015

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA6: Emigration to Q1 and male gross enrolment rates in education

Education level:	Primary		Secondary		Tertiary	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\ln(M_{it}^{Q1})$	2.075	17.011*	5.927***	16.571	-3.122*	-2.358
	(1.874)	(9.395)	(2.069)	(18.884)	(1.706)	(8.763)
$\ln(\text{remittances}_{pc})$	0.470	-0.714	-0.831*	-1.675	-0.669*	-0.681
	(0.453)	(0.832)	(0.460)	(1.592)	(0.378)	(0.777)
$\ln(\text{GDP}_{pc})$	-3.459	-4.073	5.449*	4.345	5.950**	5.001*
	(2.834)	(3.179)	(2.827)	(3.456)	(2.916)	(2.871)
ln(population)	39.220***	28.550***	1.103	-5.464	-26.756***	-27.700***
	(6.548)	(9.134)	(6.167)	(12.662)	(4.567)	(8.273)
urban (% pop)	-0.292**	-0.422**	0.964***	0.881***	0.053	0.017
	(0.144)	(0.184)	(0.218)	(0.257)	(0.157)	(0.163)
oil revenue (% GDP)	-0.162	-0.126	-0.054	0.047	-0.577***	-0.555***
	(0.149)	(0.175)	(0.171)	(0.229)	(0.178)	(0.187)
trade (% GDP)	0.030	0.059*	-0.039	-0.022	0.037*	0.037
	(0.020)	(0.032)	(0.029)	(0.044)	(0.022)	(0.023)
N	684	677	568	561	478	472
Number of countries	147	144	136	133	117	115
Adj. R-squared	0.695		0.928		0.903	
KP F-statistic		14.543		9.333		11.015

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA7: Emigration to Q1 and socio-economic indicators

Dep. variable:	WBL		fem. LFP		male LFP		LFP ratio	
Estimator:	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS	FE	FE2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(M_{it}^{Q1})$	-0.190	12.919**	-2.432***	-8.670***	-0.074	-0.175	0.071**	0.725***
	(1.086)	(6.093)	(0.675)	(2.426)	(0.410)	(1.667)	(0.036)	(0.244)
$\ln(\text{remittances}_{pc})$	0.121	-0.999	-0.458***	0.082	0.117	0.127	0.031***	-0.026
	(0.253)	(0.619)	(0.131)	(0.241)	(0.095)	(0.173)	(0.009)	(0.024)
$\ln(\text{GDP}_{pc})$	4.921***	4.338**	-1.385	-1.111	0.453	0.470	0.043	0.015
	(1.639)	(1.884)	(0.930)	(1.000)	(0.645)	(0.649)	(0.055)	(0.073)
ln(population)	-2.497	-12.457**	-1.786	3.172	1.897	2.025	-0.242*	-0.759***
	(3.107)	(5.460)	(2.019)	(2.771)	(1.445)	(1.896)	(0.132)	(0.263)
urban (% pop.)	0.081	-0.028	0.007	0.057	-0.084**	-0.084**	-0.005	-0.010**
	(0.085)	(0.099)	(0.060)	(0.063)	(0.037)	(0.040)	(0.004)	(0.005)
oil revenue (% GDP)	0.010	-0.007	0.003	0.006	-0.084**	-0.084***	-0.003	-0.003
	(0.061)	(0.080)	(0.034)	(0.047)	(0.032)	(0.033)	(0.004)	(0.005)
trade (% GDP)	0.048***	0.070***	0.007	0.004	0.013**	0.013**	0.000	0.001
	(0.012)	(0.017)	(0.009)	(0.009)	(0.005)	(0.005)	(0.000)	(0.001)
N	798	794	773	769	773	769	773	769
Number of countries	158	156	154	152	154	152	154	152
Adj. R-squared	0.902		0.965		0.936		0.946	
KP F-statistic		21.018		31.140		31.140		31.140

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA8: Robustness to inclusion of fertility. FE2SLS estimates

