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How Good Governance (GG) Affects Diaspora Motivations for Remittances to Iran

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Abstract

In this study, we examined different models for the motivation of the Iranian diaspora to send remittances to Iran, with and without governance indicators, to analyse the impact of economic factors and governance indicators on remittances. The results based on the generalised method of moments (GMM) method show that the income level of the origin and host country had positive and significant effects on the diasporas' motivation for remittances to Iran. Also, Iran's real exchange rate has a negative impact on remittances, whereas the interest rate differential is positive. The results confirm that the quality of governance and its indicators are essential factors for remittances. Overall, the macroeconomic conditions, along with good governance in Iran,

have influenced remittances. Between investment and altruistic motives, altruism has been the primary motivation of remittances due to the lack of good economic and governance conditions in Iran during the years under review.

Keywords

remittance – altruism motivation – investment motivation – the generalised method of moments – good governance

1 Introduction

Remittances are a financial resource that immigrants in destination countries send to their country of origin in different forms, such as money, goods or services, and are one of the most crucial sources of foreign earnings. Remittances can influence economic growth, inequality and poverty reduction, especially in developing countries. They are the second-most important source of financial resources for many developing countries, and account for more than international investment and aid in some countries. Remittance flows to developing countries increased considerably in the last decades (World Bank, 2012), and reached USD 716 billion in 2019 (World Bank, 2020).

From a global and macroeconomic perspective, remittances have come to be recognised as an essential and stable source of development finance for poor, labour-exporting countries. From Figure 1, it can be seen that total remittances increased five-fold over the period from 1995 to 2019.

Because remittances are important for many developing countries, several studies have examined their impact in various respects related to the process of growth in the recipient countries. A wide variety of factors have been covered, such as economic activities and policies, institutions, risks, investment opportunities, etc. in countries of origin and destination. For instance, GDP is considered a proxy for the income of immigrants and their family (El-Sakka and McNabb, 1999; Williams, 2017; Abbas, Masood and Sakhawat, 2017; McCracken, Ramlogal-Dobson and Stack, 2017; Cismaş, Curea-Pitorac and Vădăsan, 2019). Also, the return on assets can be assessed by interest rates. High-income destination countries send more remittances, whereas lower-income countries receive higher remittances, depending on altruistic motivation or self-interest. Also, higher interest rates in the country of origin lead to self-interested motivation for remittances from senders in destination countries.

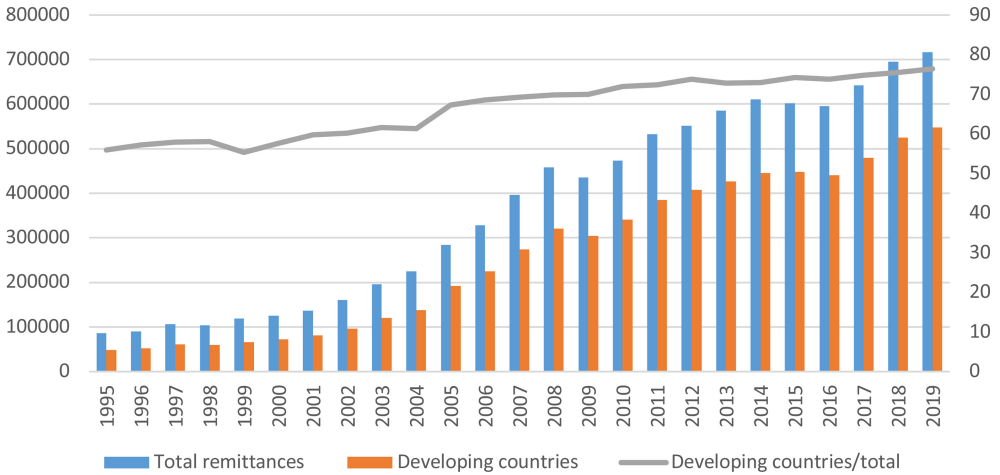


FIGURE 1 Officially recorded international remittances: 1995–2019 (USD billion)
WDI, 2020

Distance has different effects on remittances, and most research shows that the greater the distance, the more negative the effect (McCracken et al, 2017; Ahmed and Martinez-Zarzoso, 2014; Frankel, 2011; Docquier, Rapoport and Salamone, 2012; De Sousa and Duval, 2010). This result could be related to reasons such as the weakening of the families’ relationships and high transfer costs. However, there are some views about the positive effects of distance on remittances (Rapoport and Docquier, 2006; De Sousa and Duval, 2010), which suggest two reasons for these. The first is related to the type of data used for the research, which comes from official remittance information and transfer channels such as banks and money transfer companies. This shows that remittances can increase as a result of an increase in distance, because the migrants have less opportunity to deposit money in the home country themselves. The second reason is related to immigration costs. Most people who emigrate, especially from developing countries, borrow money from family and friends for travel expenses and repay the loan after emigrating (Ilahi and Jafarey, 1999; De Sousa and Duval, 2010).

Also, there are different motivations for remittance. If remittances are sent to home countries because of the increasing value of the currency of the destination country, this can reflect self-interest, whereas an increase in remittances sent despite a devaluation can show an altruistic motivation (Lin, 2011; McCracken et al, 2017).

