FINANCIAL REMITTANCES AND GENDER INEQUALITY

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ABSTRACT. Financial remittances have become the most important source of external financing in low and middle-income countries, excluding China, surpassing the value of foreign direct investment and official development aid. As the decision to temporarily migrate and send remittances is a hugely gendered process, we explore the link between the inflow of remittances and their role in improving female welfare in recipient countries. To mitigate reverse causality and omitted variable considerations, we build a gravity model using the Natural Disaster Database of CRED to determine the immigrants' propensity to migrate. We then confirm that the inflow of remittances correlates with decreases in gender inequality in the recipient economy, controlling for a number of confounding factors. Potential mechanisms that we explore include increased female decision-making power within the household, as women take control of the family budget, and the concept of "social remittances" that implies that remitters absorb skills, societal norms, ideology, knowledge, and customs from the destination countries and transfer them to their country of origin. Exploiting the bilateral nature of our 130-country panel, we find support for the "social remittance" hypothesis as the correlation between money received and improvement in female welfare is mainly driven by remittances sent from countries with high gender scores. To push on causality, we exploit a longitudinal household survey that follows around 6,500 households in Bangladesh and contains information on remittances, remitters' destination countries, their economic and social background, as well as spending and decision-making patterns within the household before and after migration. The micro-data analysis lends further support to the "social remittance" channel.

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1. INTRODUCTION

The number of international migrants has grown overtime. Between 2000 and 2019, the onset of the COVID-19 pandemic, the figure has increased by 50 percent to reach 272 million people (United Nations Department of Economic Social Affairs (2019)). Remittances, defined as "money transfers by

migrants to their relatives or other persons in countries of origin" are a by-product of these migration decisions (Lopez-Ekra et al. (2011)). In 2022, officially recorded remittances received in developing nations reached $794 billion (The World Bank, 2023). If China is excluded from the calculation, remittances are now the most important source of external financing in low and middle-income countries, surpassing the value of foreign direct investment and official development aid. The decision to migrate and send or receive remittances is a hugely gendered process. Gender determines who migrates, where the immigrants migrate to, the opportunities and networks they have access to once they arrive and the magnitude of remittances they send. Although remittances are known to improve the economic situation of the recipients (Yang (2011)), it remains unclear how they impact the welfare of the women who are left behind in the migrant's country of origin.

The aim of this paper is to explore the role of financial remittances in reducing gender inequality in recipient countries and to shed light on the channel through which they operate. The main focus of our analysis is on lower income countries that seem to rely more on remittances and also exhibit relatively high gender inequality. To overcome empirical challenges posed by reverse causality and endogeneity, we proceed with a two-stage estimation. In the first stage, we exploit exogenous sources of variation to determine the likelihood of individuals to migrate and remit using World Bank data. In the second stage, we confirm that the inflow of remittances can indeed reduce gender inequality in the recipient country. We then exploit the bilateral nature of the remittance data collected from the World Bank to explore potential mechanisms which include increased female decision-making power within the household, as women take control of the family budget, as well as the introduction of societal norms, ideology, knowledge, and customs from the destination countries and their transfer to the countries of origin, a process that we call "social remittances".

To push on causality, we exploit a longitudinal household survey from Bangladesh, between 2012 and 2018, that tracks 6,500 households in the country and contains information on remittances, remitters' destination countries, their economic and social background, as well as beliefs about spending and women's decision-making power within the household before and after migration. However, as migrants do not often freely choose or get accepted in their preferred destination, we additionally exploit exogenous sources of variation that potentially dictate migration decisions. Specifically, we seek exogenous pull factors that could attract migrants to specific destinations through exceptional employment opportunities they provide. For instance, the Bangladeshi government occasionally enters into bilateral agreements with other countries to send workers for a limited amount of time (ILO 2018). One of these agreements was with Qatar which was chosen to host the FIFA World Cup in 2022. Construction for stadiums began in 2013-14 and an estimated 400,000 Bangladeshi migrants aided in their construction. This exogenous shock is between the two waves and could serve as a pull factor towards a destination with a higher gender inequality index than Bangladesh.

We find a strong negative relationship between the flow of remittances and gender inequality in the recipient country, controlling for a large set of potential confounding factors. By exploiting the bilateral nature of the data we find support for a "social remittance" channel; the correlation between money received and improvement in female welfare is mainly driven by remittances sent from countries with high gender scores. When we consider remittances that originate from high-income economies outside with low-gender scores – predominantly oil producing countries with high gender inequality – they do not tend to reduce gender inequality as much, although there seems to be a modest financial effect, potentially due to the alleviation of financial constraints. We interpret this result as an indication that importing norms can have an non-trivial effect on the improvement of female welfare in the recipient countries, over and above the impact of the financial flow.