Dep. variable:	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\ln(M_{it}^{Q1})$	-0.013**	0.035*	0.062**	-0.179**	-0.343	-2.955***	12.942**	-10.134***	0.993***
	(0.006)	(0.021)	(0.025)	(0.090)	(0.228)	(1.053)	(6.268)	(2.982)	(0.270)
$\ln(\text{remittances}_{pc})$	0.001	0.000	-0.002	0.010	0.021	0.134	-0.986	0.171	-0.042
	(0.001)	(0.002)	(0.002)	(0.008)	(0.019)	(0.083)	(0.610)	(0.276)	(0.026)
fertility	0.005**	-0.008	-0.006	-0.018	-0.025	-0.642*	0.581	-1.814**	0.332***
	(0.002)	(0.006)	(0.007)	(0.024)	(0.067)	(0.353)	(1.730)	(0.905)	(0.086)
$\ln(\text{GDP}_{pc})$	-0.004	0.006	0.016**	-0.011	-0.023	-0.068	4.101**	-1.257	0.042
	(0.003)	(0.005)	(0.006)	(0.027)	(0.051)	(0.379)	(1.893)	(1.055)	(0.087)
ln(population)	0.002	0.098***	0.082***	-0.326***	-0.621***	-2.265***	-12.577***	0.311	-0.235
	(0.007)	(0.013)	(0.016)	(0.072)	(0.143)	(0.793)	(4.430)	(2.729)	(0.213)
urban (% pop)	-0.000	-0.001*	-0.001	0.003**	0.004	-0.001	-0.003	0.031	-0.006
	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.023)	(0.095)	(0.064)	(0.005)
oil revenue (% GDP)	-0.000	0.000	-0.000	-0.000	-0.009**	-0.043	-0.000	-0.005	-0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.004)	(0.028)	(0.080)	(0.048)	(0.005)
trade (% GDP)	0.000**	0.000	0.000	-0.000	-0.000	-0.004	0.063***	0.004	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.015)	(0.010)	(0.001)
N	788	788	788	670	555	472	786	769	769
Number of countries	156	156	156	143	132	115	155	152	152
KP F-statistic	28.340	28.340	28.340	16.747	10.722	8.884	28.384	28.102	28.102

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA9: Effects of emigration to Q2. FE2SLS estimates

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(M_{it}^{Q2})$	-0.691***	-0.016***	0.016*	0.032***	0.080**	0.148	-0.480	-0.465	1.093	0.406***
	(0.183)	(0.005)	(0.009)	(0.010)	(0.035)	(0.099)	(0.399)	(2.982)	(1.703)	(0.127)
$\ln(\text{remittances}_{pc})$	-0.006	0.000	0.003***	0.003***	-0.005	-0.010	-0.048*	0.112	-0.686***	0.031***
	(0.015)	(0.001)	(0.001)	(0.001)	(0.004)	(0.007)	(0.028)	(0.248)	(0.133)	(0.009)
$\ln(\text{GDP}_{pc})$	-0.161	-0.006*	0.009	0.021***	-0.013	-0.055	-0.256	4.886***	-1.401	0.075
	(0.108)	(0.004)	(0.005)	(0.006)	(0.025)	(0.048)	(0.241)	(1.665)	(0.986)	(0.068)
ln(population)	-1.499***	-0.003	0.122***	0.108***	-0.516***	-0.960***	-2.406***	-2.183	-4.701*	-0.567***
	(0.299)	(0.009)	(0.013)	(0.016)	(0.086)	(0.197)	(0.698)	(4.105)	(2.489)	(0.201)
urban (% pop)	-0.017**	-0.000	-0.000	-0.000	0.002*	0.001	0.008	0.081	-0.017	-0.006
	(0.007)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.014)	(0.087)	(0.063)	(0.005)
oil revenue (% GDP)	-0.005	-0.000	0.000	0.000	-0.000	-0.006**	-0.019*	0.009	-0.000	-0.003
	(0.007)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.011)	(0.061)	(0.033)	(0.004)
trade (% GDP)	0.001	0.000***	-0.000	-0.000	-0.000	0.000	-0.002	0.049***	0.010	0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.012)	(0.009)	(0.001)
N	788	790	798	798	677	561	472	794	769	769
Number of regions	156	156	158	158	144	133	115	156	152	152
KP F-statistic	46.215	48.717	47.606	47.606	60.051	19.577	41.156	47.596	52.299	52.299