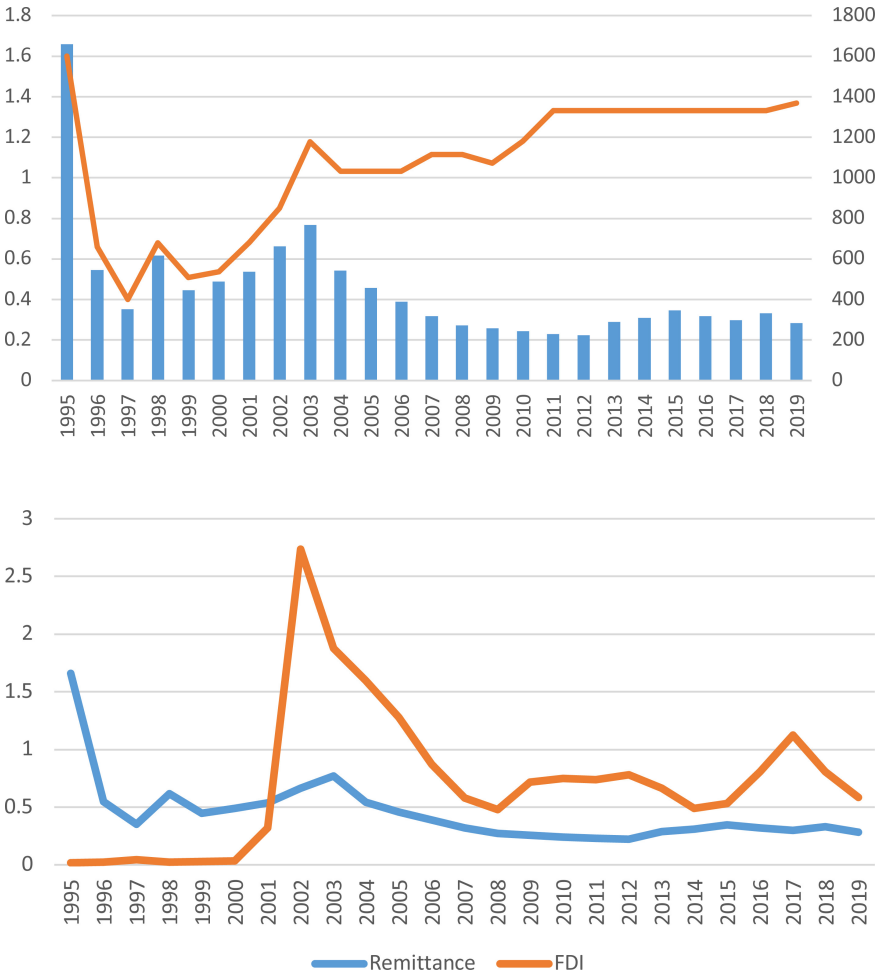
The factors that affect remittances are diverse and extensive. They depend on economic circumstances, the level of migration, governance, demographics, etc. Some studies have paid attention to domestic governmental institution

performance on remittances. For example, Catrinescu et al (2009), Singh et al (2011) and Effiong and Asuquo (2017) have examined governance indicators in 109 countries.

A review of these studies shows that the motivations for migration in terms of institutional and economic factors have not been examined so far, especially from developing countries. For this reason, we have selected Iran. The choice of Iran is also motivated by some of the characteristics that make it an interesting case study, such as the amount of remittances, which are small considering the large size of that country's diaspora. Iran ranks 54 out of 232 countries in terms of emigration, based on the population of Iranians living abroad in 2020 (UNDESA, 2020). The compiled data indicate that the total number of Iranian-born emigrants increased from about half a million people before the 1979 revolution to 3.1 million in 2019, corresponding to 1.3% and 3.8% of the country's population. Overall, the top destination countries for Iranian migrants include the United States (32%), Canada (14%) and Germany (11%). Around 700,000 individuals born in Iran have attended foreign universities. The number of Iranian students enrolled in foreign universities has increased steadily since the early 2000s and is about 130,000 today. Based on global publication records, over 100,000 researchers of Iranian descent have worked in foreign universities and research institutions (Azadi, Mirramezani and Mesgaran, 2020).

The Iranian diaspora sends the equivalent of USD 1,400,000,000 to Iran annually, which is a small amount considering the large number of emigrants (Shirkhani and Bayazidi, 2018). Also, the remittances as a share of Iran's GDP decreased from 1.65% to 0.29% from 1995 to 2019 (WDI, 2020) during this time. Figure 2 could be interpreted as indicating that the Iranian diaspora's motivation changed from one of investment to altruism. World Bank studies and other available statistics show that Iran is far below the world average in good governance. Considering the negative international assessments of investment security in Iran, which would otherwise be a self-interest motive for remittances, as well as the country's poor governance, the motivation for remittances to Iran is very likely to be altruistic.

Indeed, comparing the amount of remittances with foreign direct investment as a share of GDP in Iran shows that remittances are not much different from foreign investment in Iran and have many functional similarities. Overall, remittances could be a significant source of foreign financing in developing countries (Batu, 2017). FDI and remittances can provide the necessary tools to aid development and achieve higher growth levels if used efficiently. Cooray's (2012) study shows that India and Sri Lanka may be overdependent on FDI and probably should focus on improving the use of and attracting more remittances and overseas development aid (ODA), and increasing exports, to finance their