The results from the longitudinal household survey carried in Bangladesh lend further support to the country-level analysis; an increase in the flow of remittances correlates with an improvement in the position of women in the Bangladeshi households. However, the level of remittances only matters if the flow comes from a country with better gender score compared to Bangladesh. When we zoom into the sub-sample of the households of married male migrants who went to Qatar for the construction of FIFA World Cup stadiums, the coefficient of the triple interaction term reveals an increase in verbal abuse towards the spouse that was left behind in Bangladesh. Additionally, we observe an increase in the gender bias on spending decisions regarding health items.

Our work contributes to the literature that studies the link between financial remittances and gender inequality. A significant part of these studies has a theoretical focus and uses findings from case studies of specific countries that often lack external validity (De la Brièrre et al. (2002); Antman (2012); Torero and Viceisza (2009)). We attempt to (i) paint a global picture when it comes to the correlation patterns between remittance flows and gender outcomes and (ii) massage endogeneity considerations and explore potential mechanisms by replicating the analysis using micro-data from the Bangladesh Integrated Household Survey.

We also contribute to the substantial amount of empirical work that looks at the wider implications of remittance flows for emerging economies (Giuliano and Ruiz-Arranz (2011) Bollard et al. (2009); Ahmed (2013)), by specifically assessing their impact on female welfare through a wide range of gender outcomes. As the mechanisms through which the increasing flow of remittances might operate remain unclear, our work also sheds light into potential channels. Studies have suggested that the migration process and the transfer of remittances can empower women to acquire new roles as providers and economic decision makers that break down patriarchal ideas (Ramírez et al. (2005); Lopez-Ekra et al. (2011)). Others argue that it is not the financial nature of remittances, but the flow of ideas, norms and behaviours as a type of "social remittance" that matters the most (Levitt (1998)). Both explanations seem plausible, but empirical evidence remains scarce. Our study points to the significance of

incorporating norms from the remittances' sender economy as migrants gain exposure to new values and ideas pertaining to the position of women in the society.

The remainder of the paper is structured as follows: Section 2 describes our empirical strategy and data and Section 3 presents the results of our estimations. Section 4 discusses the analysis of longitudinal household survey from Bangladesh. Section 5 and concludes.

2. REMITTANCES AND GENDER NORMS

2.1. **Country-level Analysis.**

2.1.1. *Data Description.* The main variable of interest is the Gender Inequality Index (GII) developed by the United Nations Development Program (UNDP). This is a worldwide measure of gender inequality measured from 1995 onward. The GII was recorded in 5-year intervals between 1995 - 2010, then recorded annually from 2010 to date. For this reason, we only use the data from 2010 onward. The GII is a composite measure that reflects 'gender-based disadvantages' in three areas: reproductive health, empowerment and economic status. The index ranges continuously from 0 (where women and men have equality) to 1 (where women fare poorly compared to men). We are aware of the indices limitations, as it is unlikely to be a complete measure of gender inequality because it fails to take account of the full breadth of disparities between genders. Nevertheless, it is widely available for a large set of countries.

At the same time, financial remittances are also hard to measure with precision, because, often, sums of money are transferred through a variety of formal or informal channels. Formal channels include money transfer operators, banks, credit unions and post offices (Ramírez et al. (2005)). Informal channels may be operated by "non-financial firms or brokers with a physical presence" in remittance-sending and receiving communities (Yang (2011)). Other informal methods include migrants carrying money themselves or sending it through another person travelling between the countries (Ramírez et al. (2005)). The formal transfer of remittances is accounted for in national accounts; however, informal transfers are not, and it is estimated that if informal transfers were accounted for, estimates of remittances could double. Nevertheless, the World Bank has recently constructed a database using both formal sources and approximations to estimate the total flow of remittances between countries. Data are available on an annual basis between 2010 and 2018. We employ this source of bilateral data to pair countries as recipient-sender, which leads to a dataset containing roughly 360,000 observations. However, since several pairs of countries do not seem to be connected through migration we treat them as missing and only consider pairs of countries where remittances actually flow for one to the other.

The rest of the control variables stem from the World Bank Indicators and are meant to capture a variety of socioeconomic characteristics in each country. These include GDP per capita, the share of rural population, school enrollment, population density, religion and the KOF Index of Globalization.

2.1.2. *Instrumental Variables Estimation.* The decision to migrate and remit is a complex process. Many factors are involved, thus rendering the measurement of the net effect of remittances an ambitious endeavor. We expect reverse causality and omitted variable considerations to confound a simple OLS estimation (Azizi (2018);). To address these issues we proceed in two steps. The first step is to exploit exogenous sources of variation that can approximate the flow of remittances and are not directly correlated with gender inequality. To this end, we construct a type of gravity model (Lewer and Van den Berg (2009)) using the Natural Disaster Database constructed by the Centre for Research on the Epidemiology of Disasters (CRED) to determine the propensity to migrate.

