

# **Migrant remittances and macroeconomic developments in the source countries**

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## **Abstract**

Decades of studies on migrant remittances make one think that everything has been already said, but the recent dynamics of remittances challenge the accumulated knowledge. The economic downturn in the remittance source countries led to a decline in the outflows and a further stagnation while the inflows to these countries sharply increased. The role of the source countries in remittances dynamics needs more attention. This article empirically examines the role of a set of macroeconomic indicators on the outflows of remittances in seven of the top ten source countries of remittances. Particular attention is given to the fluctuations in remittance outflows over the international business cycles and more specifically during the recent global crisis. The constructed model found a significant impact of inflation, unemployment and wages in the source countries on the outflow of remittances, while the economic growth has no significant direct impact.

## **Introduction**

Remittances have enjoyed a great academic interest for many years. The recent crisis dynamited remittances and the factors that shape up their directions and scope. Such a deep crisis that affected mainly developed countries provokes the academic curiosity to verify whether the conventional theory on remittances works. Although the theory suggests that remittances are more stable than other financial flows during the different phases of the cycle, crisis increases macroeconomic volatility and thus may have profound effects on remittance flows. While most of the literature is dedicated to the impact of remittances mainly on the home and to certain extent on the host country of migrants, the factors that drive those bilateral flows had not been on the top of the research agenda. In most of the cases the remittances simply have no significant impact on the sending country, since the studies are rather small compared to the size of developed economies. The other reason is that remittances are studied mainly in the area of development economics and the researchers are focused on assessing the remittances as a benefit from the extensive emigration from developing countries and as a compensation of the loss of population, labour and skills. As Elbadawi and Rocha (1992) point out, demographic portfolio and macroeconomic factors, together with spe-

cial incentive policies, determine official remittances. The complexity of migrant remittances is associated with the variety of factors of personal and macro nature that impact them. Also, the factors related with the migrant home and host countries and their particular role attract the attention of the researchers. Several studies try to measure macroeconomic factors on the remittance outflows, such as GDP growth, real exchange rates, consumption, financial developments and income distribution. The selection of indicators and econometric approaches feeds the great differences in the outcome of the empirical examinations.

In this paper, the recent changes in remittances outflows from seven top remittance countries<sup>1</sup> are studied and also the impact of their macroeconomic framework on remittance outflows. First, the literature is reviewed in seeking for consensus results as to what are the most significant macroeconomic indicators that impact remittances outflows, as well as the econometric models applied. Studying macroeconomic factors from the remittance source country perspective is not sufficiently covered in migration literature although some authors confirm that source country factors better explain the remittance outflow. Moreover, the recent crisis hit more the economies of source than recipient countries of remittances, which could be expected to increase the role of migrant host country factors. A qualitative analysis is conducted aiming at defining the developments of each of the selected macroeconomic indicators and their relevance and limitations to the remittances outflows. Based on that qualitative analysis a balanced panel data model is constructed and applied.

### **Theory about the role of source country macroeconomy for remittances**

There is no consensus about the role of macroeconomic factors in the migrant host country on the scope of outflow of remittances. Also, the authors choose different macroeconomic indicators and techniques in their studies. Cooray and Mallick (2013) test a dynamic panel data model using the system-GMM method over the period 1970-2007. They argue that remittance inflows increase with the volatility in migrant host countries, especially for middle-income countries. Lower interest rates in migrant host countries lead to larger remittance outflows. Another study (Alkhatlan 2013) empirically examines the relationship between economic growth and outflows of workers' remittances in Saudi Arabia from 1970 to 2010. The results show that there is a negative but statistically insignificant relationship between outflows of workers' remittances and economic growth in the long term and a negative and statistically significant relationship between workers' remittances and economic growth in the short term. Huang and Vargas-Silva (2005)

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<sup>1</sup> We use the terms host country and source country with the same meaning as the country, from which the remittances are transferred, and as the country, from which the migrants make the money transfers.

examine whether the migrant host and/or home country macroeconomic conditions are the ones affecting remittances. They find that migrant host country economic conditions are most important factors driving remittances, and that the home country economic conditions have no significant effect on remittances. In a study of Egypt, El-Sakka and McNabb (1999) find that the black market premium and interest rate differentials are important variables explaining remittances.