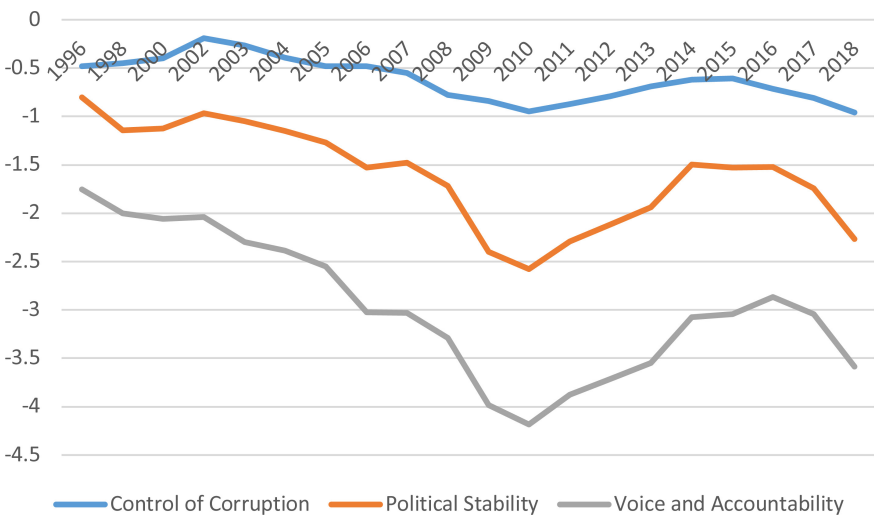
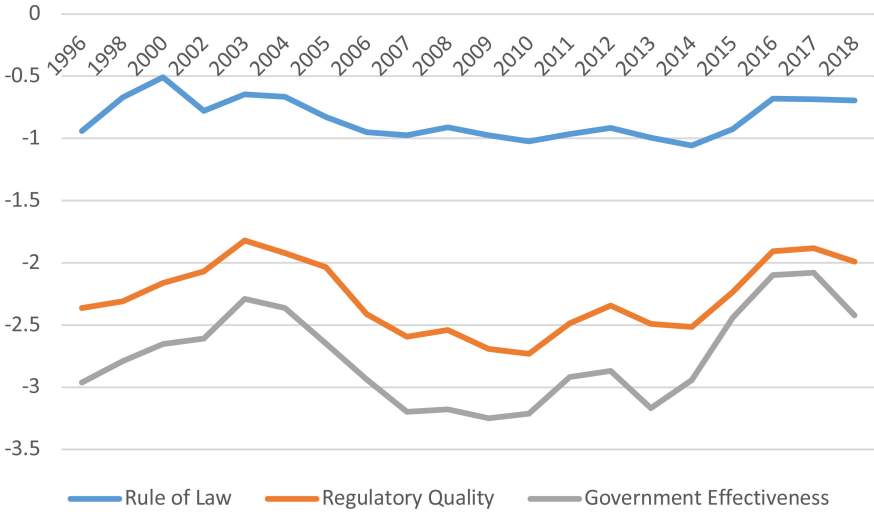
FIGURES 2A B The trend for remittances, and their share of FDI and GDP in Iran, 1995–2019

economic growth. Romania is an example of a country with high remittances, equating to 5.5% of GDP and about 60% of foreign direct investment inflows from 2000 to 2008 (De Sousa and Duval, 2010).

Given that the diaspora is an important source of investment in developing countries (Shirkhani and Bayazidi, 2018), the importance of remittances in the development of countries like Iran could be crucial.

The governance index in Iran shows that these indicators are low and fluctuated in recent years, which suggests that remittances over this period probably were made with altruism rather than investment in mind.

Therefore, this study examines the impact of economic factors and governance on remittances to Iran, with an emphasis on the motivations for sending



FIGURES 3AB The trend of good governance indicators in Iran, 1995–2020
 The definitions are presented in the Appendix
 WORLD BANK, 2020

remittances home, by taking into account the countries from which the most remittances were sent to Iran from 2010 to 2018. The generalised method of moments was used as a method of analysis, eliminating biases, cross-sectional regressions and heterogeneities. It makes estimates more accurate with higher efficiency and less alignment.

This study differs from others in several respects. First, it uses bilateral remittance statistics for Iran as a developing country. Second, it emphasises governance indicators in seven different models, which are not referred to in previous studies.

2 Literature Review

The existing literature on remittances shows that various factors affect remittances, especially altruistic (Abbas et al, 2017, Solimano, 2002; Lu and Treiman, 2007; Alam, Wasim and Ahmad, 2017; Simpson and Sparber, 2020), loan repayment (Poirine, 1997; Ilahi and Jafarey, 1999; Alam et al, 2017; Jackman, 2014; Simpson and Sparber, 2020) and self-interest motives (Lucas and Stark, 1985; McCracken et al, 2017; Abbas et al, 2017; Simpson and Sparber, 2020). Altruism is one of the most common reasons for sending funds home, with the goal of remaining linked to family in the origin country and reflecting the desire of migrants to improve the income and well-being of their family members.

In altruism as a motivation, the satisfaction of the emigrant is directly related to the satisfaction of the family. Many researchers, including Agarwal and Horowitz (2002) and Solimano (2003), claim that as migrants secure stable employment and income, they feel the satisfaction of transferring remittances to the home country for the welfare of their family and developing the living standards in their home countries. Fidler's (2001) study shows that migrants send money to family members in the home country in order to invest in property or land on behalf of the migrants (Alam et al, 2017).

Overall, remittance decisions are problematic to categorise since they are based on demographic, geographic, cultural, religious and economic conditions that differ between the host and origin country. Given the complexity of remittance motivations and the diversity of the countries relying upon them, the various motives for remitting are not mutually exclusive. A migrant will often have a combination of reasons to remit, and motives vary between migrants and over time.

To identify the motivations for sending remittances, we need to use methods that can explain the relationship and the effectiveness of different variables. There are several approaches to modelling the determinants of remittance in

the literature. The first is the micro approach using household data (Amuedo-Dorantes and Pozo, 2006; Yang, 2008); the second is the macro approach (Vargas-Silva and Huang, 2006; Adams, 2009). The third view, which is increasing in use, is based on micro theories and macroeconomic data (Rapoport and Docquier, 2006; McCracken et al, 2017; Abbas et al, 2017).