The idea is that when natural disasters occur in the sender economy, economic activity is hampered (Yang (2008)) so that many migrants in these affected countries are likely to experience an economic shock affecting their ability to remit or would simply deter eager individuals to migrate to that particular country at this point in time. This is a plausibly exogenous source of variation that affects the ability to remit in a specific country at a specific point in time. The first stage estimation is complemented with variables likely to be associated with the decision to choose a destination, migrate and remit (i.e. affecting the flow of remittances from a specific sender to the recipient country). A vibrant economy is arguably more attractive as it presents more employment opportunities, therefore we consider the GDP of the destination country. Moreover, the physical distance between origin and destination may play a role as there are substantial costs attached to the relocation process. For the same reasons we include a contiguous border and common language as factors important to gravity. In addition, we also consider the population size in both countries. Finally, the presence of compatriots in the potential destination may play a role, as individuals may seek to take advantage of existing social networks that will aid them and further minimize the costs (Lewer and Van den Berg (2009)). To add a dynamic element in the first stage we consider the effect of a natural disaster with a 1-year lag. Our results are robust to the introduction of different lag structures or simply omitting them altogether. We then estimate and predict the following equation to determine the propensity to migrate to a certain destination and ability to remit using all pairs of countries:

$$
\begin{aligned}
Remit_{ij}^t = NatDis_j^{t-1} + GDPpc_j^{t-1} + Dist_{ij} + Border_{ij} + Language_{ij} \\
+ MigStock_{ij}^{2000} + Pop_i^{t-1} + Pop_j^{t-1} + Year^t
\end{aligned}
\tag{1}
$$

Where $Remit_{ij}^t$ is the natural logarithm of the flow of remittances to country i from country j in US\$, $NatDis_i^t$ accounts for the occurrence and severity of a natural disaster in the sender country j in year

$t-1$ as measured by the number of people affected. $GDPpc_j^t$ measures the size of the economy of the potential destination country j in year t, whereas $Dist_{ij}$ is the weighted physical distance between two countries, that also considers common language and a contiguous border. Further, the variable $MigStock_{ij}^{2000}$ accounts for the presence of a migrant community from country i in country j already existing in the year 2000. This ensures that the size of the community is unrelated to events occurring 10 years later. Finally, we add year dummies $Year^t$ aiming at capturing worldwide phenomena that might occur in a year and could influence migration decisions or the ability to remit. Estimating this equation with OLS and obtaining the linear prediction would give us in a sense the likelihood (or a score) that an individual from country i might migrate to country j in year t and remit.

The results of the estimation in Column 1 of Table 1 are as expected. All the coefficients show the expected sign and are highly significant at the 1% level. Moreover, the F-statistic is rather high at 367.47 confirming the strength of the instrument. Furthermore, the R^2 indicates that the model can explain a substantial part of the variation (0.1690) of the flow of remittances between countries j and i. We are therefore, confident that the instrument is strong and relevant to predict the annual flow of remittances. To ensure that the prediction is exogenous, we regress it on the residual obtained from the full specification in Column 2 of Table **??**. The results in Column 2 of Table 1 indicate that the two are uncorrelated and we can therefore conclude that we are able to adequately capture an exogenous part of the variation in remittances.

2.1.3. *Short- versus Long-run Effects.* The longitudinal nature of our dataset provides the opportunity to explore differences between countries or pairs of countries, as well as within single countries or pairs over time. Pooled estimations tend to neglect the within variation and therefore the time component of such phenomena. It becomes difficult to observe how the situation in a single country evolves. Fixed effects estimation with panel data, on the other hand, filter out the time invariant component (between variation) and only capture changes over time. Given that in our case changes may take long period of time to affect societies and that the duration of the panel may be too short, we would ideally like to explore both dimensions simultaneously. A solution to this issue is provided by Mundlak (1978).

The idea is that in a panel dataset one can add the within group means to obtain the within estimator Mundlak (1978). In practical terms this means that by creating additional regressors representing the mean over the examined time period for each country, one can capture the time invariant effects and the one can observe changes for each country over time (within variation). Additionally, the coefficients of the means capture differences between countries (between variation), thus in a sense decomposing the fixed effect component. An interpretation of this is that the within variation captures short-term effects for each country over time, whereas the between variation captures long-term or accumulated effects that reflect in differences between countries (Wooldridge (2002)). More recently Schunck and Perales (2017) expanded on this idea and created a hybrid estimation model that

TABLE 1. Severity of natural disasters and the ability to remit

	Remittances	Residual
Severity (1-lag)	-0.0098***	
	(0.0000)	
GDP pc (Sender) (1-lag)	0.0380***	
	(0.0308)	
Distance in km	-0.3658***	
	(0.0000)	
Common Language	0.1792***	
	(0.0967)	
Contiguous Border	0.2432***	
	(0.1814)	
Population (Recipient) (1-lag)	0.2903***	
	(0.0000)	
Population (Sender) (1-lag)	0.1414***	
	(0.0000)	
Migrant Stock in 2000	0.0912***	
	(0.0000)	
Year	0.0207***	
	(0.0067)	
Linear prediction		0.0001
		(0.0003)
F-statistic	367.47	0.04
R^2	0.4555	0.0000
Observations	16156	28870