Elbadawi and Rocha (1992) use fixed effects panel estimation techniques and came to the results that macroeconomic factors together with special incentive programmes determine official remittances. Also using fixed effect panel estimation techniques, Higgins et al. (2004) make a conclusion (not supported by other authors) that unemployment in the host country and the exchange rate are significant determinants of remittances. The authors use different quantitative approaches in assessing the macroeconomic determinants for the outflow of remittances. The techniques used include least squares, fixed effect panel estimation and seemingly unrelated regressions (SUR) models. Some authors use vector error correction models (VECM) to study the relationship between remittances and other macroeconomic variables. They find some advantages in using VECM models since they can solve the endogeneity problem between remittances and other macroeconomic variables. Other authors use variance decompositions, impulse response functions and Granger causality tests derived from VECM. Also, some authors apply autoregressive distributed lag (ARDL) and the error correction model (ECM) (Alkhathlan 2013).

Capitalising on the research conducted so far, we apply both qualitative and quantitative approach. We use balanced panel data model, which consists of the following variables: dependent ones (remittances<sup>2</sup>) and independent ones (real GDP growth, unemployment rate, inflation rate<sup>3</sup> and gross average wage<sup>4</sup>). We test the data for the period 1999-2016 in seven countries – France, Germany, Italy, Russian Federation, Spain, United Kingdom and United States. The selection of countries is based on the significance of remittance outflows in the world. They are among the top ten remittance source countries and constitute for about 25% of the entire world remittances outflows. They are also members of the OECD, except Russian Federation, which is also included as a country with a large outflow of remittances ranking tenth in the world.

In order to assess the dependence between variables under consideration, we use the pooled OLS model that specifies constant coefficients. It is a usual assumption for cross-sectional analysis, and the logarithmic analytical form is the following:

$$\log R_{it} = \alpha + \beta_1 \log GDP_{it} + \beta_2 \log Unem_{it} + \beta_3 \log Infl_{it} + \beta_4 \log Wage_{it} + u_{it}$$

<sup>2</sup> World Bank migration and remittances data, <https://tinyurl.com/migration-remittances-data>.

<sup>3</sup> Data for real GDP growth, unemployment rate and inflation rate are from IMF database, World economic outlook, <https://tinyurl.com/world-economic-outlook-data>.

<sup>4</sup> Gross Average Monthly Wages, UNECE, <https://tinyurl.com/average-monthly-wages-data>.

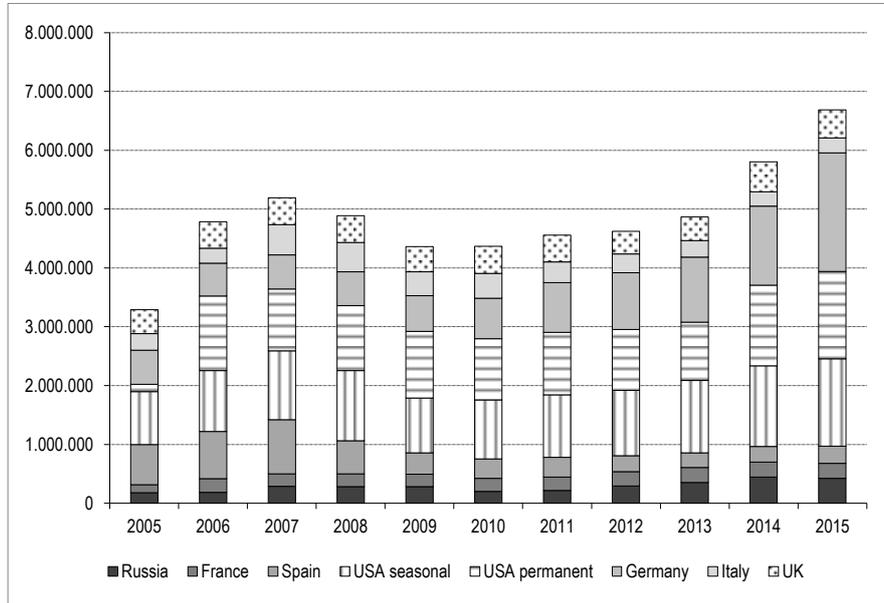
where:

- $R_{it}$  – dependent variable remittances with a cross-sectional dimension for each country  $i$  and a time dimension  $t$ ;
- $GDP_{it}$  – dependent variable real GDP growth;
- $Unem_{it}$  – unemployment rate;
- $Infl_{it}$  – inflation rate;
- $Wage_{it}$  – gross average wage in a country  $i$  and a period  $t$ .