Some remittance research focuses on one country or region (Sayan, Tas and Yalta, 2010; Vargas-Silva and Huang, 2006; Catrinescu et al, 2009; Chirila and Chirila, 2017; Simpson and Sparber, 2020). Other researchers use bilateral data to achieve better results on the effects of different factors on remittances (Lueth and Ruiz-Arranz, 2008; Frankel, 2011; Docquier et al, 2012; Bettin, Presbitero and Spatafora, 2017; McCracken et al., 2017). Some studies use gravity models with bilateral remittance data for understanding the factors that affect remittances (De Sousa and Duval, 2010; McCracken et al, 2017; Poirine and Dropsy, 2019; Ahmed, Mughal and Martínez-Zarzoso, 2020). The bilateral trade gravity model presented by Tinbergen (1962) provides a useful basis for answering questions around trade. In its basic formulation, the gravity model explains bilateral trade flows based on Newton's universal law of gravitation. Following this law, bilateral trade is an increasing function of the economic size of trading partners and a decreasing function of destination. Equation 1 refers to the gravity model:

$$X_{ij} = A \frac{Y_i^{\alpha_1} Y_j^{\alpha_2}}{D_{ij}^{\alpha_3}} \quad (1)$$

so that X_{ij} is the amount of bilateral trade between partners; Y_i and Y_j represent the economic size; and D_{ij} is the geographical distance between the countries. The bilateral trade equation for the gravity model has been further extended to explain remittances (De Sousa and Duval, 2010; Ahmed and Martinez-Zarzoso, 2014; McCracken et al, 2017). The importance of this model is related to the ability to explain the effect of each variable on remittances in the receiving and sending countries. According to the literature, not only do economic fluctuations in the sending country affect the amount of the remittance, but so do factors in the receiving country.

Different theories show mixed results from the impact of remittances on the economy and the well-being of the family. In the microeconomic literature, some critical factors affect remittances, including the immigrant's income level, education, marital status, length of stay abroad and the number of family members at home (Melkonyan and Grigorian, 2012; Rapoport and Docquier, 2006). However, in the macroeconomic literature, many other factors affect remittances, such as wages and economic conditions in the country of origin and destination (Ahmed and Martínez-Zarzoso, 2014; Cooray and Mallick,

2013; Cismaş et al., 2019). Inflation rates, income differences, interest rate differences, exchange rate fluctuations, government immigration policies, political stability in countries of origin and destination, and transaction costs all have different effects on remittances (Lartey, 2017; De Sousa and Duval, 2010; Bettin et al, 2017; Williams, 2017; Abbas et al, 2017; Batu, 2017). Macroeconomic instability, such as high inflation or exchange rates, can have a negative effect on remittances, whereas a devaluation can have a positive effect (Ahmed and Martinez-Zarzoso, 2014). Devaluation in the country of origin increases remittances in the short term but reduces immigrants' confidence in the long term. Exchange rate restrictions in the country of origin may prevent remittances and also change the mode of transfer from the formal sector to the informal. At the same time, the development of the financial sector can make sending remittances cheaper and more accessible. Interest rate differences can have a negative or positive effect on remittances because of the increasing investment risk at a time of high interest rates. Related to the income level (measured in terms of GDP) in the recipient country, the negative effect of domestic production on remittances indicates an altruistic motivation whereas the positive effect indicates investment. But the income in the source country, despite its positive effect, has an ambiguous effect on remittances depending on the motivation.

Today there are many ways in which to understand the nature of governance as a tool for promoting the development process. Good governance is specified as one of the targets of the Millennium Development Goals (MDGs). It has been variously defined as the management of society by the people, or as the exercise of authority to manage a country's affairs and resources (Simonios, 2004). It is a broad concept that is directly related to areas such as the economic environment and security, politics, society and law. One reason for the importance of good governance is its impact on quality of life and well-being. Another reason is its relationship with some macro indicators of a community (Mohammadi, Shahnoushi and Ronaghi, 2017). The World Bank has divided governance indicators into six components: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption (World Bank, 2014). Good governance has been a topic of study for the last three decades. Even so, only some governance variables have been analysed and evaluated, and there are limited studies on the effect of all indicators on remittances (Effiong and Asuquo, 2017; Catrinescu et al, 2009).

Previous studies show that political instability can have a positive or negative effect on remittances, depending on an altruistic or investment motivation (Akkoyunlu and Siliverstovs, 2014; Abbas et al, 2017). Singh et al (2011) showed

that increasing the quality of institutions in the country of origin can have a positive effect on remittances. Lartey and Mengova (2016) argued that political and economic factors as well as government efficiency have a significant effect on increasing remittances. In fact, good governance creates an incentive structure in political, economic and social interactions that has a positive effect on remittance. Workers send more money home when they have a democratic government in their origin country. Corruption could be a risk for remittances because it reduces government productivity and assigns businesses to unqualified individuals. A country's political problems affect the performance of the government and, therefore, the remittances. In general, the existing risks in the country, such as political instability or the lack of rule of law, hurt remittances because of unstable investment conditions. On the other hand, they can increase remittances as a result of altruism. The economic situation of the immigrant's home country is an essential tool in evaluating remittances. Adverse shocks, such as government instability, social and political unrest, cannot only increase the need to send remittances, but also increase migration (Hagen-Zanker and Siegel, 2007).

Much of the literature related to empirical and theoretical studies on remittance has focused on the effects of remittances on recipient countries (Batu, 2017; Bettin et al, 2012; Hassan and Shakur, 2017; Eggoh, Bangake and Semedo, 2019). But many other studies have questioned the factors that affect remittances. The studies can be divided into three categories: those that have examined the positive and negative effects of variables on remittances; those that mention the motivations for and effects of economic and non-economic variables; and those that have focused on both.

