國際學碩士學位論文

Macroeconomic Determinants of Migrant Remittances: Focusing on Latin America and the Caribbean

이주노동자의 거시경제적 송금 결정요인: 중남미지역을 중심으로

2013年 2月

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國際學科 國際 地域學專攻

송 영 민

Macroeconomic Determinants of Migrant Remittances: Focusing on Latin America and the Caribbean

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Youngmin Song

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Abstract

Macroeconomic Determinants of Migrant Remittances: Focusing on Latin America and the Caribbean

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This paper intends to find out the macroeconomic determinant of migrant workers' remittances to Latin America and the Caribbean, and suggest some policy implications. The remittance flows to Latin America and the Caribbean are significant not only because of its absolute terms but also because of its great share of GPD. However, many existing papers have been concentrating on microeconomic determinant of remittances such as altruism, self-interest, or investment motives. Even though many studies have been focused on microeconomic determinants of remittances, the macroeconomic determinants of remittances became an important issue of analysis as a development tool and many studies related to macroeconomic determinants are coming out in seeking of adequate policies.

The result of empirical analysis of 32 Latin America and the Caribbean countries covering the period from 1980 to 2010 shows that the economic conditions of both home and host country affects the remittance flows in negative and positive, respectively. Difference of interest rate between home and host countries has a positive effect to the remittances because of the self-interest motivation of migrant workers. The geographical distance between both countries has a negative impact on remittances since the migration cost becomes higher depending on the distance.

However, the population density in home country affects the remittance flows to the region positively, because the labor surplus of the home country will try to work overseas. Also, migrant stock in host country has positive impact on remittance, because exiting migrants in host country tend to attract more migration to the country and hence, more remittances. The macroeconomic instability of home country such as high inflation affects the migrant workers' remittances to increase.

Key words: Remittances, Latin America and the Caribbean, Migrant workers, Macroeconomic determinants

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Table of Contents

List of Tables and Figures

Table

Figure

I. Introduction

As the world is globalizing rapidly, not only goods and services have been moving from countries to countries, but the labor also has been moving with motivations to gain a better life. With such phenomenon, remittances, the money sent to their home countries by migrant workers, have grown in significant volume and became a very important source of financial flow. Globally the remittance flows were recorded US$501 billion in 2011.[1] Especially those to developing countries are estimated to have reached US$374 billion in 2011, which is an increase of 12% compare to the previous year.[2] Now that the remittances have far exceeded the Official Development Assistance (ODA) and had become the second largest international capital flow after Foreign Direct Investment (FDI), it is very important for developing countries to attract more remittances. More importantly, the officially recorded remittances only show the transfer through formal channels, and unrecorded remittances transferred with informal channels are believed to be about 50% of the recorded flows, hence, the true size would be even larger than FDI flows in developing countries.[3]

As remittances has become a powerful resource in development and income distribution to developing countries, policymakers and scholars started to pay attention to determinants of migrant workers' remittances in order to get larger volume of remittances. Even though many studies have been focused on microeconomic determinants, the macroeconomic determinants of remittances became an important

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[1] World Bank's Migration and Development Brief
[2] World Bank's Migration and Development Brief
[3] World Bank

issue of analysis as a development tool and many studies related to macroeconomic determinants are coming out in seeking of adequate policies.

Remittances to Latin America and the Caribbean (LAC) had grown significantly for the last few decades; even though there was a drop in 2009 because of the Global financial crisis, it is recovering its pace to the pre-crisis level from 2010. The remittances in LAC region recorded US$ 57.5 billion in 2010 which is roughly 18% of world total volume. The impact of remittances to LAC is important not only because of its absolute volume, but also because of its high share in GDP, which reflects the reliance on it. In small countries from Central America and the Caribbean, the share of remittances in GDP is significantly high and is likely to be affected to the remittance flows – 7 countries have remittances of more than 10% in GDP share.

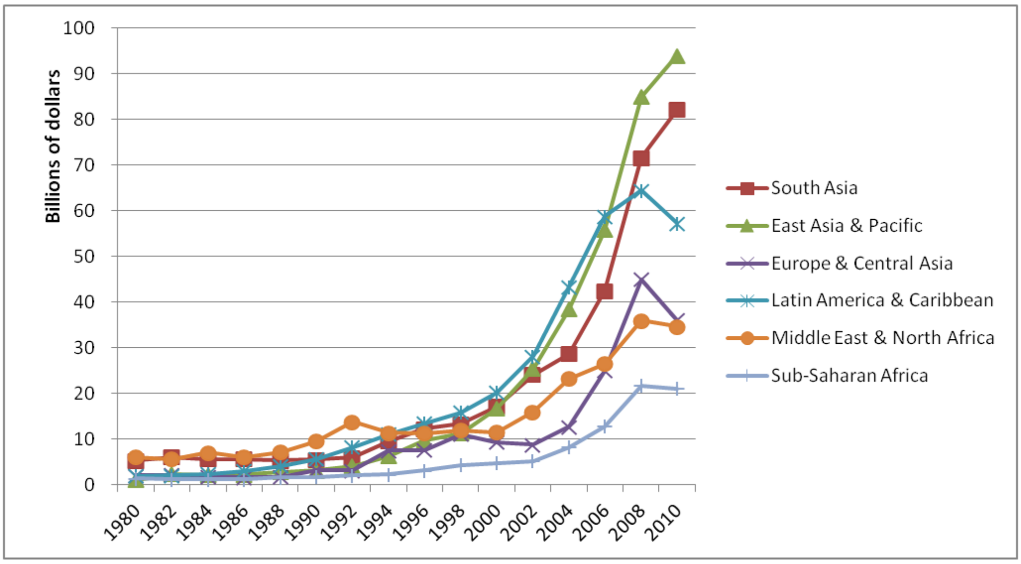
Due to their growing scale, remittances to LAC region have recently attracted much more attention in research and policy circles. The determinants of remittances need to be better understood for policies that may encourage remittances to receiving countries. Still the study of the macroeconomic determinants of remittances has lack of its diversity since most of papers focus on small set of countries.