Note: Pooled estimation on bilateral remittances per capita. Coefficients are standardized. Robust standard errors clustered at the recipient-sender pair level in parentheses

additionally considers variables that do not vary substantially over time (which is often the case with yearly aggregate indicators) and add a random effect component. This would allow us to include time varying and time invariant components and simultaneously explore variation within- as well as between countries, or in other words the short- and long-term effects of a variable of interest. The model we estimate is then as follows:

$$GII_{ij}^t = \beta_1 Remittance_{ij}^t + \gamma_1 \widehat{Remittance}_{ij} + \beta_2 Controls_{ij}^t + \gamma_2 \widehat{Controls}_{ij} + \delta u_i + \epsilon_{ij}^t \qquad (2)$$

where β_1 captures changes over time as a result of inflows of remittances from country j to country i in year t and γ_1 captures the accumulated effect of the inflow of remittances from country j to country i. As gender inequality is a complex and multidimensional phenomenon and the inflow of remittances could impact some areas in a rather short period of time, whereas change in other areas is more likely to be rather slow, we aim at capturing both.

3. RESULTS

3.1. Baseline results. The main focus of our analysis is on lower income countries that seem to rely more on remittances and also exhibit relatively high gender inequality. We first estimate a simple Pooled OLS and a fixed effects regression before moving to Equation 2, while limiting the sample only to non-OECD countries. All the estimations are the second stage where we use the linearly predicted flow of remittances to account for reverse causality. Furthermore, the unit of observation are pairs of sender-recipient countries.

In Column 1 of Table 2 we employ no controls except for the Gender Inequality Index of the sender country. The results indicate that there is a strong negative relationship between the flow of remittances and gender inequality in the recipient country. This relationship holds when including the full set of controls in Column 2. Column 3 includes only pairs of countries where the sender is a member of the OECD, which arguably is an indication of more equal societies, whereas Column 4 only considers high income countries outside the OECD, which are predominantly oil producing countries with worse gender outcomes. Comparing the β coefficient for remittances between these columns reveals that remittances coming from OECD countries reduce gender inequality, whereas the same is not true for financial flows coming from other high-income countries. This could be an indication that it is not the financial nature of remittances that makes a difference. What seems to matter is where the money is coming from. This finding could lend support to the "social remittances" hypothesis.

TABLE 2. Pooled OLS instrumenting for Remittances-Sample Cuts

	GII [1]	GII [2]	GII [3]	GII [4]
Remittances (Prediction)	-0.1778***	-0.0318**	-0.1061***	0.0113
	(0.0005)	(0.0004)	(0.0007)	(0.0010)
Controls	No	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Sample Recipient	Low/Mid	Low/Mid	Low/Mid	Low/Mid
Sample Sender	Full	Full	GII low	GII high
Clusters (Pairs)	16621	12499	2577	2508
Observations	72133	45343	8564	8433

Note: Pooled estimation instrumenting for remittances. Standardized coefficients reported. Robust standard errors clustered at the recipient-sender pair level in parentheses

In 5 we use the Hybrid estimation proposed by Schunck and Perales (2017) to simultaneously account for the within and between variation. The results indicate that long-term higher flows of remittances may reduce gender inequality in the recipient country. Once again it matters where the remittances are coming from though, as can be seen in the difference in γ between columns 3 and 4.

TABLE 3. Hybrid estimation instrumenting for Remittances-Sample Cuts

	GII [1]	GII [2]	GII [3]	GII [4]
Remittances (Prediction)	-0.0101*** (0.0005)	-0.0014** (0.0003)	-0.0072*** (0.0010)	0.0000 (0.0008)
Controls	No	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Sample Recipient	Low/Mid	Low/Mid	Low/Mid	Low/Mid
Sample Sender	Full	Full	GII low	GII high
Clusters (Pairs)	16621	12499	2577	2508
Observations	72133	45343	8564	8433

Note: Hybrid estimation instrumenting for remittances. Robust standard errors clustered at the recipient-sender pair level in parentheses

TABLE 4. Hybrid estimation instrumenting for Remittances-Sample Cuts 2.0

	GII [1]	GII [2]	GII [3]	GII [4]
Remittances (Prediction)	-0.0006* (0.0003)	-0.0018** (0.0003)	-0.0043*** (0.0010)	-0.0006 (0.0007)
Controls	No	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Sample Recipient	High GII	High GII	High GII	High GII
Sample Sender	Full	Full	GII low	GII high
Clusters (Pairs)	9103	6764	1356	1378
Observations	33891	19855	3728	3778

