Economic Uncertainty and Remittances Flow: Heterogeneity Matters

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Abstract

This paper analyzes the effect of economic policy uncertainty on inward remittances for 138 countries over the period 1995-2018. While our results suggest that increased economic policy uncertainty induces remittances in the long-run, we find that significant heterogeneity exists across advanced, emerging, and developing economies.

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1. Introduction

Despite the growing importance of remittance[1], and the increasing rate of uncertainty, created by events such as, the ongoing Covid-19 pandemic, the recent financial crisis, the Ebola outbreak, and Brexit, no empirical study exists on the nexus between economic uncertainty and remittances. This is because uncertainty in itself is difficult to observe and measure empirically. Until recently, no credible economic uncertainty data exists.

Previous empirical studies on the determinants remittances have thus been limited to the assumption that migrants are risk neutral in their decision making. Recent endogenous migration theory however argues that a migrant's propensity to migrate and remit depends to some extent on the risk and uncertainty presented to them in their home country (See, Delpierre and Verheyden, 2014; Chami et al., 2005; Dustmann, 1997).

Indeed, economic uncertainty in home countries can influence inward remittances via several channels. For instance, heightened economic uncertainty may signal high risk to migrants' investments and thus limit remittances. Conversely, uncertainties may present a precarious economic future for migrant families which in turn, may increase remittance in line with altruistic motive. For example, economic uncertainty has been found to increase unemployment (Caggiano et al., 2020), reduce credit growth (Hu and Gong, 2019), and dampen economic growth (Luk et al., 2020). These economic outcomes have been documented to influence remittances. Besides, increased economic uncertainty could push outward migration, increase migrant stock, and as a consequence, increase remittances.

This paper seeks to bridge the research gap by examining the impact of economic uncertainty on remittances inflows for 138 countries over the period 1995-2018. The paper contributes to the empirical literature in several important ways. Aside being the first to examine the effect of economic uncertainty on remittances, we employ a novel and more holistic measure of economic uncertainty (for details see, Ahir et al., 2018). Second, we consider a large country sample over a relatively long period of time as oppose to the standard 21 country analysis prevailing in the literature. This allows us to examine the long term effects, and plausible heterogeneities that may exist across country groups. Third, we control for potential endogeneity using the twostep system generalized method of moments (GMM) approach.

We find that economic uncertainty significantly increases (decreases) remittances in the long run for advanced (developing) economies. These effects coexist with a negative (positive) short run effects for advanced (developing) economies.

The rest of the paper is organized as follows: Section 2 explores the data and empirical methodology. Section 3 reports and analyses the results, and section 4 concludes.

[1] Remittances can be defined as migrants' transfers in cash or kind sent to their countries of origin. As of 2019, remittances to developing economies grew by 4.7%, reaching a record $551 billion (World Bank, 2019). Remittances help alleviate poverty and income inequality (See, Arapi-Gjini et al., 2020; Azizi, 2019), boost investments and entrepreneurial activities (Kakhkharov, 2019), and spur economic growth (Hasan et al., 2019).

2. Data and Empirical Specification

This study employs a dynamic panel model in which remittances are expressed as a function of economic uncertainty, a vector of explanatory variables, and idiosyncratic errors as shown in equation (1) below:

$$\ln(Rem_{i,t}) = \alpha_0 + \alpha_1 \ln(Rem_{i,t-1}) + \alpha_2 EU_{i,t-1} + \alpha_3 X'_{i,t} + \delta_i + \lambda_t + \varepsilon_{i,t} \quad (1)$$

$$i = 1,2, \ldots \ldots \ldots .. N \; ; t = 1,2,3 \ldots \ldots \ldots \ldots T \; , and \; |\alpha_1| < 1$$

Where $\ln(Rem_{i,t})$ denotes the natural logarithm of total remittances received in current US dollars. We use this measure of remittances over the remittances as a share of GDP to untangle the true effects of remittances (Escribà-Folch et al., 2015). The remittances data is obtained from the Word Development Database (WDI).

$EU_{i,t-1}$ is the measure of economic uncertainty, our main variable of interest. The data is derived from the novel country-specific uncertainty index created by Ahir et al. (2018). Compared to other indicators, this index covers a large panel of 143 developed and developing countries[2]. Moreover, the index encompasses a wide range of political and economic developments[3]. The higher the index, the greater the level of uncertainty and vice versa.