### **Migration and remittances**

It is logical to expect that the remittances depend mostly on the stock of migrant population. The recent crisis impacted both the flows and the stock of foreign population in the OECD countries including those under consideration here. The number of migrants decreases in all countries during 2009 and 2010 and then stagnates till 2013, when the refugee crisis in Europe forms a large immigration, while in the USA the economic recovery stimulates gradual increase of both seasonal and permanent migrants. The sharpest decline of immigration inflows occurs in Spain, which could be associated with the economic recession. Russian Federation immigration follows the general pattern, while the inflow in France is rather stable during the entire period. The inflow of foreign population in Germany has constantly increased in the last ten years, and most sharply after 2013, mainly due to the refugee crisis. The German economy performs well during the global economic downturn, which supports this trend.

The relation between immigration and remittances is determined by many factors, mainly by type of migration (seasonal or permanent), duration of migration, gender, age, skills, etc. Some groups of migrants remit more, some less. The economic crisis, though, has impacted all the groups and the data below confirm that scope of remittances.

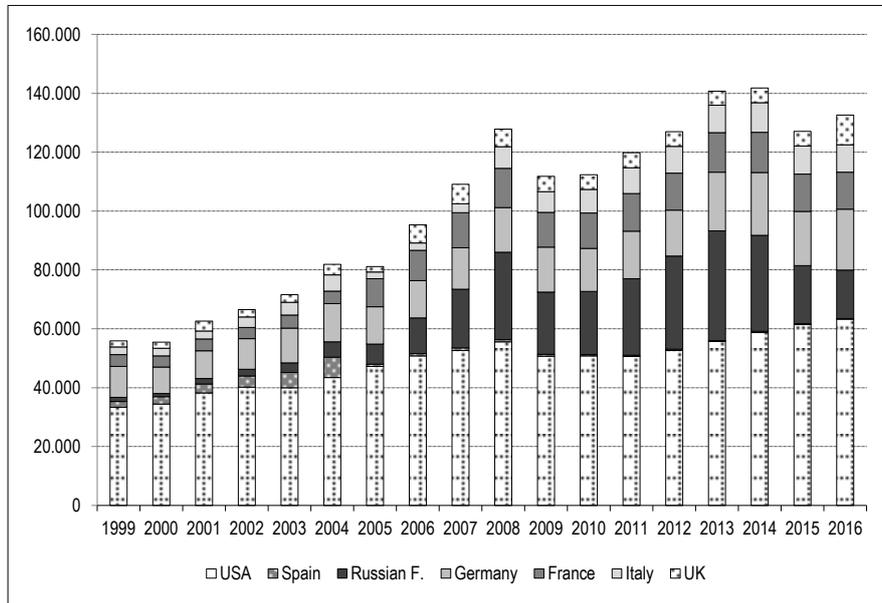


**Figure 1** Inflows of foreign population

Source: OECD (2017) *International Migration Outlook*, p. 250.

### Migrant remittances and the crisis

There are studies (Cooray & Mallick 2013) that empirically assess the impact of macroeconomic volatility of both migrant host and home country on the remittances. They conclude that remittance inflows decrease with economic uncertainty in home countries of migrants but increase with economic uncertainty in host countries for migrants, i.e. remittance inflows are pro-cyclical to migrants' home country volatility but counter-cyclical to the volatility in host countries for migrants. These results are hard to explain if data for the outflow of remittances is reviewed.



**Figure 2** Migrant remittance outflows, 1999-2016 (USD million)

Source: Data from World Bank migration and remittances database.

Before the crisis, remittances experience smooth growth. The downturn in the developed economies during the recent crisis leads to a decline in the remittances and makes them very volatile. Remittances' sustainable growth is interrupted by the crisis, when they drop down for two consecutive years (2009 and 2010) and then start slowly to increase. Within this general dynamics, country specifics widen. The outflow of migrant remittances from the USA, which is the main source country, stagnates for three years and then starts to recover, but slower than in the pre-crisis period. The outflow from Germany and France seems more stable, while the one from Russian Federation is the most volatile.