In this paper, I will analyze the macroeconomic determinants of migrant workers' remittances focusing on Latin America and the Caribbean with empirical analysis in order to find out what influences the remittance flows in the region and what policy implications might be needed. This paper is composed of 8 sections. After this introduction, the following chapter will cover the remittance flows in Latin America and the Caribbean which will explain the trend of remittances in the world and LAC region. In third section, literature reviews based on micro and macroeconomic determinants of remittances is presented. Section 4 shows the data description and methodology used for the analysis. Section 5 estimates the empirical results and explains the determinants of remittances to Latin America and the Caribbean. Finally in last two sections cover the conclusion and policy implications and the references.

II. Remittance flows to Latin America and the Caribbean

Remittances to Latin America and the Caribbean (LAC) had been growing significantly for the last few decades; they rose from US$ 19.2 billion in 1980 to US$ 57.5 billion in 2010, which almost tripled in only 3 decades. Although the remittances recorded a steep 12% decline in 2009 due to the Global economic crisis, workers of Latin America origin in the United States experiencing job losses, lower earnings, and slower migration, they are slowly making a recovery from 2010 and expected to return to pre-crisis levels.[4]

<Figure 1: Workers' remittances received, by region (developing countries only)>



Source; World Development Indicator, World Bank

[4] World Bank and Oxford Analtica

Latin America and the Caribbean countries share a large volume in global remittances flow. The remittances to LAC region used to be the largest in the world, having roughly 27% in 2006, but after a harsh tornado of the Global economic crisis the volume declined to 18% in 2010, following that of East Asia and Pacific and South Asia. <Figure 1> shows the migrant workers' remittances received by the region explaining the volume changes of them.

Since the remittances to LAC had increased significantly, they had become a very important capital flow which significantly reduces the level, depth, and severity of poverty. [5] However, because of the high transfer fees to remit the money through formal channel, migrant worker often send some money separately through informal channel, and the remittances including those flows are expected to show much higher volume. And MIF, IDB's Multilateral Investment Fund, started raising awareness of the true volume of remittances, and the cost of money transfers to the region has dropped from as high as 20% in 2000 to an average 5.5% in 2010, encouraging migrants to remit through formal channel without wasting billions of dollars in fees.[6]

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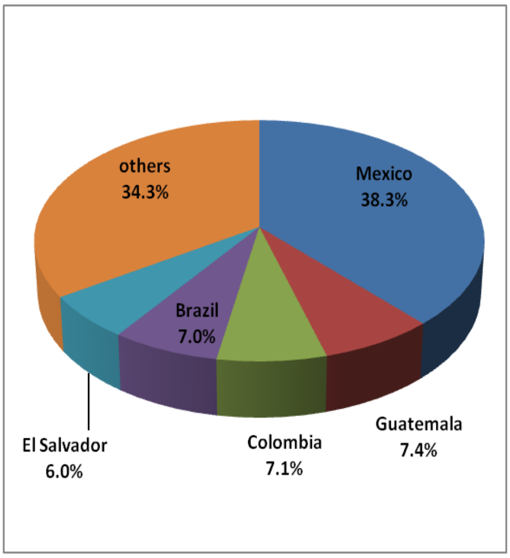
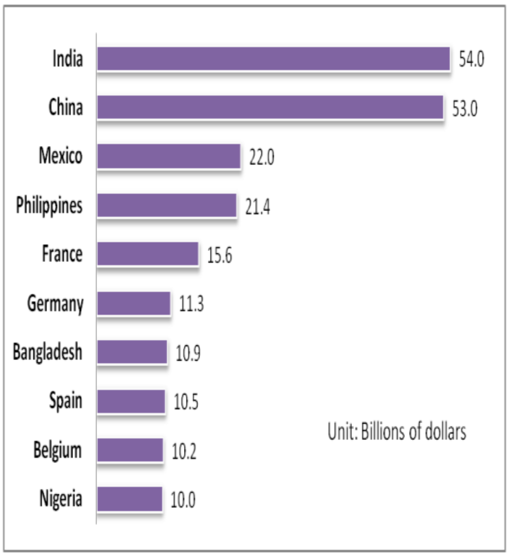
[5] Richard H. Adams Jr. and John Page, 2005, *Do International Migration and Remittances Reduce Poverty in Developing Countries?*

[6] IDB, Inter-American Development Bank

<Figure 2: Remittances to LAC, 2010>



<Figure 3: Top10 Remittances recipients, 2010>



Source; World Development Indicator, World Bank
*Excluded countries that has no data recorded.

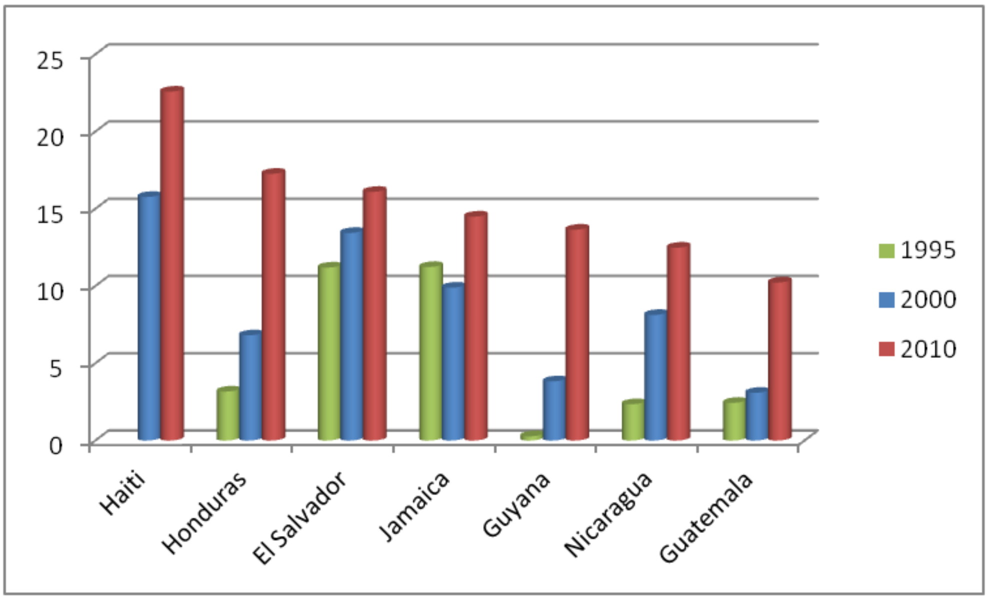
However, among the remittances to LAC, a big amount of share goes to Mexico, recording 38.3% of region's volume in 2010. <Figure 2> shows the percentage of main Latin American countries that receive remittances; top 5 remittance-receiving countries in 2010 are Mexico, Guatemala, Colombia, Brazil and El Salvador. The remittances to Mexico are huge not only within the region, but also in the world; Mexico is the third biggest remittance-receiving country, after India (US$ 54 billion) and China (US$ 53 billion) in 2010.[7] (See <Figure 3>)