Note: Hybrid estimation instrumenting for remittances. Robust standard errors clustered at the recipient-sender pair level in parentheses

Next, we split our sample in a different way. We are interested in investigating the role of remittances in countries that exhibit relatively high gender inequality. Not all low income countries exhibit high gender inequality and such disparities do not only exist in the poorest countries of our sample. For this purpose, we now focus on a sample of countries where the GII is above 0.5, which indicates quite high levels of gender disparities. In Table ??, we proceed with the same specification as in Table ??. The picture we obtain is similar in all Columns. In Columns 3 and 4, we, again, differentiate between OECD and other high income senders. Remittances flowing over longer periods from OECD countries seem to have a strong accumulated effect. The coefficient itself is substantially larger compared to the one for the full sample of senders in Column 2. As for non-OECD high income senders, the coefficient is positive and insignificant, implying that the flow of remittances from this set of countries does not necessarily promote gender equality. These findings lend some support to the "social

TABLE 5. Pooled Hybrid estimation instrumenting for Remittances-Sample Cuts

	GII [1]	GII [2]	GII [3]	GII [4]
Remittances (Prediction)	-0.0101*** (0.0005)	-0.0014** (0.0003)	-0.0072*** (0.0010)	0.0000 (0.0008)
Controls	No	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Sample Recipient	Low/Mid	Low/Mid	Low/Mid	Low/Mid
Sample Sender	Full	Full	GII low	GII high
Clusters (Pairs)	16621	12499	2577	2508
Observations	72133	45343	8564	8433

Note: Hybrid estimation instrumenting for remittances. Robust standard errors clustered at the recipient-sender pair level in parentheses

remittances" hypothesis. It does not seem to be the financial flow itself reduces inequality in the recipient country. What seems to matter the most is the origin of financial flows. The long-term exchange with OECD countries seem to also transmit values and social norms.

TABLE 6. Pooled OLS instrumenting for Remittances, with Interactions

	GII	GII	GII
Remittances (Pred.)	-0.0343*** (0.0005)	-0.0294*** (0.0005)	-0.0296*** (0.0005)
Remittances (Pred.) X High Ineq	0.0057 (0.0005)		0.0007 (0.0005)
Remittances (Pred.) X Low Ineq		-0.0212*** (0.0005)	-0.0210*** (0.0002)
Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Sample Recipient	Low/Mid	Low/Mid	Low/Mid
Sample Sender	Full	Full	Full
Clusters (Pairs)	10817	10817	10817
Observations	40109	40109	40109

Note: Pooled OLS instrumenting for remittances. Controls include GDP p.c., Education, Urbanization, Globalization, Population Density, GII (sender), Muslim, Regional Dummies. Standardized betas reported. Robust standard errors clustered at the recipient-sender pair level in parentheses.

3.2. **Mechanisms.** Measuring gender inequality is a complex, multi-dimensional issue. The GII, like most aggregate measures cannot fully capture all elements and mechanisms. Furthermore, as remittances potentially influence inequalities in different ways and through various channels, it is important to take a deeper look into the components of the Index to provide some evidence on the mechanisms at play. We choose to focus on three components of the Index; adolescent fertility, maternal mortality and female labour force participation. The first one could be affected by remittances in two

TABLE 7. Hybrid estimation instrumenting for Remittances, with Interactions

	GII	GII	GII
Remittances (Pred.)	-0.0018***	-0.0015***	-0.0296***
	(0.0004)	(0.0006)	(0.0004)
Remittances (Pred.) X	-0.0000		0.0005
High Ineq	(0.0005)		(0.0006)
Remittances (Pred.) X		-0.0016***	-0.0018***
Low Ineq		(0.0006)	(0.0006)
Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Sample Recipient	Low/Mid	Low/Mid	Low/Mid
Sample Sender	Full	Full	Full
Clusters (Pairs)	10817	10817	10817
Observations	40109	40109	40109

Note: Pooled OLS instrumenting for remittances. Controls include GDP p.c., Education, Urbanization, Globalization, Population Density, GII (sender), Muslim, Regional Dummies. Standardized betas reported. Robust standard errors clustered at the recipient-sender pair level in parentheses.

ways. On the one hand, short term financial flows could change intra-household allocation of resources and influence in any direction decisions on fertility. On the other hand, social remittances are likely to take longer to influence such decisions. In the case of maternal mortality structural and institutional factors in the health sector may also affect. Finally, we look at whether the flow of remittances can increase female labour force participation.

We use the same pooled estimation method and full set of controls for our sample of non-OECD recipients, receiving remittances from OECD senders. The results in Table **??** presents the second stage results. These suggest that the exogenous part in the long-term flow of remittances could potentially shift the balance within households in a way that decreases adolescent fertility. The same negative and significant coefficient emerges in Column 2 where we look at maternal mortality. Finally, we see that more money coming in from abroad may actually reduce female labour force participation. This can be either due to more women migrating and increasing the flow of remittances, or it may be the case that they no longer seek gainful employment as a result of financial flows increasing.