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA10: Effects of emigration to Q3. FE2SLS estimates

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(M_{it}^{Q3})$	0.063	0.002	-0.011*	-0.010	-0.128***	-0.192**	0.031	-6.480***	-2.051*	-0.227**
	(0.160)	(0.004)	(0.007)	(0.008)	(0.037)	(0.080)	(0.383)	(2.344)	(1.174)	(0.104)
$\ln(\text{remittances}_{pc})$	-0.019	-0.000	0.003***	0.004***	-0.001	-0.003	-0.057**	0.166	-0.666***	0.036***
	(0.015)	(0.000)	(0.001)	(0.001)	(0.004)	(0.007)	(0.027)	(0.258)	(0.134)	(0.009)
$\ln(\text{GDP}_{pc})$	-0.136	-0.006*	0.010*	0.021***	-0.035	-0.028	-0.237	3.852*	-1.461	0.060
	(0.100)	(0.003)	(0.005)	(0.006)	(0.041)	(0.086)	(0.231)	(2.085)	(1.098)	(0.070)
ln(population)	-2.258***	-0.024***	0.154***	0.155***	-0.299***	-0.609***	-2.829***	4.642	-1.362	0.028
	(0.220)	(0.006)	(0.013)	(0.015)	(0.069)	(0.143)	(0.503)	(3.975)	(2.515)	(0.143)
urban (% pop)	-0.024***	-0.000	-0.000	0.000	0.004**	0.006	-0.002	0.185	0.009	-0.002
	(0.006)	(0.000)	(0.000)	(0.000)	(0.002)	(0.004)	(0.016)	(0.116)	(0.069)	(0.005)
oil revenue (% GDP)	-0.006	-0.000	0.000	0.000	0.001	-0.006**	-0.022**	0.016	0.010	-0.003
	(0.006)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.010)	(0.071)	(0.031)	(0.004)
trade (% GDP)	0.001	0.000***	0.000	-0.000	0.000	0.000	-0.002	0.055***	0.014	0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.014)	(0.010)	(0.001)
N	762	764	770	770	658	550	470	768	744	744
Number of countries	151	151	152	152	138	129	114	151	147	147
KP F-statistic	33.059	33.317	33.881	33.881	38.473	22.580	14.652	33.897	31.693	31.693

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA11: Effects of emigration to Q4. FE2SLS estimates

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(M_{it}^{Q4})$	0.965***	0.007	-0.021*	-0.041***	-0.052	0.166	-0.847	-3.824	1.517	0.179
	(0.296)	(0.006)	(0.011)	(0.015)	(0.079)	(0.135)	(0.557)	(3.598)	(1.974)	(0.210)
$\ln(\text{remittances}_{pc})$	-0.060**	-0.000	0.005***	0.006***	-0.004	-0.009	-0.055	0.151	-0.757***	0.031**
	(0.028)	(0.001)	(0.001)	(0.001)	(0.006)	(0.007)	(0.040)	(0.323)	(0.162)	(0.012)
$\ln(\text{GDP}_{pc})$	-0.300*	-0.007**	0.014**	0.028***	0.016	-0.109	0.169	3.610*	-2.957***	0.081
	(0.172)	(0.003)	(0.006)	(0.009)	(0.041)	(0.078)	(0.359)	(1.878)	(0.875)	(0.073)
ln(population)	-2.083***	-0.020***	0.148***	0.146***	-0.452***	-0.838***	-3.303***	-5.320	-5.297**	-0.111
	(0.325)	(0.006)	(0.012)	(0.015)	(0.062)	(0.155)	(0.608)	(3.407)	(2.145)	(0.137)
urban (% pop)	-0.034***	-0.000	0.000	0.001	0.002	-0.001	0.012	0.140	-0.073	-0.007
	(0.010)	(0.000)	(0.000)	(0.001)	(0.002)	(0.004)	(0.017)	(0.110)	(0.071)	(0.005)
oil revenue (% GDP)	-0.003	-0.000	0.000	-0.000	-0.000	-0.008***	-0.009	0.040	0.005	-0.003
	(0.008)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.016)	(0.064)	(0.031)	(0.004)
trade (% GDP)	0.001	0.000***	-0.000	-0.000	-0.000	0.000	-0.005**	0.044***	-0.005	0.001**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.017)	(0.010)	(0.001)
N	673	675	675	675	576	472	422	673	661	661
Number of countries	135	135	135	135	123	112	102	134	132	132
KP F-statistic	17.287	17.023	17.023	17.023	15.495	12.776	20.226	17.069	17.285	17.285