The remittances in LAC are significant not only in terms of absolute volume, but also in terms of its share in GDP. Until 1994, the remittances to LAC region had reached only 0.73% of their GDP, but it rose in fast pace and reached up until 2% of the GDP in 2004, which means that the remittances to the region more than doubled up

[7] Migration and Remittances Factbook 2011, World Bank

within a decade. A high share of remittances in GDP reflects the importance of remittances as an economic developing factor in LAC.

<Figure 4: Countries showing remittances share in GPD more than 10%, 2010>

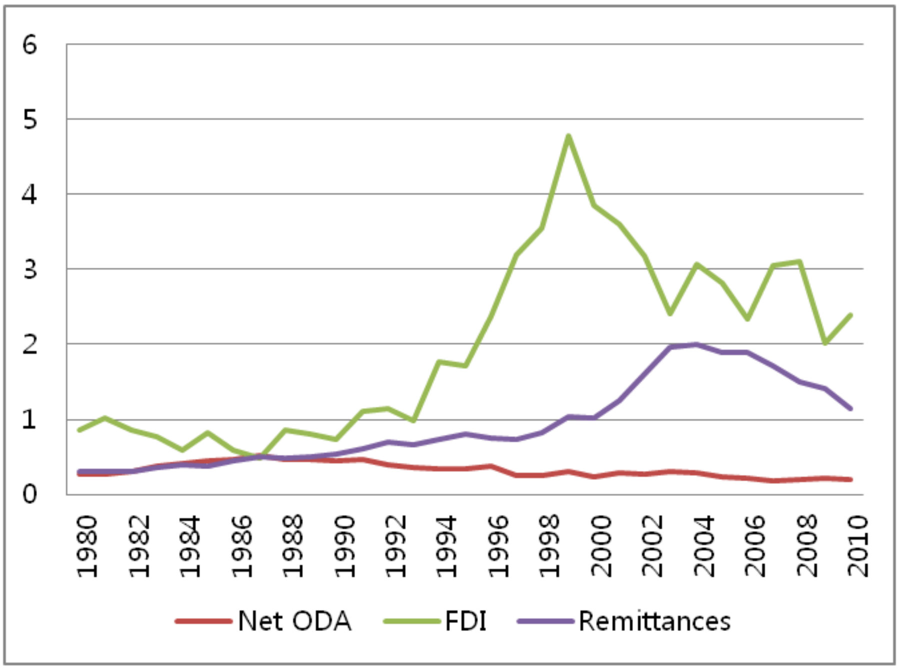


Source; World Development Indicator, World Bank
*Haiti has the data from 1998; thus no data for 1995 is available.

Within the region, there are some countries that have much higher share of remittances in GDP than other countries. Most of them are small countries of Central America and Caribbean. They do not necessarily have a big absolute volume of remittances, but as a percentage of its share in GDP is significantly high, and it indicates their reliance on remittances. <Figure 4> shows LAC countries that have higher than 10% of remittances share in GDP in 2010. Central American countries such as Honduras and El Salvador, and a Caribbean country, Haiti, recorded over 15% of remittances in share of GDP; 17%, 16%, and 22%, respectively. However, amongst top

5 countries that show the highest absolute volume of remittances, Mexico, Colombia and Brazil doesn't have a high ratio in GDP; they rather have relatively small share. The share of GDP in Mexico is 2.1%, 1.4% in Colombia and 0.2% in Brazil. This data indicates that smaller and poorer countries are more likely to be affected to the remittance flows.[8]

<Figure 5: Remittance, FDI, and ODA to LAC, % of GDP>



Source; Prepared by the author on the basis of data from the World Bank

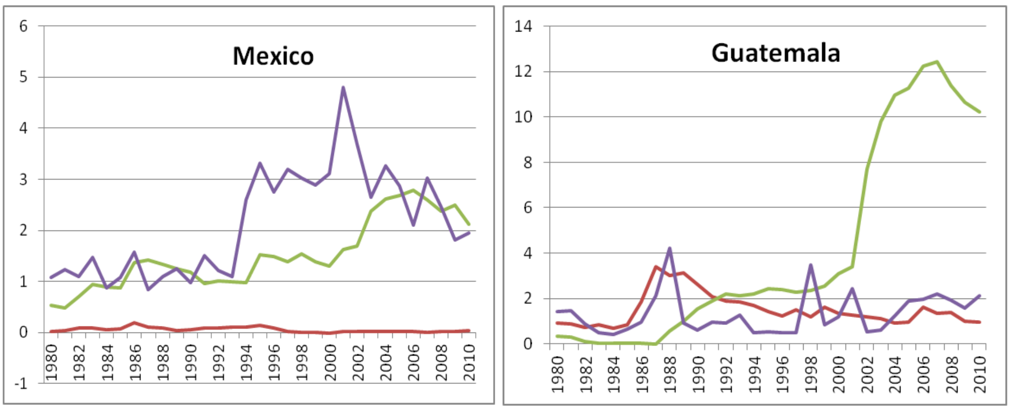
Among overseas capital flows such as Foreign Direct Investment (FDI) or Official Development Assistance (ODA), remittance flow is getting attention as a

[8] Fernando Lozano Ascencio, 2004, *Current trends in migrants' remittances in Latin America and the Caribbean: An evaluation of their social and economic importance* SELA (Latin American Economic System), 2004

significant capital flow. The remittances to developing countries are higher than official aid flows and are also higher than most other types of private capital flows.[9]