Our analysis presents limitations and we cannot fully capture the mechanisms and channels through which remittances affect the various dimensions of gender inequality in recipient countries. We do, however, provide some first evidence that these correlation and mechanisms exist.

We plan to employ household, and individual-level data to explore these mechanisms and lend external validity to the results.

4. PUSHING ON CAUSALITY

4.1. **The Bangladesh Integrated Household Survey.** Our country level analysis suggests that cultural or social remittances may be driving the baseline result. The destination country of migrants

seems to play a major role. To further explore this potential channel we turn to the Bangladesh Integrated Household Survey (BIHS) conducted by the IFPRI. It is a nationally representative panel survey covering about 6500 households in 2012, 2015 and 2018. A key feature of the survey is that female respondents had a one-to-one interview with a female enumerator without any other household member being present. This survey module covers several questions related to gender norms, such as having experienced verbal or physical abuse, decision making power within the household and control over the householdâs budget. Further, the survey contains detailed information on migrants including their destination country and the amount they remit.

In a first exercise we employ a simple Pooled OLS and a random effects regression in the full sample. In Columns 1 and 2 , we observe a negative coefficient of remittances on verbal and physical abuse, with the latter exhibiting statistical significance. To account for unobserved heterogeneity we employ the Oster (2019) methodology on "selection on unobservables". We use the standard assumptions in the literature that unobservables matter as much as observables (δ=1) and we would expect the explanatory power of the model to increase by 30% (see e.g. Alesina et al. (2016), Satyanath et al. (2017) and Tabellini (2020). The coefficient we obtain is the "unbiased β" or the "true coefficient" which is negative for both specifications implying that in households that receive more remittances, female respondents experience fewer instances of abuse. The results of the random effects estimation in Columns 3 and 4 paint a similar picture.

TABLE 8. BIHPS: Baseline Abuse

	Verbal	Physical	Verbal	Physical
Remittances	-0.0011	-0.0012**	-0.0009	-0.0013**
	(0.0008)	(0.0005)	(0.0008)	(0.0004)
Unbiased β	-0.0008	0.0007		
Controls	Yes	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	15609	15609	15609	15609

Note: Pooled OLS estimation in Columns 1 and 2. Random effects in Columns 3 and 4. Controls include assets, savings, household size, number of children, education, age, occupation and initial gender norms. Robust standard errors clustered at the district level in parentheses.

Next, we turn to gender bias in spending decisions. The dependent variables are based on a set of questions around who makes the decision on how earned wages are being spent and how much to spend on food and health items. We code the variable as 1, if the female respondent is not involved in any of these decisions and 0 if she by herself or alongside her husband make the decisions. The results show no clear evidence of reduction in the bias and unobserved heterogeneity is present throughout. Further, we observe a strong negative time trend.

TABLE 9. BIHPS: Baseline Spending Decision Bias

	Wages	Food	Health
Remittances	-0.0000	-0.0006	-0.0004
	(0.0005)	(0.0009)	(0.0009)
Unbiased β	0.0006	0.0003	0.0003
Controls	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	10834	15535	15535

Note: Pooled OLS estimation. Controls include assets, savings, household size, number of children, education, age, occupation and initial gender norms. Robust standard errors clustered at the district level in parentheses.

To further push on our hypothesis and work on comparable households, we restrict our sample to households that had at least one migrant in 2012. We then split the sample in two depending on the destination country of the migrant to compare these households on observable characteristics. Specifically, we create a dummy that takes the value 1 if the migrant went to a country that exhibits better gender norms (as measured by the country's GII) compared to Bangladesh and 0 otherwise. We then compare households along those lines. We do not see any significant differences in terms of abuse and female liberties (initial gender norms). If anything, households in which a migrant went to a less gender friendly country are slightly richer, the migrant is in a better occupation and remits more. All of these would work against our hypothesis.

TABLE 10. BIHPS: Balance 2012

	Gender High			Gender Low		
	Mean	SE	n	Mean	SE	n
Verbal	.1327	.0226	226	.1333	.0293	135
Physical	.0309	.0115	226	.0444	.0178	135
Family	2.5707	.1069	226	2.5259	.1358	135
Voting	1.2714	.0344	221	1.1889	.0398	127
Assets	10.5366	.0789	226	11.1559*	.0874	135
Savings	4.8846	.3188	226	5.6966	.4535	135
Education	1.4778	.0525	226	1.5111	.0663	135
Occ.	3.1150	.0622	226	3.5037*	.0688	135
Remit.	10.4233	.2132	226	11.3470*	.1477	135