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA12: Predicted emigration to Q1 and outcomes at origin. FE regressions.

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(\widehat{M}_{it}^{Q1})$	-0.723***	-0.013**	0.038**	0.060***	-0.117**	-0.190*	-1.518***	10.189**	-7.804***	0.653***
	(0.221)	(0.006)	(0.017)	(0.017)	(0.048)	(0.097)	(0.533)	(4.218)	(2.158)	(0.204)
$\ln(\text{remittances}_{pc})$	-0.016	-0.000	0.003***	0.003***	-0.004	-0.006	-0.059**	0.052	-0.628***	0.034***
	(0.015)	(0.000)	(0.001)	(0.001)	(0.004)	(0.005)	(0.027)	(0.232)	(0.126)	(0.008)
$\ln(\text{GDP}_{pc})$	-0.096	-0.005	0.006	0.017***	-0.009	-0.041	-0.072	4.489***	-1.153	0.018
	(0.091)	(0.003)	(0.005)	(0.005)	(0.025)	(0.045)	(0.222)	(1.630)	(0.937)	(0.056)
ln(population)	-2.065***	-0.017***	0.132***	0.132***	-0.399***	-0.770***	-2.634***	-4.170	-2.493	-0.285**
	(0.187)	(0.005)	(0.010)	(0.010)	(0.058)	(0.117)	(0.494)	(2.859)	(1.936)	(0.134)
urban (% pop)	-0.019***	-0.000	-0.000	-0.000	0.003**	0.003	0.007	0.046	0.014	-0.007*
	(0.005)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.012)	(0.083)	(0.062)	(0.004)
oil revenue (% GDP)	-0.006	-0.000	0.000	0.000	0.000	-0.006***	-0.024**	0.012	-0.001	-0.002
	(0.006)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.010)	(0.063)	(0.032)	(0.004)
trade (% GDP)	0.000	0.000***	0.000	-0.000	-0.000	-0.000	-0.002	0.052***	0.006	0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.012)	(0.009)	(0.000)
N	788	790	798	798	677	561	472	794	769	769
Number of countries	156	156	158	158	144	133	115	156	152	152

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA13: Differential effects of emigration to Q1 across origins. FE regressions.