Every country is both recipient and source of remittances. The inflow of remittances to the developed countries has not yet gained academic interest, since it has no significant role for their economies. The sustainable growth of inflow of remittances to these countries deserves some attention. Last ten years mark a slight change in the balance between the outflows and inflows of remittances. High income countries almost triple the inflow of remittances from USD 46.556 billion in 2005 to USD 140.545 billion in 2015. In the EU the outflows in personal remittances stagnate below EUR 40 billion between 2009 and 2013. The inflows though dramatically increased since 2007 with a growing importance of income flows, generated by EU citizens working abroad topping up from EUR 25 billion in 2007 to EUR 43.6 billion in 2015.<sup>5</sup> The remittances inflow to the OECD coun-

<sup>5</sup> Eurostat, Personal remittances statistics, <https://tinyurl.com/remittances-data>

tries also increases from USD 64.908 to 154.289 billion for the same period. As compared to the huge GDPs of high income countries, the inflow of remittances is marginal for those countries, but fast growing. Received remittances to GDP ratio for euro area increase from 0.41% in 2004 to 0.65% in 2015. The size of remittances to the low income countries is small, compared to the inflows received by high income and middle income countries. The factors that explain the inflows of remittances to the high income countries may be different from those to the developing countries and need further analysis, which is not subject of this study.

### Assessing the macroeconomic factors for the outflow of remittances

Most of the theoretical work on remittances has been devoted to the answer of the question why migrants remit. Some remit simply from altruism (supporting families at home), some invest the saved money, or save for further security and risk diversification, or compensate family for past expenditure, etc. Remittance is a personal choice but it is made in a changing environment that strongly impacts both the ability and the decision to remit. Migrant remittance is about personal and family economics and finance that are driven by micro factors, but they are a reflection of the macro factors, and among those – of the economic ones. While the decision to remit is a combination of economic and non-economic factors, the one about how much to remit is motivated mainly by economic factors. What are the factors that impact the scope of the remitted amounts? We test the significance of four factors – GDP growth, unemployment, inflation, and wages. All estimations are made in the R Studio and results can be summarized as follows:

$$\log R_{it} = \frac{-9.65854}{(0.033563)} - \frac{1.04401}{(0.103996)} \log GDP_{it} - \frac{1.76455}{(0.024730)} \log Unem_{it} \\ + \frac{4.47715}{(0.009718)} \log Infl_{it} + \frac{1.22139}{(0.010960)} \log Wage_{it} + u_{it}$$

R-squared=0.78117 p-value=0.037308

The econometric results are supported by the following tests:

*We apply the Breusch-Pagan Lagrange multiplier (LM) test to decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across countries are zero and there is no panel effect across countries.*

Lagrange Multiplier Test – (Breusch-Pagan) for balanced panels

data: log(Y) ~ log(X)

chisq = 51.855, df = 1, p-value = 5.974e-13

alternative hypothesis: significant effects

The p-value less than 0.05 shows that we can accept the null hypothesis as a valid one, which means that the classical regression model is appropriate for these data.

*We also use the Breusch-Pagan test for heteroscedasticity in a linear regression model. It tests whether the variance of the errors from a regression is dependent on the values of the independent variables. In that case, heteroscedasticity is present.*