In the first group, most studies show the positive effects of economic and non-economic factors on remittances to countries, but some studies have shown negative effects. Abbas et al (2017) have demonstrated that the difference in interest rates between Pakistan and the United States has a positive and significant effect on remittances. Also, education has a positive and significant effect. An effective real exchange rate, too, has a positive effect because the devaluation of the domestic currency leads to an increase in remittances. Internal conflicts have a negative effect because they reflect political violence and the effects of government on the economy. Effiong and Asuquo (2017) examined the effect of governance on remittances, emphasising their heterogeneous relationship. The results reveal that all six governance variables have a significant relationship with sending remittances, which is nonlinear and heterogeneous. In addition, different aspects of governance have different effects. Alam et al (2017) explore the economic determinants of Pakistani workers' remittances to their country. The results show that interest rates, exchange

rates, GDP, gold prices, investment, stock prices and political stability are some factors that affect remittances. In particular, remittances increase because of increasing production, investment costs, gold prices, political stability and the devaluation of the national currency. In comparison, an increase in interest rates will lead to a decrease in remittances due to more insecurity in future price changes. De Sousa and Duval (2010) show that the unemployment rate harms remittances. Also, a significant but negative effect has been shown in the exchange rate. Finally, by entering the distance variable, they concluded that remittances increase with increasing distance, but this increase is nonlinear.

Some studies have pointed to altruism and self-interest as motivations for remittances. McCracken et al (2017) illustrate that the GDP of both countries is an essential factor. The positive effect of economic production on remittances in the country of origin is due to the investment motivation. In contrast, the negative effect of differences in GDP reflects an altruistic motivation. Distance has a negative effect, in that the higher transaction cost reduces the remittances. The interest rate difference is only significant at the 10% level. Combining this with the per capita income differential, remittances are shown to be motivated more by altruism than self-interest. Access to private credit in both countries reflects the motivation to invest. Both the skills of the labour force and the dependency rate are statistically significant in demographic variables. The amount of remittance increases in the absence of political risk, which has a significant and positive effect in the country of origin, indicating self-interest motives. Also, remittances increase during conflicts and military intervention in politics. Lartey (2017) examined the effects of remittances on the dynamics of capital flows under monetary policy and exchange rates. The main findings were that remittances motivated by altruism decline sharply under a fixed exchange rate regime whereas they increase under monetary policy according to the Taylor rule. Rapoport and Docquier (2006) demonstrated a combination of self-interest and altruism in sending remittances. Schiopu and Siegfried (2006) also show this combination of motives. Accordingly, altruism was the main reason for sending remittances and the difference in GDP was effective in this regard. In contrast, interest rate differences between countries boost investment incentives and self-interest.

3 Data and Methodology

3.1 Description of Data and Variables

The primary purpose of the study was to investigate the economic and institutional factors and motivation for remittances to Iran. To do this, we evaluated bilateral remittance variables from sixteen countries with the highest remittances to Iran from 2010 to 2018. These included Australia, Austria, Canada, Denmark, France, Germany, Israel, Kuwait, Netherlands, Norway, Qatar, Sweden, Turkey, UAE, the UK and the US. Another criterion in selecting the variables was the level of access to the data. Also, the variables were chosen based on the gravity model structure and the purpose of research, referring to previous studies.

We coded the categories as bilateral remittances (REM), host country GDP per capita (GDP_{dt}), home country GDP per capita (GDP_{ot}), distance (DIS), real exchange rate (RER), real interest rate differential (Log Difference) ($Dint$), political stability (PS), voice and accountability (VA), government effectiveness (GE), regulatory quality (RQ), rule of law (RL) and control of corruption (CC).

The sums of bilateral remittances in USD million come from World Bank, migration and remittances data (World Bank Group, 2020).¹ In what follows, the GDP per capita in millions of US dollars comes from WDI (2020), for both destination and source countries. In general, the expected sign of the economic activity in the destination country is positive, regardless of the motivation for remittance. The income level in the origin country is expected to be positive, but the motivation is ambiguous. We describe physical distance, measured as the distance from Tehran, Iran's capital, to the corresponding capital of the remittance-sending country, based on the Geodatos site² (Geodatos, 2020). The geographical distance was commonly used to proxy the transaction costs of remitting. The distance could cause remittances to rise or fall. The remittances may decrease because of increasing transaction costs, but can increase because a greater distance raises migration costs and loans to migrants, which they repay (De Sousa and Duval, 2010).

The currency exchange rate of Iran was obtained from UNCTAD (UNCTAD dataset, 2020),³ and the real exchange rate of Iran was calculated based on the related formula by CPI in both countries. The exchange rate could increase or decrease remittances, which affects the purchasing power of remittances

1 <https://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data>.

2 <https://www.geodatos.net/en>.

3 https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en

and leads to an ambiguous effect. An exchange rate increase may lead to more remittances because of the increased purchasing power at home, or the exchange rate could reduce remittances, if the purchasing power of the amount transferred remained unchanged.

As a proxy for the rate of return on financial assets, we used interest rate differentials. These were computed by subtracting the recipient country's interest rate from the corresponding measure of the source country's interest rate. In most cases, the interest rate refers to a country's money market rate. This difference can improve remittances because of investment opportunities, but can also decrease the remittances due to an increase in investment risks. As a proxy for institutional quality in the recipient country, we used good governance indicators from the World Bank's Worldwide Governance Indicators.⁴ Good governance may improve the investment environment and therefore encourage remittances (Singh et al, 2011), whereas the lack of good governance may also encourage remittances to compensate for the loss of purchasing power of the family at home (Ahmed and Martinez-Zarzoso, 2014).

3.2 *Methodology and Empirical Approach*

In this study, we used the panel data method for more efficient estimates, considering the nature of the variables, and to investigate the dynamics of changes and eliminate the bias of cross-sectional regressions. We chose not to use the ordinary least square method of fixed and random effects because it provides biased and inconsistent results due to the dynamic structure and endogenous of the explanatory variables and the relationship between the dependent variables with the cross-sectional effects of each country (Arellano and Bond, 1991). Therefore, we implemented the 2SLS Hsiao 2-step estimation method, or Arellano and Bond generalised method of moments. Arellano and Bond (1991) presented one-stage and two-stage GMM estimators using instrumental variable matrices. The differential GMM method will not provide inconsistent results if the model's errors are heterogeneous and the explanatory variables are time independent. For this problem, Arellano and Bover (1995) proposed the S-GMM method, which combines regression in surface with regressions in differences as a system. This reduces the combination of standard errors and creates more moments conditions and differential equation intervals are entered into the model for all periods, so the tools and the accuracy of estimation increases (Asadi et al, 2013).