Note: High (Western Europe, USA, Singapore, Australia, Malaysia), Low (Saudi Arabia, Kuwait, Qatar, Oman, UAE)

We then employ a set of regressions using the destination dummy to create an interaction term with the amount of remittances. The results in Column 1 show that the level of remittances only matters if the flow comes from a country with better gender norms compared to Bangladesh . The coefficient for physical abuse on the other hand is insignificant in Column 2. This is expected if we were to assume that the husband is in all likelihood the abuser and migrant, so that their destination country would not matter. A similar picture is obtained when we further restrict the sample to households where the husband of the respondent is the migrant abroad in Columns 3 and 4. Finally, we find some evidence

of a reduction in the bias on spending decisions if the migrant went to a country with high-gender score.

TABLE 11. BIHPS: Remittances and Verbal and Physical Abuse

	Verbal	Physical	Verbal	Physical
Remittances	0.0237	0.0034	0.0352	0.0004
	(0.0172)	(0.0042)	(0.0231)	(0.0088)
Remittances X Gender High	-0.0484*	-0.0042	-0.0830*	-0.0019
	(0.0267)	(0.0063)	(0.0472)	(0.0134)
Household Controls	Yes	Yes	Yes	Yes
Migrant Controls	Yes	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	612	612	211	211

Note: Pooled OLS estimation in Columns 1 and 2 for a remittance sending migrant. In Columns 3 and 4 the migrant is the husband. Controls include gender score, assets, savings, household size, number of children, education, age, occupation, migrant characteristics and initial gender norms.

TABLE 12. BIHPS:Remittances and Spending Decision Bias

	Wage	Food	Medicine
Remittances	0.0030	0.0117	0.0086
	(0.0082)	(0.0086)	(0.0081)
Remittances X Gender High	-0.0082	-0.0133*	-0.0098
	(0.0091)	(0.0078)	(0.0071)
Controls	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	600	600	600

Note: Pooled OLS estimation. Controls include assets, savings, household size, number of children, education, age, occupation and initial gender norms. Robust standard errors clustered at the district level in parentheses.

However, migrant selection and their unobserved characteristics may play a role in driving these results. It may very well be the case that individuals with certain characteristics decide to go to certain countries. Even though migration is a complicated process and it is not very likely that migrants can freely choose or be accepted in their preferred destination, we nevertheless attempt to account for this by exploiting exogenous sources of variation. Specifically, we seek exogenous pull factors that could attract migrants to specific destinations through employment opportunities they provide. The Bangladeshi government occasionally enters into bilateral agreements with other countries to send workers for a limited amount of time (ILO 2018). One of these agreements was with Qatar which was chosen to host the FIFA World Cup in 2022. Construction for stadiums began in 2013-14 and an estimated 400,000 Bangladeshi migrants aided in their construction. This exogenous shock is between the two waves and could serve as a pull factor towards a destination with lower gender score than

Bangladesh. Indeed we see an increase in the number of migrants to Qatar in our data between 2012 and 2015.

Unfortunately, we do not have at least two data points before the shock to employ a difference-in-difference estimations. Instead we will use a triple interaction term for the migrant having left between the two waves, the migrant being the husband and the migrant having went specifically to Qatar. Indeed we observe an increase in verbal abuse as the coefficient is positive and statistically significant. The coefficient for physical abuse is insignificant as we would expect. Finally, we observe an change in the bias on spending decisions around health items.

TABLE 13. Triple Interaction: Effect on Verbal and Physical Abuse

	Verbal [1]	Physical [2]
Migrant 2014 X Migrant Husband X Qatar	0.6295* (0.3501)	0.0024 (0.0639)
Remittances	-0.0050 (0.0056)	0.0000 (0.0025)
Household Controls	Yes	Yes
Migrant Controls	Yes	Yes
District Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	612	612

Note: Controls include remittances, gender score, assets, savings, household size, number of children, education, age, occupation, migrant characteristics and initial gender norms. Verbal abuse in 2012 (p=0.4771)

5. CONCLUDING REMARKS

Remittances are becoming an increasingly important component of financial flows between countries. As such, they have the possibility to impact life, and socio-economic outcomes in the recipient countries in different ways. In this paper, we explore the within and between variation of bilateral remittance flows and argue that remittances flowing over longer periods of time correlate with lower gender inequality. However, the origin of these financial flows also matters. Remittances received from household members residing in countries with high gender scores, seem to have a stronger impact. This finding provides some first evidence that social norms and cultural diffusion are important above-and-beyond the financial component of remittances.

TABLE 14. Triple Interaction: Effect of Remittances on Spending Decision Bias

	Wage [1]	Food [2]	Health [3]
Migrant 2014 X Migrant Husband X Qatar	0.0340 (0.1010)	-0.1290 (0.2995)	.3391* (0.1996)
Remittances	-0.0049 (0.0060)	0.0055 (0.0053)	0.0049 (0.0052)
Household Controls	Yes	Yes	Yes
Migrant Controls	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	399	673	673

Note: Controls include remittances, gender score, assets, savings, household size, number of children, education, age, occupation, migrant characteristics and initial gender norms.