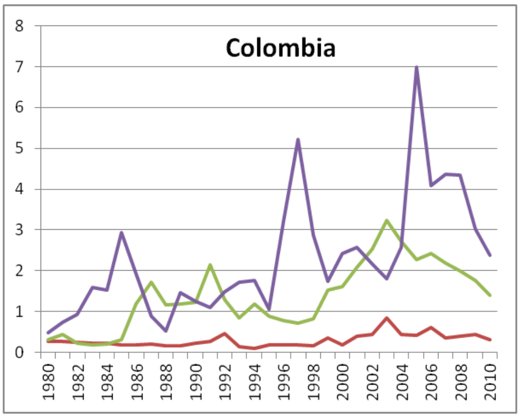
The remittances to LAC already far exceeded the amount of region's ODA from 1990s; its remittances in 2010 is US$ 57 billion and its ODA is US$ 10 billion, which makes the remittances to be roughly 5 times bigger than the ODA. However, it should be noted that remittances as a possible substitute for ODA, because they share different characteristics and modalities; remittances are private transfer that goes directly to households, while the ODA is a transaction between governments.[10] Although remittances may not be a straight alternative for foreign aid, it can continue to serve as a complement by serving as a significant source of household income, providing support for consumption, education, healthcare, and potentially path out of poverty.

<Figure 6: Remittances, FDI and ODA of top 10 countries, % of GDP>



[9] Poonam Gupta, 2005, *Macroeconomic Determinants of Remittances: Evidence from India*, IMF Working Paper

[10] Bimal Ghosh, 2006, *Migrants' Remittances and Development: Myths, Rhetoric and Realities*, IOM(International Organization for Migration)


Colombia
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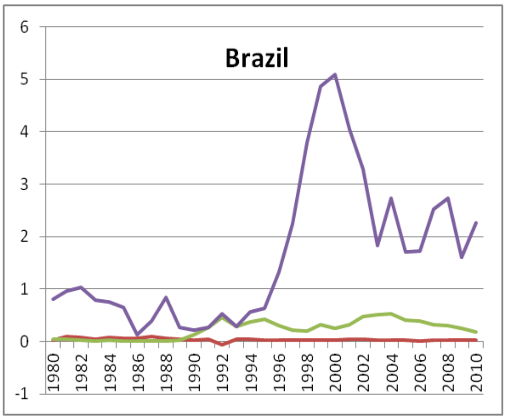
Brazil
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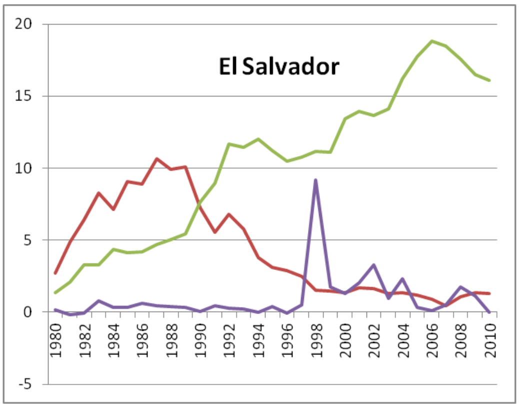
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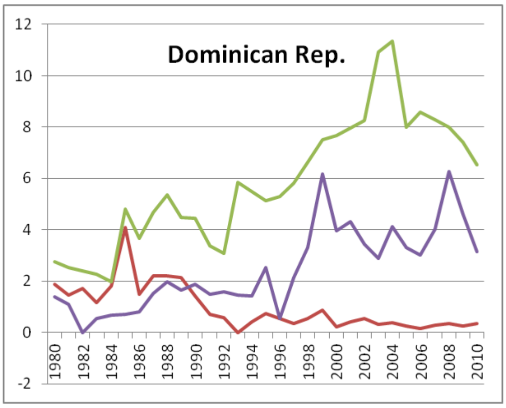
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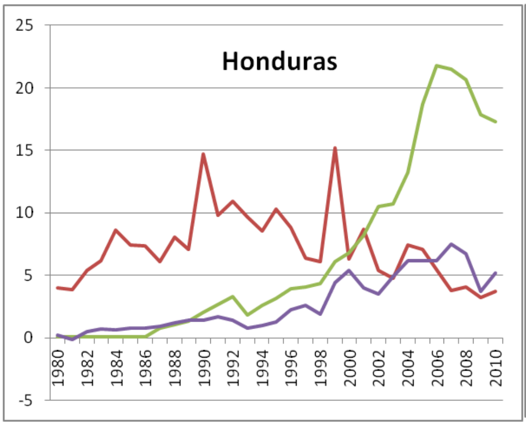
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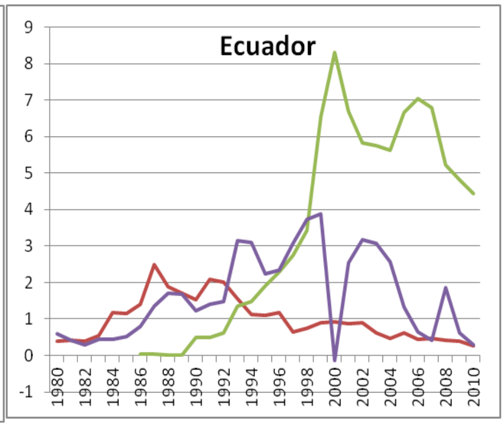
Ecuador
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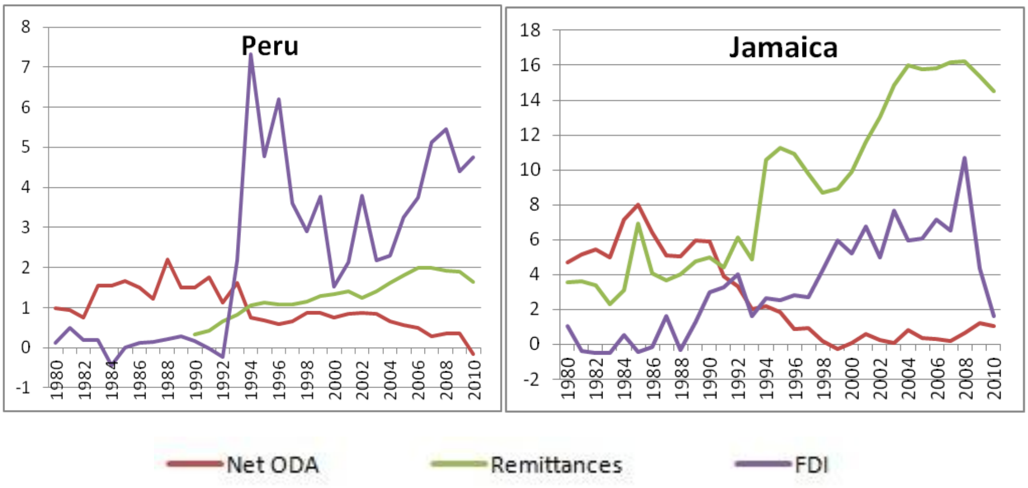