4 <http://info.worldbank.org/governance/wgi/#:~:text=The%20Worldwide%20Governance%20Indicators%20WGI,Government%20Effectiveness>.

TABLE 1 Descriptive statistics and sources

Expected sign	Source	Description	Max	Min	Std	Mean	Variable
-	World Bank	Bilateral remittances	5.977	2.411	1.022	3.764	<i>REM</i>
+	World Bank	Host country GDP per-capita	11.403	9.264	0.402	10.721	<i>GDP_{dt}</i>
+	World Bank	Home country GDP per capita	8.843	8.698	0.051	8.763	<i>GDP_{ot}</i>
-	World Bank	Distance	9.457	6.647	0.78	8.092	<i>DIS</i>
Control Variables							
Altruism (-) Investment (+)	World Bank	Real exchange rate	10.669	7.057	0.967	8.717	<i>RER</i>
Investment (+)	World Bank	Real interest rate differential (log difference)	6.907	-0.223	1.045	2.836	<i>Dint</i>
Altruism (-) Investment (+)	WGI	Political stability	-0.813	-1.63	0.272	-1.167	<i>PS</i>
Altruism (-) Investment (+)	WGI	Voice and accountability	-1.299	-1.608	0.127	-1.494	<i>VA</i>
Altruism (-) Investment (+)	WGI	Government effectiveness	-0.191	-0.676	0.157	-0.396	<i>GE</i>
Altruism (-) Investment (+)	WGI	Regulatory quality	-1.198	-1.708	0.149	-1.413	<i>RQ</i>
Altruism (-) Investment (+)	WGI	Rule of law	-0.679	-0.056	0.145	-0.881	<i>RL</i>
Altruism (-) Investment (+)	WGI	Control of corruption	-0.604	-0.958	0.124	-0.778	<i>CC</i>

Note: All variables are expressed in log-level terms.

The study employed a model which includes commonly used determinants by focusing on the specific bilateral variables. The gravity models have been used increasingly to study international migration, with the availability of bilateral data for flows and remittances. As McCracken et al (2017), De Sousa and Duval (2010), Ahmed and Martinez-Zarzoso (2014) and Poirine and Dropsy (2019) explain, it is helpful to estimate the effect on remittances of income in the origin and destination country of migrants, as well as the distance between

the two countries (Lueth and Ruiz-Arranz, 2006). Based on the gravity model and research purpose, the linearised gravity model of remittance flows from destination to origin country is expressed as:

$$REM_{odt} = b_0 + b_1GDP_{ot} + b_2GDP_{dt} + b_3DIS_{odt} + b_4RER_{odt} + b_5Dint_{odt} + b_6GGOV_{ot} + e_{odt} \quad (4)$$

Control variables are all ones that relate to both countries, or the origin country. They include the real exchange rate, based on the bilateral exchange rate, and the interest rate differential between origin and destination countries. Similarly, the good governance indicators measure the prevailing uncertainty of governance in the origin countries. All variables are estimated in natural logarithms except for the good governance index. To estimate the model, a base regression without governance indicators is estimated and then, due to the alignment between governance indicators, all six governance indicators are entered into the model separately. Therefore, a total of seven models have been evaluated. For this purpose, the systematic GMM model is preferred to the differential GMM due to the heterogeneity variance according to the Wald test results (as presented in the Appendix). Also, two tests are proposed to ensure the appropriateness of using this method—the Sargan and Correlation test of first and second order condition AR(2) and AR(2) for the validity of instrumental variables.

There are several advantages to using GMM. First, the method is a typical estimator, which provides a valuable framework for comparison and assessment. Second, it allows researchers to perform the estimation in more detail in the long and short term, and to overcome violations of assumptions in the regression analysis. This method is used because it is potentially more accurate than the existing methods because it contains no errors in the variables and has better control over the endogenous variables. The model analysis was done using Stata 16.

4 Results

One of the issues that we should consider about the time series and panel models is stationary variables. We face the problem of spurious regression if the variables are not stationary. This test was not necessary because of the limited study period of nine years; however, the test was done (see Appendix). Based on the result of the Levin, Lin and Chu test, some variables of the model become stable in the first difference and others on the level, so the regression

TABLE 2 The Kao residual cointegration test

-2.096 (0.018)	-2.382 (0.008)	-2.202 (0.013)	-2.283 (0.011)	-2.122 (0.016)	-2.221 (0.013)	-2.201 (0.013)	t-stat p-value
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TABLE 3 Fixed or random effects model results

Model	Base	VA	RQ	RL	CC	GE	PS
F-Test	64.36	73.31	69.53	70.02	64.55	66.18	67.02
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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fallacy is probable. To avoid this problem the cointegration test was used. There are several methods to examine and test cointegration. Here, the presence of a long-run relationship between variables was evaluated by the Kao test to evaluate the durability of residuals of a long-run estimation. As the residuals of the estimation were stationary, it was not possible to reject the cointegration in the model. Moreover, almost all variables have the same degree of cointegration and long-term equilibrium relationships are established between remittances and explanatory variables

Table 3 shows the results of the Limer test, which shows the panel or pool models because the null hypothesis of this test is the use of cumulative effects. This hypothesis is rejected and therefore the model should be estimated as a panel, according to the probability level of the test.