The channels through which financial remittances could reduce inequality are multiple and an aggregate measure such as the GII is not adequate. We show that recipients connected to OECD countries over longer periods of time seem to improve their record in reducing adolescent fertility and maternal mortality. Further research is warranted to identify the exact transmission channels, capture the mechanisms through which remittances operate in each dimension of gender inequality, and further study the relative importance of financial and social remittances.

Our preliminary results indicate a strong association between remittances flowing from high-gender-score countries and improved female welfare in recipient economies. Despite the bilateral feature of our database, the endogeneity and omitted variables considerations are still important. We believe our instrument lends credibility to our preliminary findings. Such findings, if validated, call for easier access to temporary migrants and promotion of social-norms adaptation. They, also, call for better financial infrastructures that would reduce the costs of financial remittances as the latter might provide social benefits to recipient countries, beyond the short-term consumption gains of financial inflows.

References

AHMED, F. (2013): "Remittances Deteriorate Governance," *Review of Economics and Statistics*, 95, 1166–1182.

ALESINA, A., J. HARNOSS, AND H. RAPOPORT (2016): "Birthplace diversity and economic prosperity," *Journal of Economic Growth*, 21, 101–138.

ANTMAN, F. (2012): "Gender, educational attainment, and the impact of parental migration on children left behind," *Journal of Population Economics*, 25, 1187–1214.

AZIZI, S. (2018): "The impacts of workersâ remittances on human capital and labor supply in developing countries," *Economic Modelling*, 75, 377–396.

BOLLARD, A., D. MCKENZIE, M. MORTEN, AND H. RAPOPORT (2009): "Remittances and the Brain Drain Revisited," *World Bank Economic Review*, 90, 144–152.

DE LA BRIÈRRE, B., A. DE JANVRY, E. SADOULET, AND S. LAMBERT (2002): "The Roles of Destination, Gender, and Household Composition in Explaining Remittances: An Analysis for the Dominican," *Journal of Development Economics*, 68, 309–328.

GIULIANO, P. AND M. RUIZ-ARRANZ (2011): "Remittances, financial development, and growth," *Journal of Development Economics*, 25, 132–156.

LEVITT, P. (1998): "Social Remittances: Migration Driven Local-Level Forms of Cultural Diffusion," *International Migration Review*, 32, 926–948.

LEWER, J. AND H. VAN DEN BERG (2009): "A gravity model of immigration," *Economics Letters*, 99, 164–167.

LOPEZ-EKRA, S., C. AGHAZARM, H. KÃ¶TTER, AND B. MOLLARD (2011): "The impact of remittances on gender roles and opportunities for children in recipient families: research from the International Organization for Migration," *Gender and Development*, 19, 69–80.

MUNDLAK, Y. (1978): "On the Pooling of Time Series and Cross Section Data," *Econometrica*, 46, 69–85.

OSTER, E. (2019): "Unobservable Selection and Coefficient Stability: Theory and Evidence," *Journal of Business & Economic Statistics*, 37, 187–204.

RAMÍREZ, C., M. G. DOMÍNGUEZ, AND J. M. MORAIS (2005): "Crossing Borders: Remittances, Gender and Development," New York: UN-INSTRAW.

SATYANATH, S., N. VOIGTLÃNDER, AND H.-J. VOTH (2017): "Bowling for Fascism: Social Capital and the Rise of the Nazi Party," *Journal of Political Economy*, 125, 478–526.

SCHUNCK, R. AND F. PERALES (2017): "Within- and between-cluster effects in generalized linear mixed models: A discussion of approaches and the xthybrid command," *The Stata Journal*, 17, 89–115.

TABELLINI, M. (2020): "Gifts of the Immigrants, Woes of the Natives: Lessons from the Age of Mass Migration," *Review of Economic Studies*, 87, 454–486.

TORERO, M. AND A. VICEISZA (2009): "To remit, or not to remit: that is the question. A remittance field experiment," *Journal of Economic Behaviour and Organization*, 112, 221–236.

UNITED NATIONS DEPARTMENT OF ECONOMIC SOCIAL AFFAIRS (2019): "International Migration Report," New York.

WOOLDRIDGE, J. (2002): "Econometric Analysis of Cross Section and Panel Data," Cambridge, Mass: MIT Press.

YANG, D. (2008): "Coping with Disaster: The Impact of Hurricanes on International Financial Flows, 1970-2002," *The B.E. Journal of Economic Analysis & Policy*, 8, 1–45.

——— (2011): "Migrant Remittances," *Journal of Economic Perspectives*, 25, 129–151.