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\ln(\widehat{M}_{it}^{Q1})\times$Q1	0.235	0.001	-0.010	0.016	-0.024	-0.049	-0.752*	10.642**	-5.572**	0.767***
	(0.196)	(0.005)	(0.018)	(0.019)	(0.036)	(0.069)	(0.390)	(4.297)	(2.167)	(0.199)
$\ln(\widehat{M}_{it}^{Q1})\times$Q2	-0.477***	-0.017***	0.006	0.024	-0.018	-0.054	-0.802**	8.977*	-7.571***	0.605***
	(0.178)	(0.005)	(0.016)	(0.017)	(0.035)	(0.068)	(0.383)	(4.698)	(2.248)	(0.194)
$\ln(\widehat{M}_{it}^{Q1})\times$Q3	-0.987***	-0.017**	0.061***	0.104***	-0.008	-0.242**	-1.236**	18.761***	-4.703*	0.681***
	(0.220)	(0.007)	(0.019)	(0.020)	(0.050)	(0.095)	(0.612)	(4.517)	(2.665)	(0.232)
$\ln(\widehat{M}_{it}^{Q1})\times$Q4	-1.196***	-0.023***	0.060***	0.094***	-0.327***	-0.742***	-2.851***	9.188**	-10.821***	0.365
	(0.225)	(0.008)	(0.019)	(0.020)	(0.066)	(0.128)	(0.628)	(4.306)	(2.461)	(0.274)
$\ln(\text{remittances}_{pc})$	0.007	0.000	0.001	0.001	-0.002	0.001	-0.057**	0.050	-0.783***	0.038***
	(0.015)	(0.001)	(0.001)	(0.001)	(0.003)	(0.006)	(0.027)	(0.279)	(0.171)	(0.011)
$\ln(\text{GDP}_{pc})$	0.089	0.002	-0.002	0.012*	-0.015	0.019	0.156	4.131**	1.957*	0.030
	(0.094)	(0.004)	(0.007)	(0.007)	(0.018)	(0.048)	(0.228)	(1.948)	(1.144)	(0.079)
ln(pop)	-0.951***	-0.004	0.081***	0.074***	-0.168**	-0.247*	-0.879	-5.842	4.104	-0.096
	(0.235)	(0.009)	(0.015)	(0.017)	(0.068)	(0.134)	(0.586)	(3.825)	(2.812)	(0.218)
urban (% pop)	-0.008	0.000	-0.001***	-0.001***	0.001	0.003	0.001	-0.010	0.064	-0.013***
	(0.005)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.013)	(0.089)	(0.065)	(0.005)
oil revenue (% GDP)	-0.011**	-0.000	0.000	-0.000	0.000	-0.004	-0.021*	0.065	-0.008	-0.002
	(0.005)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.011)	(0.088)	(0.038)	(0.007)
trade (% GDP)	0.000	0.000*	0.000	0.000	-0.000**	-0.001**	-0.003**	0.071***	0.019**	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.014)	(0.010)	(0.001)
N	602	602	602	602	530	458	394	602	602	602
Number of countries	114	114	114	114	108	102	94	114	114	114

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table OA14: Emigration to rich non-Q1 countries. FE2SLS regressions.

Dep. variable:	fertility	LE ratio	IM ratio	U5 ratio	PE ratio	SE ratio	TE ratio	WBL	female LFP	LFP ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
lt3	-0.008	-0.006	-0.019	-0.016	-0.022	0.090	-0.969	-8.680*	-9.616**	0.637*
	(0.274)	(0.006)	(0.014)	(0.015)	(0.062)	(0.165)	(0.867)	(4.688)	(4.343)	(0.333)
ln(remittances$_{pc}$)	-0.019	0.000	0.004***	0.004***	-0.004	-0.010	-0.026	0.336	-0.416*	0.021
	(0.018)	(0.000)	(0.001)	(0.001)	(0.004)	(0.007)	(0.041)	(0.314)	(0.229)	(0.015)
ln(GDP$_{pc}$)	-0.125	-0.005*	0.009	0.020***	-0.013	-0.073	0.088	5.179**	-0.498	-0.019
	(0.089)	(0.003)	(0.006)	(0.006)	(0.026)	(0.063)	(0.311)	(2.038)	(1.697)	(0.108)
ln(pop)	-2.175***	-0.012	0.160***	0.159***	-0.395***	-0.887***	-1.656	7.671	7.711	-0.942*
	(0.318)	(0.009)	(0.021)	(0.022)	(0.105)	(0.233)	(1.257)	(6.671)	(7.387)	(0.545)
urban (% pop)	-0.021***	-0.000	-0.000	0.000	0.002*	0.002	0.019	0.118	-0.035	-0.003
	(0.005)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.021)	(0.117)	(0.100)	(0.006)
oil revenue (% GDP)	-0.006	-0.000	0.000	0.000	0.000	-0.006**	-0.014	0.009	-0.008	-0.002
	(0.006)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.013)	(0.068)	(0.042)	(0.004)
trade (% GDP)	0.001	0.000***	-0.000	-0.000	-0.000	0.000	-0.001	0.048***	0.003	0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.014)	(0.013)	(0.001)
N	784	786	794	794	673	558	472	790	765	765
Number of countries	155	155	157	157	143	132	115	155	151	151
KP F-statistic	8.909	9.045	9.115	9.115	7.033	4.057	6.114	9.031	7.083	7.083

All regressions include year and country-of-origin FEs. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$