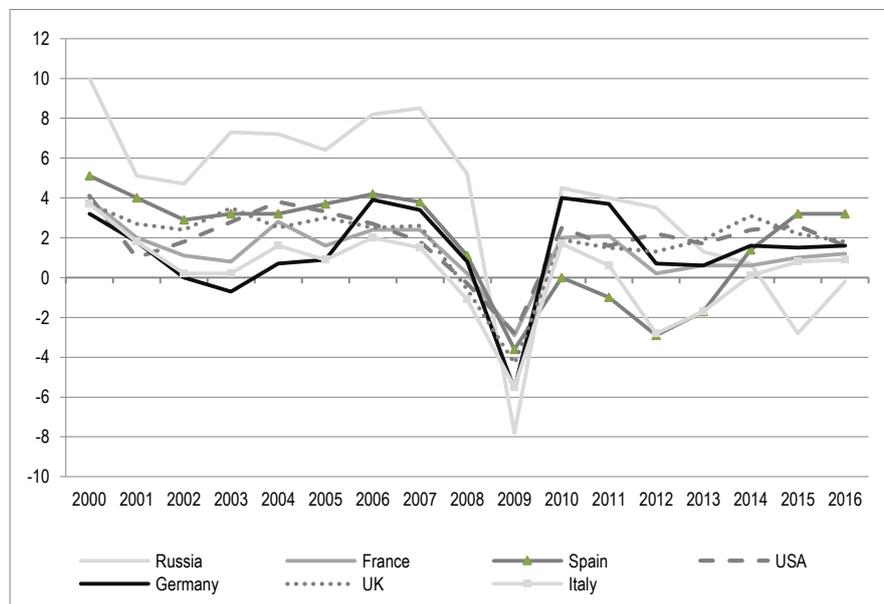
studentized Breusch-Pagan test

data:  $\log(Y) \sim \log(X)$

BP = 9.575, df = 4, p-value = 0.05823

There is no presence of heteroskedasticity.

According to the estimations, the real GDP growth is statistically insignificant explanatory variable when econometrically testing the remittances drivers in host developed countries. Most of the studies examine the impact of remittances on the GDP growth mainly to the recipient countries. The assumption that the downturn will have a direct impact on the remittances has been not confirmed, although the studied economies follow similar economic growth pattern.



**Figure 3** GDP growth (annual %)

Source: IMF (2017) *World economic outlook*.

Economic growth does not have direct visible impact on the abilities of migrants to remit, since this indicator forms the general framework. Remittances are much more dependent on unemployment, inflation and wages than on the overall macroeconomic performance, framed by the GDP growth.

The model results show that the remittances from the seven developed countries are strongly dependent on the inflation in those countries. An inflation increase of 1% leads to 4.5% increase in remittances. The inflation is also related to the purchasing power of the source country currency. The purchasing power of currency, in which the income is received, plays an important role for migrant's abilities to remit. If the currency in the host country of migrants devaluates against the currency in the home country, the incentive to emigrate and remit diminishes. In such situation, in order to transfer home the amount that would have the same purchasing power, the migrant needs to remit more. The exchange rates' dynamics of four currencies (EUR, USD, GBP and RUB) follow very different patterns. Although during the crisis they slightly devalue shortly against some currencies of home countries of migrants, in a long run they appreciate. Substantial part of remittances, particularly in the EU, is between the countries that use EUR or fixed to EUR and its impact is neutral. That is why this indicator is not included in the model.

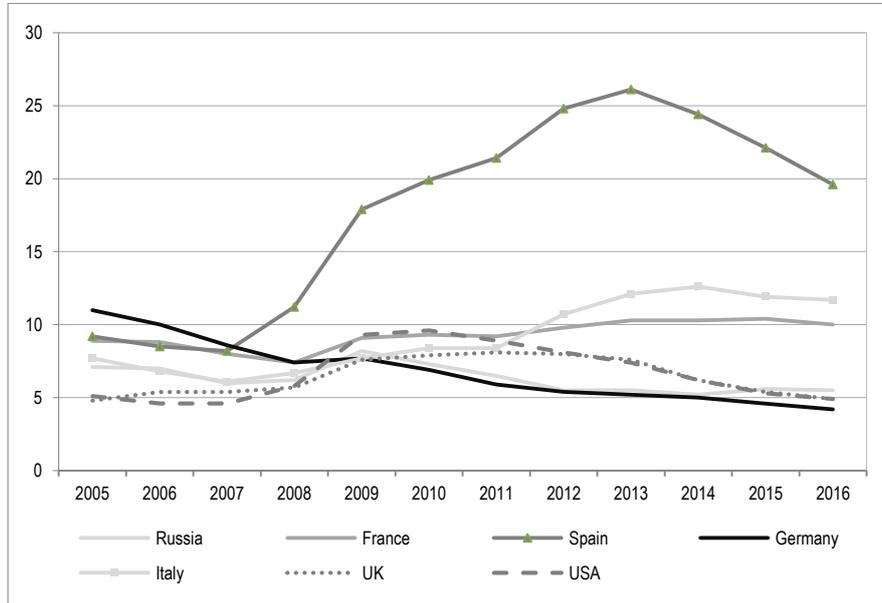
The results indicate a negative relationship between remittances and unemployment in the migrant host country. If unemployment rate goes up with 1%, remit-

tances will fall down by 1.8%. The employment plays an important role, since most of migrants' incomes are from employment. The economic crisis strongly impacts employment and unemployment of migrants. Migrants in the OECD countries, included in the sample, have experienced immediate impact of the downturn of employment with more intensity than the native population.<sup>6</sup> So, we could assume even stronger impact of this indicator on the outflow of remittances, if the unemployment of migrants is used in the model. Unfortunately, such comparable data for the 17-year period are not available.