Source; Prepared by the author on the basis of data from the World Bank

Even though as a hole, remittances to LAC region did not exceed FDI, it is different as individual countries. 7 out of top 10 remittances-receiving countries in LAC have bigger share of remittances in GDP than that of FDI. Such phenomenon explains the importance and resiliency of remittance flows to LAC compare to ODA or FDI, because FDI shows a very sharp drop after the Global economic crisis, while remittances shrank slightly.

III. Literature Review

The determinants of migrants' remittances can be roughly divided into two categories; microeconomic determinants and macroeconomic determinants. The microeconomic determinants are related to circumstances of migrants such as their characteristics, situation relative to country and family or education level which can be obtained through household survey data. The macroeconomic determinants are related to economic conditions, policies, exchange rates or inflation in both host and home countries. Even though many studies have been focused on microeconomic determinants, the macroeconomic determinants of remittances became an important issue of analysis as a development tool and many studies related to macroeconomic determinants are coming out in seeking of adequate policies for home countries to attract more remittances.[11]

After Lucas and Stark (1985) triggered motivations of remittances with an empirical analytic approach, which became the cornerstone of the field and still is the basis of the current discussion, many scholars worked on studies about the determinants of migrants' remittances. In the paper, they present several hypotheses for motivation to remit based on microeconomic analysis of the household survey conducted in Botswana; 'pure-altruism', 'pure self-interest', and 'tempered altruism or enlightened self-interest'. They found that pure-altruism, simply remitting because migrants care about the well-being of the family left behind, to be an insufficient explanation of the motivations because it does not answer why some migrants remit

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[11] El Mouhoub Mouhoud, Joel Oudinet, Elif Unan, 2008, *Macroeconomic Determinants of Migrants' Remittances in the Southern and Eastern Mediterranean Countries*, Working paper CEPN

more, why some remit for longer or why some do not remit at all. Rather, they find tempered altruism or enlightened self-interest to be eclectic, since the migrant and family have a contractual implicit understanding of mutual benefit by spreading risks and sharing gains. Also, educational investment to youngster made higher remittances as a payback later on to the family.[12]

Based on Lucas and Stark's work, Funkhouser (1995) attempted to find the determinants of remittances from international migration comparing El Salvador and Nicaragua. He found that remittances should increase with migrants' income and altruism, because the migrant now has more to share, and decrease with recipient income.[13]

Also, Straubhaar (1986), in his case study of the remittance flow from Germany to Turkey from 1963 to 1982, found that the remittances are determined by the economic situation of host country, by the confidence the migrants felt in the safety and liquidity of their investments in their country of origin, and by economic incentives making an investment in home country more beneficial than investments in other countries.[14]

However, Stark (1995) and later Stark and Wang (2002) explain about strategic migration decision. The 'strategic remittances behavior' explains the self-interest motivation of remitters. As high-skill workers go to host country the first because of wage differences follow-up of low-skill workers occur. However, high-skill workers do not want other low-skill workers to follow them because of the possibility of depressed wage. Migrants thus remit to non-migrants motivated not by altruistic

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[12] Robert E. B. Lucas and Oded Stark, 1985, *Motivations to Remit: Evidence from Botswana*, Journal of Political Economy, vol. 93, no. 5, pp. 901-918

[13] Edward Funkhouser, 1995, *Remittances from International Migration: A Comparison of El Salvador and Nicaragua*, The Review of Economics and Statistics, vol. 77, no.1, pp. 137-146

[14] Thomas Straubhaar, 1986, *The Determinants of Workers' Remittances: The Case of Turkey*, Weltwirtschaftliches Archiv, vol. 122, issue 4, pp 724-740

considerations but rather by pure self-interest.[15]

In addition to this, Freund and Spatafora (2005) present in their paper that the stock of migrant workers in host country is an obvious determinant of remittances. They observe a 75% of increase in the recorded remittances as the migrants' stock doubles in OECD countries, and not surprisingly, the stock of migrants in those countries is the primary determinant of official remittances.[16]

Not only International organization such as IMF or IDB but also many scholars emphasize the negative effect of economic policies and institutions in the home country, like exchange rate restrictions and black market premiums. El-Sakka and McNabb (1999), in their paper using data for Egypt, found that both exchange rate and interest rate differentials are important in attracting remittance flow through official channels. With such restrictions migrants are more likely to remit money via informal channel.[17]

Based on the literature review, the hypothesis that economic conditions in both host and home countries are very decisive determinants of migrant worker to remit is proven partially. However, even though numerous studies of household surveys based microeconomic determinant of remittances exist, those of macroeconomic determinants with empirical analysis still need more variety.

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[15] Oded Stark and You Qiang Wang, 2002, *Migration Dynamics, Economics Letters*, vol. 76, issue 2, pp. 159-164

[16] Caroline Freund and Nikola Spatafora, 2005, *Remittances: Transaction Costs, Determinants, and Informal Flows*, World Bank Policy Research Working Paper 3704

[17] M.I.T. El-Sakka and Robert McNabb, 1999, *The Macroeconomic Determinants of Emigrant Remittances*, World Development vol. 27, no. 8, pp. 1493-1502

IV. Data and Methodology

To find out the macroeconomic determinants of migrant workers' remittances to Latin America and the Caribbean, this paper used gravity model to analyze the data. Using the gravity model we can find not only the determinants of remittances, but also the significance of determinants and how much one affects the other.