$X_{i,t}$ is a vector of control variables, δ_i denotes the unobserved country specific fixed effect, while λ_t represents the time specific effects. The subscripts 'i' and 't' denotes country and time respectively. The selection of the control variables is based on suggestions from prior empirical studies on the macroeconomic determinants of remittance. These variables include, GDP growth, investment (Gross fixed capital formation as % of GDP), inflation (Annual percentage change in consumer price index), financial development (Domestic credit to private sector as a % of GDP), exchange rate (Value of domestic currency per US dollar), human capital (School enrollment, secondary as a % of gross), and trade openness (Sum of exports and imports of goods and services as % GDP).

We estimate equation (1) using the system general methods of moments (sys-GMM) proposed by Arellano and Bover (1995) and Blundell and Bond (1998). The sys-GMM estimator corrects for endogeneity using internal instruments, and avoids the Nickell (1981) bias associated with other panel estimators. Moreover, it uses orthogonal deviations which minimizes data loss and makes it applicable even in an unbalanced panel. It also explores additional moment condition which results in the reduction of finite sample bias (Blundell and Bond, 2000). This bias may however persist in samples with large time periods since the number of instruments increases exponentially with time (see, Roodman, 2009). To address this problem, we collapse the instrument matrix into smaller sets while restricting the number of lags on the regressors

[2] The economic uncertainty index covers 37 countries in Africa, 22 in Asia and the Pacific, 35 in Europe, 27 in Middle East and Central Asia, and 22 in Western Hemisphere. These countries represent 99% of the Worlds GDP.

[3] Issues covered includes, but are not limited to the 9/11 attack, SARS outbreak, Gulf War II, Euro debt crisis, El Niño, European border crisis, UK Brexit vote, and the 2016 U.S election.

to one or two (See, Roodman (2009b)).

Nonetheless, the reliability of the sys-GMM estimator depends on two main things: the assumption that instruments are valid and exogenous to the error term, and that there exists no serial correlation among error terms. We therefore test the joint validity of instruments using the Hansen test for over-identifying restrictions. Failure to reject the null hypothesis suggests that instruments are valid. We test the serial correlation of errors using AR (1) and AR (2) tests. We also employ the Windmeijer (2005) finite sample corrected standard errors. These results are presented in tables 2 and 3 below.

3. Empirical Analysis

3.1. Main Results

Estimates for the full sample are presented in columns (1) to (4) of Tables 2 (Baseline estimates) and 3 (GMM estimates). For all specifications the value of the autoregressive coefficient (α_1) is positive and statistically significant, suggesting the persistence and relative stability of remittances. We also find that economic uncertainty increases remittances in the long run. Specifically, a 1% increase in economic uncertainty increases the steady state value of remittances by 1.56 percentage point.[4] This positive relationship holds steady in all specifications and even after controlling for factors such as economic growth, inflation, financial development, human capital, investment, and exchange rate. These results are in line with the countercyclical nature of remittances highlighted in prior studies. Accordingly, remittances increase during periods of natural disasters and economic downtowns (See, De et al, 2019). Besides, economic uncertainty has been found to have detrimental effect on consumption and unemployment, which in turn affects remittances in line with altruistic behavior of migrants (See, Balta et al, 2013).

Table 2.0: Economic Uncertainty and Remittances: Baseline Model

	(1)	(2)	(3)	(4)
Ln(Rem)	OLS	OLS	Fixed effect	Fixed effect
L.lnRem	0.949***	0.946***	0.841***	0.782***
	(0.004)	(0.007)	(0.008)	(0.014)
L.lnEU	0.019**	0.023*	0.035***	0.034**
	(0.01)	(0.013)	(0.01)	(0.014)
Constant	1.192***	1.259***	3.421***	3.692***
	(0.097)	(0.152)	(0.171)	(0.26)
Observations	2812	1348	2812	1348
R-squared	0.947	0.951	0.811	0.82
Controls	No	Yes	No	Yes
Countries	138	109	138	109

Notes: ***, **, *, denotes the statistical significance at the 1%, 5%, and 10% levels, respectively.

[4] This long run affect is calculated using the formula $\alpha_2/(1-\alpha_1)$.