Also, it is necessary to test the equation and validity of the instrumental variables before estimating the model, so we used the Sargan test, the results of which are presented in Table 4. Arellano and Bond (1991) suggest the use of the Sargan test in order to validate the instruments. Based on the null hypothesis, the instruments are exogenous, which are not rejected in any regression.

The Arellano and Bond (1991) estimator was also utilised to test the residual autocorrelation. As observed in Table 5, the null hypothesis related to no first-order autocorrelation was rejected for five models and not rejected for two models, while the second-order autocorrelation was not confirmed. However, based on the Sargan test results, the GE and RL models could be analysed.

The regression results for the independent and control variables indicate that the GDP per capita of Iran has a significant and a positive effect in all mod-

TABLE 4 Sargan test

Model	Base	VA	RQ	RL	CC	GE	PS
Chi2	15.607	9.398	9.655	4.933	15.305	15.207	11.925
Prob.	0.209	0.668	0.646	0.96	0.225	0.23	0.451

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TABLE 5 Arellano and Bond residual autocorrelation test

Model	Base	VA	RQ	RL	CC	GE	PS
AR(1)	-1.667 0.095	-1.629 0.103	-1.752 0.079	-1.586 0.112	-1.653 0.098	-1.551 0.12	-1.646 0.099
AR(2)	-0.919 0.357	-0.516 0.605	-0.293 0.768	-0.035 0.972	-0.931 0.351	-0.966 0.333	-0.971 0.331

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TABLE 6 The results of s-GMM

Model	Base	RQ	CC	PS	VA	GE	RL
Ln RE(-1)	0.59 (0.000)	0.287 (0.000)	0.584 (0.000)	0.525 (0.000)	0.152 (0.021)	0.586 (0.000)	0.268 (0.000)
<i>b</i> ₁	0.53 (0.000)	0.457 (0.000)	0.409 (0.000)	0.449 (0.000)	1.107 (0.000)	0.465 (0.000)	0.722 (0.000)
<i>b</i> ₂	0.652 (0.001)	2.692 (0.000)	0.47 (0.22)	0.704 (0.000)	3.581 (0.000)	0.731 (0.004)	2.777 (0.000)
<i>b</i> ₃	0.054 (0.008)	-0.026 (0.149)	0.027 (0.178)	-0.005 (0.769)	-0.0008 (0.949)	0.044 (0.131)	0.019 0.409
<i>b</i> ₄	-0.388 (0.000)	-0.527 (0.000)	-0.362 (0.000)	-0.286 (0.000)	-0.434 (0.000)	-0.405 (0.000)	-0.493 (0.000)
<i>b</i> ₅	0.01 (0.053)	0.002 (0.511)	0.015 (0.002)	0.018 (0.000)	-0.01 (0.098)	0.011 (0.292)	0.003 (0.572)
<i>b</i> ₆	-	-0.568 (0.000)	-0.138 (0.000)	-0.115 (0.000)	-0.941 (0.000)	0.012 (0.863)	-0.5 (0.000)

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els. The positive sign indicates that Iranian immigrants send more remittances to the country when the economic situation improves (De Sousa and Duval, 2010; McCracken et al, 2017; Kock and Sun, 2011; Docquier et al, 2012).

Unfavourable economic conditions in the origin country will threaten those remittances made with an investment motivation (Jackman, 2014). The effect of economic production on remittances varies depending on the motivation. On the one hand, remittances will increase to the home country despite decreasing in value, because of altruism (Ahmed and Martinez-Zarzoso, 2014). According to the altruistic theory, remittances are inversely related to the economic situation of the country of origin, and a reduction in economic activity will lead to more remittances (Jackman, 2014). So, remittances are for family support, and will increase with any factor that reduces the standard of living and creates negative income shocks. Also, GDP per capita in the destination country has a significant and positive effect on all models, because an improvement in the economic conditions of the destination country of migrants will increase employment and expected income and lead to more remittances to the home country, regardless of the incentive to send them.

Distance has a positive and significant effect on sending remittances to Iran only in the basic model and does not affect other models. Therefore, distance did not play a significant role in the decision for remittances to Iran. One reason can be related to the great distance between Iran and destination countries, which leads to more remittances being sent through official channels. Another reason is the repayment of loans to other family members, which increases by distance.

Regarding the exchange rate, various studies show that financial variables such as exchange rates have a significant effect on remittances (Adams, 2009). The exchange rate has different effects on remittances due to its effect on purchasing power. De Sousa and Duval (2010) showed that migrants increase remittances to use the benefits of an increase in the exchange rate in the origin country, which increases their purchasing power. Moreover, this can be related to the investment motivation. The study result shows that the real exchange rate of Iran had a significant negative effect on remittances. Increasing the remittances when the exchange rate for the origin country is high indicates the investment motivation; increasing remittances when the exchange rate is low indicates the altruistic motivation (Lin, 2011; McCracken et al, 2017), so, the motivation for remittances to Iran in this case related to altruism.

The interest rate differential variable had a positive and significant effect in two models. The positive effects indicate investment motivation and the negative relationship indicates an altruistic one (McCracken et al, 2017). In most cases, the interest rate refers to a country's money market rate. First, a posi-

tive interest rate differential means that migrants take advantage of attractive returns on savings in their country of origin, and at the same time, reduce savings in the source country (Ahmed and Martinez-Zarzoso, 2014; Kemegue, Owusu-Sekyere and Van Eyden, 2011). Another interpretation is if remittances are increased when interest rates are high in Iran as a result of instability, this suggests the altruism motivation; reduced remittances because of an unstable financial situation, when people are not sure about the economic condition, relate to the investment motivation (Singh et al, 2011; Ahmed and Martinez-Zarzoso, 2014). In other words, it is possible for remittances to increase when the interest rate of origin both increases and decreases. The motivation is therefore ambiguous and cannot be determined easily. Therefore, both investment and altruism are possible motivations, based on the interest rate in Iran.