Since there were some countries that have almost no data recorded, only 32 countries from Latin America and the Caribbean region are analyzed. Also, among those 32 countries, I selected top 10 countries that have highest share of remittances in GDP as dummy variable to compare the result of it with the result that covers entire region.

The volume of remittances started to grow up since 1980s, therefore, the data includes from 1980 to 2010. The data used for remittances, the dependent variable, is found in the World Development Indicator of the World Bank, expressed as workers' remittances and compensation of employees, received.

The dataset for independent variables are obtained mainly from the World Development Indicator of the World Bank and additional data is from CEPII[18]. The independent variables are; GDP per capita in home country, GDP per capita in host country, interest rate differential, distance between home and host country, population density in home country, migrant stock in host country, and finally, the inflation rate in home country.

Those independent variables were decided based on literature reviews, and I want to find out whether those macroeconomic determinants can also be decisive factor

[18] CEPII stands for Centre d'Etudes Prospectives et d'Informations Internationales (Institute for Research on the International Economics)

for LAC region's remittance flows. Data regression analysis was conducted on the collected data based on the following equation:

$$\mathbf{LnRem = \beta 1\ LnGDP/c\textit{Home} + \beta 2\ LnGDP/c\textit{Host} + \beta 3\ IntDiff + \beta 4\ LnDist + \beta 5\ Denst + \beta 6\ MiSt + \beta 7\ Infla + \alpha}$$

In the equation, the dependent variable **Rem** stands for the recorded remittances received by home country in LAC, expressed in dollars.

As of independent variables, **GDP/cHome** and **GDP/cHost** are GDP per capita of home country in LAC and that of host country, respectively. The GDP per capita is the factor that expresses the general economic condition of the country. In here, the host country only means United States. Although remittances to LAC do not come from only a single country, more than 70% of remittances to the region are from United States in 2008.[19] Therefore, the host country of all the variables in this paper indicates only the United States.

I also added **IntDiff** denoting interest rate differential between home and host countries to capture the self-interest motive of migrants to remit.

Dist presents the geographical distance from home country in LAC to United States, and this is expected to have negative effect because of the migration cost depending on the distance.

Denst denotes the population density of home country, expressed with the people per square kilometer of land area. The population density could explain the

[19] IDB, 2008, *The changing pattern of remittances: 2008 Survey of remittances from the United States to Latin America*, Washington, D.C.

reason of migrants' decision to work overseas when the population growth overwhelms and the labor surplus occurs.

MiSt is the migrant stock in United States. It reflects the tendency of follow-up migration that mentioned above, which is whether low-skill workers might follow when high-skill workers are already in host country.

Finally, **Infla** presents the inflation rate in the home country, which explains the macroeconomic instability.

V. Empirical Results

1. Determinants of remittances to LAC: 1980-2010

<Table 1> shows the result of the regression analysis based on the data and the equation above. Asterisks indicate whether that variable is significant and thus it has impact on remittances to LAC as a macroeconomic determinant.

In the first analysis of the table, I carried out an experiment to see the impact of both interest rate differential and population density of home country. The result has 742 observations and its explanation power is about 34%. Almost all variables has very strong significance, however its impact power is all different. Interestingly, a 1% increase in US's GDP per capita makes over 8% increase in remittances, but the same decrease in home country's GDP per capita leads only less than 1% increase in remittances. This means that if the migrant worker receives more income thanks to GDP per capita increase in US, he or she tends to remit more; however the GDP per capita decrease in home country makes no difference to remitter's wage, thus with deteriorated situation of the family left behind will make the remitter send more money but not in a greater volume.

In second column, instead of population density, I added up the distance from US to LAC and the migrant stock in US. The explanation power increases to 45% and obviously the distance between two countries has negative effect on remittances. It implies that the country where is located rather far from the host country tends to remit less money or in other word, less people go overseas from the country because of the migrant cost will be higher than other countries.

<Table 1: Remittances to LAC (log) from 1980 to 2010>

	1	2	3	4	5	6
(Constant)	-62.63435 (-12.54659)***	-42.17567 (-3.973863)***	-45.52667 (-4.273540)***	-34.63813 (-3.419200)***	-37.41285 (-3.625402)***	-28.76879 (-2.952467)***
GDP/c in Home (log)	-0.790639 (-7.829861)***	-0.775127 (-4.228596)***	-0.929044 (-4.695118)***	-0.536337 (-3.082516)***	-0.643310 (-3.358895)***	-0.051640 (-0.165191)
GDP/c in Host (log)	8.364918 (17.05486)***	7.284816 (7.305668)***	7.370394 (7.453338)***	6.468847 (6.775457)***	6.576470 (6.881601)***	8.395883 (5.509171)***
Interest rate differential	0.025335 (5.311198)***	0.037701 (3.905648)***	0.035682 (3.709627)***	0.051178 (4.486213)***	0.049327 (4.303051)***	0.024175 (1.760328)*
Distance from US (log)		-1.765292 (-3.875575)***	-1.433377 (-2.973630)***	-2.153862 (-4.658757)***	-1.916153 (-3.870893)***	-1.097016 (-0.618367)
Population density	0.001367 (2.548056)**		0.002506 (1.959013)*		0.002104 (1.672755)*	0.001140 (1.076049)
Migrant Stock (log)		0.503709 (5.139084)***	0.563043 (5.535175)***	0.720457 (7.292323)***	0.752917 (7.413946)***	0.595752 (3.183838)***
Inflation				0.000401 (2.631695)***	0.000385 (2.526290)***	0.027210 (1.970800)**
Adjusted R^2	0.347515	0.457480	0.467488	0.526405	0.528954	0.618936
Total	742	157	157	144	144	49

*sig<0.1(10%), **sig<0.05(5%), ***sig<0.01(1%)

The third column that has 46% of explanation power shows all of the variables to have strong significance to the remittances, but the population density. Also, the population density in this analysis expresses a very small increasing effect. The low significance of the population density could mean that no matter the surplus labor in the home country increases or not, workers would prefer going overseas to earn more money than they do in their country of origin with the same amount of labor.