Table 3.0: Economic Uncertainty and Remittances: GMM Estimates

	(1)	(2)	(3)	(4)
Ln(Rem)	Diff-2-GMM	Diff-2-GMM	Sys-2-GMM	Sys-2-GMM
L.lnRem	0.785***	0.759***	0.897***	0.886***
	(0.091)	(0.139)	(0.041)	(0.076)
L.lnEU	0.203*	0.035*	0.177*	0.178*
	(0.116)	(0.019)	(0.096)	(0.093)
Observations	1,290	1,239	2,292	1,892
Controls	No	Yes	No	Yes
Countries	107	105	131	117
Instruments	49	69	69	73
Hansen-test	0.125	0.03	0.143	0.210
AR (1)	0.000	0.005	0.000	0.000
AR (2)	0.160	0.462	0.142	0.368

Notes: ***, **, *, denotes the statistical significance at the 1%, 5%, and 10% level, respectively. L. represents the first lag. The dependent variable in columns (1) - (4) is the natural log of remittances. The independent variables used in columns (2) and (4) includes economic growth, inflation, financial development, human capital, investment, and exchange rate. The lagged remittance is treated as predetermined. For the system GMM the Windmeijer (2005) finite sample correction standard errors is used. To avoid instrument proliferation, we collapse the instruments matrix and used a maximum of two lags on all instruments as suggested by Roodman (2009b). The values reported in the row for the Hansen test, AR (1), and AR (2) are the p-values for the test for over-identifying restrictions, and the first and second order correlations respectively. Diff-2-GMM denotes the two step difference GMM while the Sys-2-GMM represents the twostep system GMM.

To explore potential heterogeneity in our sample, we re-estimate the sys-GMM model separately for advanced, emerging, and developing economies. The results show that remittances increases with uncertainty in the long run for developing and emerging economies, but, only statistically significant in advanced economies. Conversely, we find a statistically significant positive short-run and negative long-run relationships between economic uncertainty and remittances in developing economies. These contrasting results do not only reflect the variation in the degree of economic uncertainty, but also, highlights the differences in underlying motives driving remittances across country groups. The findings are consistent with previous studies which show that remittances tend to be countercyclical in developing economies, increasing in response to adverse economic situations and decreasing otherwise (See, De et al., 2019). The findings also reflect the prevalence of both ultraistic and self-interest motives among migrants from developing economies. In the case of advanced economies remittances seem to respond to economic uncertainty in line with investment motives, decreasing in the short run and increasing in the long run.

Table 4.0: Economic Uncertainty and Remittances: Three year averages

	(1)	(2)	(3)
lnRem	Emerging Economies	Developing Economies	Advanced Economies
L.lnRem	0.956***	0.883***	0.909***
	(0.041)	(0.095)	(0.067)
lnEU	-0.173	0.569*	-0.320***
	(0.137)	(0.282)	(0.0963)
L.lnEU	0.042	-0.442***	0.136*
	(0.158)	(0.142)	(0.0768)
Constant	0.796	2.966	1.917
	(1.380)	(2.289)	(1.584)
Observations	140	198	154
Controls	Yes	Yes	Yes
Countries	27	35	28
Instruments	25	28	19
Hansen	0.316	0.404	0.446
AR (1)	0.056	0.024	0.064
AR (2)	0.245	0.253	0.598

Notes: ***, **, *, denotes the statistical significance at the 1%, 5%, and 10% level, respectively. L. represents the first lag. The dependent variable in columns (1) - (4) is the natural log of remittances. The independent variables used in columns (2) and (4) includes economic growth, inflation, financial development, human capital, investment, and exchange rate. The lagged remittance is treated as predetermined. For the system GMM the Windmeijer (2005) finite sample correction for standard errors is employed. To avoid instrument proliferation, I collapse the instruments matrix and used a maximum of two lags on all instruments as suggested by Roodman (2009b). The values reported in the row for the Hansen test, AR (1), and AR (2) are the p-values for the test for over-identifying restrictions, and the first and second order correlations respectively.

5. Conclusion

In order to better understand the recent trends in remittances, this paper employs a dynamic panel model that accounts for endogeneity to examine the effect of economic uncertainty on remittances. Economic theory suggests that economic uncertainty could either stimulate or discourage remittances in line with altruistic and self-interest motives respectively. This theoretical assertion has not been explored empirical until now due to the unavailability of credible and consistent data on economic uncertainty.

Using a novel data comprising 138 countries spanning 1995-2018, and a two-step system-GMM approach, we find that economic uncertainty has a positive and significant long-run effect on remittance. While this positive long run effect is evident in advanced economics, the impacts are detrimental in the short run. Interestingly, we find that for developing economics remittances increases with economic uncertainty in the short run and decreases in the long run.

The results highlight the importance of understanding how migrants respond to economic uncertainty shocks so as to anticipate and mitigate the adverse effect of events and national policies. Clarity and openness in domestic policymaking especially during periods of global shocks could enhance migrants understanding of home country policies, and lead to a more stable remittances flow.

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