All good governance indicators, except GE (governance effectiveness), which was insignificant, had a significant negative effect on remittances. A democratic government in the origin country leads to more remittances by diaspora. Risks in a country, such as political instability or lack of voice and accountability, negatively affect remittances for investment purposes. Negative shocks not only increase migration but also increase remittances for altruistic motivations (Hagen-Zanker and Siegel, 2007; Ahmed and Martinez-Zarzoso, 2014). In contrast, good governance and any of its sub-indicators, such as political stability, can increase remittances for investment (Singh et al, 2011). The existence of economic and political problems in the country of origin can be a significant incentive to send remittances (Banwart, 2011). In other words, the increase in each of the governance variables in Iran has led to an increase in remittances, which indicates that altruism is the dominant motivation of Iranian migrants in supporting their families.

5 Conclusion and Recommendations

The study reviews the effects of economic factors by exploring good governance indicators as a measure of remittances to Iran, during the years 2010 to 2018. In order to more accurately analyse the impact of the economic factors and each of the governance indicators on remittance, seven separate models were examined—one without governance indicators and six with each of the governance indicators. Finally, four models were found suitable and analysed. The study's results indicate that macroeconomic, political and financial conditions of the countries of origin and destination had significant, and sometimes different, effects on remittances to Iran. Based on the results, the income level

of the destination countries and Iran had a positive and significant effect in all models. The positive effect of income in Iran can indicate an investment motivation, in that people will invest in their country due to an improvement in economic conditions. Also, the positive effect on remittances from the sending country can indicate an improvement in an immigrant's income, who then sends more money.

Distance had a significant and positive effect on the base model, which showed that remittances increase with distance. Because a large proportion of Iranian immigrants have migrated to countries far from Iran, such as the United States, this has led to an increase in immigration costs and an increase in the amount of money borrowed from other family members, and therefore in the payments sent back to Iran (De Sousa and Duval, 2010).

Also, Iran's real exchange rate had a significant and negative effect on remittances in all models. This shows that the devaluation of the national currency led to an increase in remittances, as a result of altruistic motivation. The interest rate differential indicates the combination of altruistic and investment motivations. Finally, in all the studied models, the negative result of governance indicators in Iran—political instability, lack of corruption control and of the quality and rule of law—led to an increase in remittances. This shows that the shortage of good governance conditions increased remittances. Immigrants make more remittances to Iran in the face of unstable political and economic conditions, which confirms the altruistic motivation.

Of course, it should be noted that the motivations for remittances are very complex. The returned income of immigrants has many different reasons, such as the personality traits of individuals and the economic and political characteristics of the countries of origin and destination (Cooray and Mallick, 2013). However, the results show that the motivation for remittances to Iran differ between investment and altruism. In the years under review (2010 to 2018), there was not much incentive to invest due to factors such as the lack of economic stability, political instability, sanctions, corruption and little application of the rule of law. So the reason immigrants sent remittances to Iran was to support their families as much as possible. The study also revealed a trend in the relation of remittances to their share of GDP. Even though there were more remittances in recent years compared to the 90s, their share of GDP decreased, which shows that despite both investment and altruism motivation, these remittances have not led to production and growth. The results indicate that a large proportion of the diaspora mainly intended to support their families, and were predominantly motivated by altruism.

The results of various studies (Cismaş et al, 2019; Batu, 2017; Alam et al, 2017) show that remittances can contribute significantly to economic growth. There-

fore, it is suggested that good economic conditions and governance policies create a better situation for remittances with investment motivations. Development activities can be expanded by establishing political and economic stability in a country and increasing the quality of governance through appropriate laws and regulations. Conditions must be suitable to attract foreign investment from the Iranian diaspora, because foreign direct investment by the diaspora has many similarities to remittances, and is an essential source of investment in developing countries. Therefore, we can understand the importance of their role in the development of the country of origin.

The Iranian economy alone has the capacity to attract more than USD 50 billion in foreign direct investment, and the capital of the Iranian diaspora is more than USD 2,000 billion (Bayazidi and Shirkhani, 2018). Increasing investment confidence in Iran, by improving GDP, better performance of the stock market, financial and investment markets, good financial health, creating a competitive environment, improving the investment climate and increasing profit margins, can reassure immigrants about sending income to their home country. So, the policies and direction of governance should be compatible with other important policies, such as monetary and exchange rates, given the crucial role of good governance and its indicators in attracting remittances. The stability of interest and exchange rates can increase the willingness of people to send remittances and increase their investment.

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A.1 Appendix

Examination of the results of the Wald test for the existence of heterogeneity variance indicates that there is heterogeneity of variance in all estimated models.

TABLE A Wald test results

Model	Base	VA	RQ	RL	CC	GE	Ps
Chi2	14349.23	7142.19	12489.5	6400.58	49010.83	10203.99	18576.03
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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The results of the Levin, Lin and Chu test are presented in Table B. Based on the results, most of the variables are stationary at level or with first differential.

TABLE B Stationary test results

Variable	t-stat	P-value	Stationary
<i>REM</i>	-3.05	0.001	level
<i>GDP_{dt}</i>	-7.07	0.000	level
<i>GDP_{ot}</i>	-3.252	0.000	level
<i>DIS</i>	-4.94	0.000	level
<i>RER</i>	-7.411	0.000	level
<i>Dint</i>	-4.75	0.000	level
PS	-3.087	0.001	1st difference
VA	-3.878	0.000	1st difference
GE	-5.03	0.000	level
RQ	-3.577	0.000	level
RL	-3.609	0.000	level
CC	-2.074	0.019	level

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A.2 The Definition of Good Governance Indicators

Political Stability: Political stability and absence of violence/terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.

Government Effectiveness: Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Regulatory Quality: Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law: Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence.

Control of Corruption: Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Voice and Accountability: Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media.