The overall unemployment in all the remittance source countries has increased during crisis. The highest increase of unemployment occurs during the crisis in Spain, accompanied also with a sharp shrinking of remittance outflow. This is also the case of Italy. The USA unemployment rates drop down shortly after the crisis, while unemployment in Germany has been rather low and stable in the entire period.

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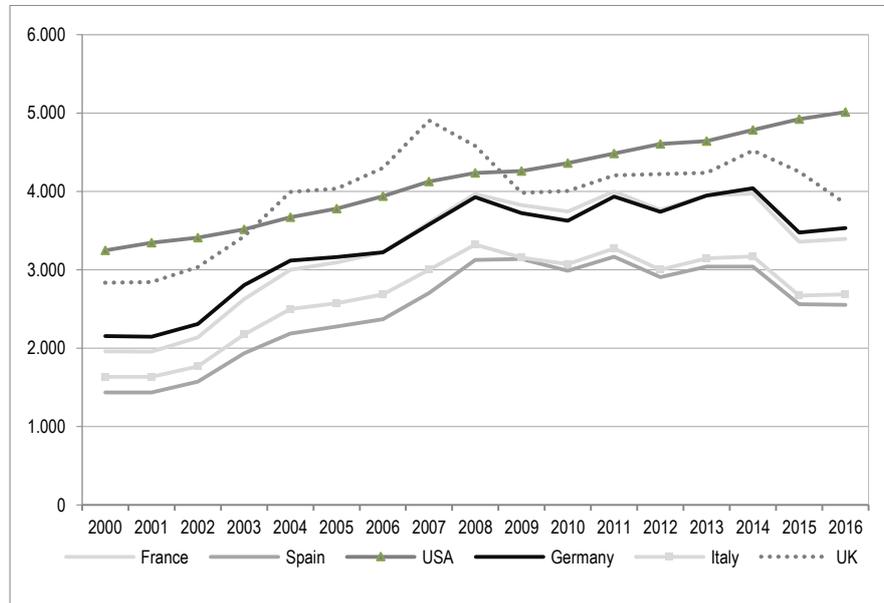
<sup>6</sup> OECD (2017) International Migration Outlook. p. 64-68.



**Figure 4** Unemployment rate (%)

Source: IMF (2017) *World economic outlook*.

It is well proved (Straubhaar 1986) in plenty of studies that an important factor for migrant remittances is the income level of migrant host country. In the model we test the significance of Gross Average Monthly Wages on the dynamics of remittance outflow. In all studied countries the economic crisis has induced decrease or/and stagnation of wages. The negative impact is more pronounced in Spain and Italy, while the USA wages are not affected by the crisis and keep increasing.



**Figure 5** Gross average monthly wage (USD)

Source: UNECE, <https://tinyurl.com/average-monthly-wages-data>

The model results show that 1% increase in the gross average monthly wages leads to 1.22% increase of remittances outflow. Having in mind that the income levels of migrants in general are lower than the average ones in the host country of migrants, the impact of host country wages on remittances may be even stronger.

## Conclusions

The recent crisis has challenged the academic research, which ignores the role of the host country of migrants and focuses only on the home country factors that determine the remittances. The remittances' sustainable growth is interrupted by the crisis, since the economies of the main source countries have been hit hard. The overall tendency is that outflow drops down for two consecutive years (2009 and 2010) and then starts catching up again, but slower than in the pre-crisis period. Although these tendencies are common within the group of studied countries, the outflow of remittances contracts more sharply in the countries hit harder by the crisis. Another interesting tendency is that high income countries start receiving much more remittances, and this tendency is hard to explain with the conventional development theory. The flows of remittances between the high income countries also accelerate significantly.

The remittances outflow does not immediately respond to the worsening economic situation in the host country for migrants. This confirms the theory that suggests that this flow is most stable, compared to the other financial flows.

Testing the four main macroeconomic factors that the literature suggests of having an impact on remittances, we find a significant impact of three of them. Inflation, unemployment and incomes in the source countries impact the outflow of remittances. We could imagine, though, a much stronger impact of unemployment and wages in the source countries, if in the model we would include the unemployment and wages of migrants instead the overall macro data.

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