In column 4, I included the inflation rate for the first time, and it has a very strong significance. Its explanation power now is 52% and has 144 observations. The inflation rate in home country which reflects the macroeconomic instability has very strong positive impact on remittances, however its coefficient is only 0.0004.

Finally, I put all of the variables in column 5, and its explanation power is 52% and has 144 observations. The variable GDP per capita in US is very meaningful and its coefficient is 6.576 which reflect 1% increase in GDP per capita in US leads to more than 6% of increase of remittances. Also, the inflation rate has a positive effect on remittances, but showing only 0.0003 in coefficient. It means that a very unstable economy and the rise in price in home country makes dollar to be very useful and migrant workers might send some more money, however, because workers get the same wage in host country that they cannot remit much more money.

The expected result of interest rate differential was ambiguous; higher interest rate in home country might give the migrant a motivation to remit more and invest in home country, however, high interest rate also means economic instability. In the empirical result in the regression above, the interest rate differential has positive effect to remittances and also has a strong significant level. It means that migrants remit more money to their home country to gain from higher interest rate, and it reflects the migrants' motivation to remit more for the potential return to home and invest with that money (the investment motives).[20]

I also ran the regression for top 10 countries that shows the highest share of remittances in its GDP in column 6, and it shows almost 61% of explanation power. The top 10 countries are relatively small and poor countries in Central America and the Caribbean region and they rely highly on remittances as mentioned previously. The main difference observed is that for the top 10 countries, the GDP/capita in home country loses its significance. It may imply that migrants from those countries are mostly unskilled workers, and thus it is harder for them to earn enough money to remit even when the economic situation in home country is bad, if not having better economic condition in host country. Also, the distance from host country and the population density of the home country loses their significance as well.

Given the results of the analysis, it can be said that economic conditions in both host and home countries are significant determinants of remittances. However, the economic condition of host country has deeper positive impact on remittances for its direct relation to migrants' wage and situation. The distance between home and host country has a meaningful negative impact on remittance flows, however, for the top 10 countries it is insignificant. Also, the migrant stock of host country has positive impact on remittances due to follow-up of low-skill worker to high-skill migrants. The increase in emigration of workers to those countries with demand for labor force is a key factor for the remittances.[21] Finally, the inflation rate is positively very significant variable. However, its impact is not so strong because the migrant workers' salary is the same in host country, hence, the amount of money they send cannot be raised so

[20] El Mouhoub Mouhoud and Joël Oudinet, Elif Unan, 2008, *Macroeconomic Determinants of Migrants' Remittances in the Southern and Eastern Mediterranean Countries*, Working paper CEPN

[21] Fernando Lozano Ascencio, 2004, *Current trends in migrants' remittances in Latin America and the Caribbean: An evaluation of their social and economic importance* SELA (Latin American Economic System)

high nor the family receiving money will feel the difference since the inflation has affected the price of the home country already.

2. Determinants of remittances to LAC: 1980s, 1990s and 2000s

In addition to estimating regression for full period from 1980 to 2010, I ran other sets of period empirical analysis. With such division, it might be easier to see the change of remittances as time goes by.

<Table 2: Remittances to LAC (log) 1980s, 1990s and 2000s>

	1980s	1990s	2000s
(Constant)	-11.30714 (-1.208763)	-17.61174 (-2.611509)***	-41.57278 (-3.641856)***
GDP/c in Home (log)	-0.664520 (-1.923376)*	-0.678886 (-4.127155)***	-1.036940 (-9.339106)***
GDP/c in Host (log)	6.676602 (3.257267)***	7.178061 (4.812281)***	12.13228 (4.846329)***
Interest rate differential	-0.002130 (-0.454836)	0.013447 (4.874677)***	0.006761 (2.010501)**
Distance from US (log)	-2.802285 (-3.388830)	-2.348147 (-6.083334)***	-1.862323 (-6.122267)***
Population density	0.001118 (1.937437)*	0.000963 (2.613970)***	0.000501 (1.579807)
Migrant Stock (log)	0.227324 (1.874798)*	0.819608 (11.83504)***	1.037887 (15.52119)***
Inflation	1.103598 (0.014779)	0.000158 (1.764480)*	-0.012416 (-2.764826)***
Adjusted R^2	0.138222	0.478256	0.534138
Total	121	240	311

*sig<0.1(10%), **sig<0.05(5%), ***sig<0.01(1%)

The regression result for 1980s has 121 observations and its explanation power is 13% only. However, the explanation power and the total observations rise in 1990s and 2000s. Their explanation power increase to 48% and 53%, respectively and the observations become 240 and 311, respectively. These changes mean not only the determinants are getting significant but also the importance of the remittances is spreading out.

In 1980s, almost all variables lose its significance. It is because the remittance flow started to increase in this period and migrant workers were in some kind of transition period, and for that reason there are no strong determinants of remittances.

In the period of 1990s, all the variables except the inflation rate in home country are very significant. In 1990s, the importance of migrant workers' remittances to the region floated up and much more people started to go abroad to earn more money to support their family left behind and also for their own good. The result show a low significance of the inflation rate in this period which could be meaning that even when the economic instability hits the home country, remitters who gets the same wage in the host country will have difficulties in sending more money to their family or will be discouraged to remit more considering the shaking economy of the home country.

By comparing theses periods of time we can observe interesting differences. The first change is that the impact of migrant stock in the host country to the remittances; in 1990s the variable starts to gains its impact on the remittances, and in 2000s its volume got even bigger. This change implies that people realized that working abroad makes lots of money by watching migrants who are already in host countries. By consequences, the follow-up phenomenon stats to begin, and migrants dragged more migrants, hence, more remittances.

The second remarkable change is the inflation rate impact. Originally in 1980s, the inflation rate which indicates the economic instability had no relation with the remittances. However, as time goes by its importance started to grow and, interestingly, its relation to remittances turned into negative in 2000s. The result show that migrants remitted more money to their own family as the home economy get volatile, however, when the instability economy continues and even gets worse, migrant workers starts to not believe in their home economy and they rather decide not to send the money.

Also, in 2000s the population density in home country loses its impact on remittances. It implies that the importance of remittance flows got bigger especially in developing countries and the population density in their country of origin matters less than before; it is easier to earn more money in foreign country that has higher labor cost with their skills.

VI. Conclusion and Policy Implications

Migrant workers' remittances to their country of origin are now one of the most important international capital flows, obtaining the second largest flow following FDI. In Latin America and the Caribbean region, the remittances are even more important not only because of their share in world volume of remittances but also because the ratio in GDP of the region is becoming significantly big.

According to the World Bank, remittances have a positive impact on the development and welfare of migrant-sending countries.[22] For this reason lots of developing countries are trying to attract more remittances, and building adequate policies by knowing the macroeconomic determinants of remittances is very essential to do so.

In this paper, with empirical analysis I found the macroeconomic determinants of remittances to Latin America and the Caribbean to see which factor influences the remittance flows. By using GPD per capita of home and host country, I found that economic condition in home country has negative impact and that of host country has positive impact on remittances to the region. In other words, as GDP per capita drops in home country and as GDP per capita increases in host country, migrant workers tend to remit more. It is due to the altruistic feeling of migrants to their family left behind.

The interest rate differential is a determinant somewhat ambiguous; a higher interest rate in home country might give migrants the investment motivation to remit more, but it also means the social instability of home country which could lead the

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[22] Çaglar Özden and Maurice Schiff, 2006, International Migration, Remittances and the Brain Drain, World Bank

decrease in remittances. However, in Latin America and the Caribbean, interest rate differential shows a very strong and positive significance reflecting migrant workers' potential return to home later on.

On the other hand, the distance from the region to the host country is related negatively to the remittances. Because the distance reflects the cost that migrants have to undergo when deciding the travel to their own country or to the host country, they have to keep in their mind about the cost before remitting.

The migrant stock in host country has positive effect on remittances, because if there are migrants already in one of destined countries, people tend to decide to pick that country as a follow-up migrant. There are two reasons why this phenomenon leads to remittances increase; first, simply because the size of the migrant stock got bigger more remittances goes to home country, and secondly already existing migrants (usually high-skill workers) remit more to stop people to come to that country in worrisome of their wage drop. However, in Latin America and the Caribbean, the migrant stock did not have significance in 1990s.

To sum up, the macroeconomic variables that I found have significant impact on remittances to Latin America and the Caribbean. Also, using those macroeconomic determinants, it could be implied to policies to attract more remittances.

The main policy suggestion that needs to be urgently implied is to establish a favorable investment climate in remittance-receiving countries. Migrants remit money with the investment motivation that he or she will return home in the future to invest there. However, if the developmental potential is missing in remittance-receiving country, the motivation to remit deteriorates. To encourage investment of remittances in small businesses, governments have to improve infrastructure through building better roads, telephone systems, and electric grids, and the like.[23] Otherwise, migrants will not risk their capital in the investment in their home country.

Also, to strengthen the infrastructure supporting remittances by reducing transaction costs and encouraging the use of formal channels is needed. Reducing the transaction costs is promising because it does not necessarily need to increase the actual size of remittances; it will just turn the remittances sent through informal channel to formal channel.

By finding other important macroeconomic determinants of migrant workers' remittances to Latin America and the Caribbean, strategic implication to policies in remittance-receiving countries is further needed to be researched. As remittances is becoming more and more important globally, especially in developing countries, right policies to attract more remittances to Latin America and the Caribbean region might help in reducing the poverty gap and enhancing the development of the region as a whole.

[23] Samuel Munzele Maimbo, Richard H. Adams, Jr., Nikos Passas and Reena Aggarwal, 2005, Migrant Labour Remittances in South Asia

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국문초록

본 논문은 중남미 지역 이주노동자의 거시경제적 송금 결정 요인을 알아냄으로써, 송금액을 더욱 늘리기 위한 미래 전략을 제시하고자 한다. 중남미 지역으로의 송금 유입은 그 중요성이 점차 대두되고 있으며, 송금액의 절대적인 양뿐만 아니라 중남미 지역 전체 GDP에서 송금액이 차지하는 비중이 크기 때문에 그 의미가 더욱 크다고 할 수 있다. 그러나 송금에 관한 기존 선행연구들은 주로 이타적 동기, 이기적 동기 혹은 투자동기와 같은 미시경제적 결정요인들에 집중해 왔다. 비록 많은 선행 연구들이 송금의 미시경제적 결정요인에만 초점을 맞춰왔지만, 경제 발전의 도구로써의 거시경제적 결정요인의 중요성이 강조됨에 따라 올바른 정책 수립을 위한 거시경제적 결정요인에 관한 연구들이 등장하고 있다.

따라서 본 논문은 중남미 지역 32개국에서의 1990년부터 2010년까지 자료를 통해 실증적 연구를 행함으로써 송금의 거시경제적 결정요인을 알아보았다. 분석 결과, 본국과 이주국의 경제 상황은 송금액에 각각 부정적, 긍정적 영향을 끼치는 것으로 나타났다. 또한, 본국과 이주국 간의 이자율 차이는 이주노동자들의 이기적 동기에 의해 송금액에 긍정적인 영향을 미치는 것으로 나타났다. 본국과 이주국 간의 지리학적 거리는 거리에 따른 이주비용의 증가 때문에 송금과 반비례의 관계를 갖고 있다.

하지만, 본국의 인구 밀도 증가는 중남미 지역으로의 송금액 증가로

이어졌다. 이는 높은 인구 밀도로 인해 남게 되는 본국의 노동 인구가 해외로 나가 일을 하게 되기 때문이다. 또한, 이주국에서 이미 일을 하고 있는 이주노동자가 존재할 경우, 더욱 많은 이주노동자를 본국으로부터 끌어들이는 경향이 있기 때문에, 이주국의 이주노동자 수는 송금액에 긍정적 영향을 끼치는 것으로 나타난다. 본국의 높은 인플레이션과 같은 경제불안정은 이주노동자 송금액의 증가를 야기한다.

주요어: 송금, 중남미지역, 이주노동자, 거시경제적 결정요인

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