

**Migration and Aid:
Investigating the Welfare Effect of Remittances and
Foreign Aid on Latin America and the Caribbean**

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Abstract

The inflow of remittances and foreign aid can play an important role in improving the welfare of the Latin American and Caribbean people. Both flows were of equal amount in 1980, but where the inflow of remittances surged ahead from then on, aid increased only slightly. The goal of this study is to estimate the effect of remittances and foreign aid on poverty, inequality, life expectancy, and infant mortality over the period 1980-2006. Remittances are found to reduce poverty and infant mortality and to increase life expectancy, where it leaves inequality unaffected. Foreign aid reduces inequality and infant mortality, but has no influence on poverty and life expectancy. Remittances and foreign aid must be seen as complementary and both have a welfare-increasing effect. To increase this effect in the future several measures must be taken. Lowering the transaction costs of sending remittances is the most important one. The effect of aid will be increased when it is allocated to the poorest countries with the relative best policy environment. It is therefore important for Latin America and the Caribbean to improve their policy environment and to spend aid in those sectors which improve welfare the most.

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1. Introduction

Migration and aid have the potential to be welfare enhancing for the developing world. While the potential of foreign aid is obvious, with an amount of almost 105 billion US dollars for the developing world in 2006, the one of migration seems less straightforward.¹ People living in the developing world migrate to other countries hoping for a better life. They try to build up a new life with the money they earn. Part of their income is sent home to their families and friends. This is the so-called remittance. Remittances flow mostly from prosperous countries towards less developed countries. Besides the large amounts that are sent, it is distributed directly to the people and to the poorer and most isolated parts of the society. These flows have the opportunity to be welfare enhancing. Remittances account for 303 billion US dollars sent worldwide in 2006 and even 337 billion US dollars in 2007. As a comparison, foreign direct investment (FDI) amounted to 1352 billion US dollars worldwide in 2006, but only approximately 350 billion US dollars were allocated to the developing world.¹ Both remittances and foreign aid are large flows of a country's external finance.

Latin America and the Caribbean (LAC) witnessed a steady increase in the absolute amount of remittances and foreign aid they received since the 1970s, although foreign aid did not grow much since 1990. The difference between both flows is large. While foreign aid is, although not always, invested by governments or institutions in areas and sectors which can improve the welfare of people, remittances are spent directly by the people. The difference in the amounts is probably even bigger. LAC received 6.9 billion US dollars of foreign aid in 2006, while the people of LAC received 57 billion US dollars of remittances and even 61 billion US dollars in 2007.¹ Nevertheless, it is widely believed that both these flows have the potential to improve the welfare of people in LAC.

The goal of this study is to investigate whether both remittances and foreign aid have a positive impact on the welfare of the people in LAC. The investigated time period will be from 1980 to 2006. Welfare can be seen as a state of wealth, health and happiness. This study will be focused on the wealth and health aspects. Several variables will therefore be looked at. The poverty headcount, poverty gap, and squared poverty gap are the used indicators to measure the poverty in LAC throughout the entire period. Inequality will be measured with the help of the GINI-coefficient. The welfare of the people will also be scrutinized by looking at the life expectancy and infant mortality, probably two of the best indicators to investigate

¹ Source: the World Bank, WDI Online.

the health quality of life. Mishra and Newhouse (2007) called infant mortality a good indicator for a lot of human development outcomes, while Boone (1996) find it to be a flash indicator for the improvements of the economic situation of poor people. Life expectancy is a good indicator to see if people are able to lead a long and healthy life.

This study contributes to the existing literature with new data and a broader look at the life of poor people in LAC. To my knowledge, there are not many studies investigating the effect of both remittances and foreign aid on a continental level, and in this case LAC. Most studies treat only one of the flows, or focus on individual countries or the entire developing world. Another contribution is the addition of infant mortality and life expectancy, which makes it able to give a more general conclusion about the impact of remittances and foreign aid on the welfare of the people, instead of only treating poverty and inequality. Theories and determinants which explain migration, remittances and foreign aid are discussed. Together with the impact of remittances and foreign aid on the welfare of the Latin American and Caribbean people, policy implications and future improvements are discussed which should improve the impact of remittances and foreign aid in the future. This way, it is possible to sketch an overall picture of the effect of remittances and foreign aid on LAC.

The rest of this study is organized as follows. Section 2 will give an overall image of migration and aid. Theories explaining the initiation and continuation of migration will be discussed, together with the determinants to send remittances. The link between remittances and welfare in LAC will be established too. Foreign aid determinants and its link with the welfare in LAC will be treated, together with existing studies covering migration and aid. Section 3 presents the investigation of the impact remittances and foreign aid have on poverty. Several methods are used to determine this effect. Section 4 will cover the investigation of remittances and foreign aid on inequality, while the impact on life expectancy and infant mortality will be covered in section 5. Section 6 will discuss the weaknesses, and the future improvements which have to be made to improve the effect of remittances and foreign aid on the welfare of the Latin American and Caribbean people. The final part, section 7, concludes.

2. Migration and aid

The first chapter of this study will discuss migration theories which are used to explain both the initiation and continuation of migration, together with the determinants of remittances. A link will be established between remittances and welfare, and results of previous studies covering this topic will be discussed. Aid will be discussed likewise.

2.1 What is migration?

A person is defined as an international migrant when it changes its country of usual residence (United Nations, 1998). In its usual residence, the person has its home, its work, and spends its daily life. The duration and purpose of the stay also determines whether or not the person is a migrant. Temporary movements for work, holiday, visits to family, etcetera, are not considered as a change of usual residence. A distinction can be made between long-term and short-term migrants. Long-term migrants are supposed to stay in a country other than their usual residence for at least twelve months. A short-term migrant resides for a period between three and twelve months in another country. Again, movements for example for work, holiday and medical treatment do not count (United Nations, 1998). The person has to start a whole new life in the other country, even if it is only for a couple of months.

Lots of different types of migration exist. Free migration is the most common form. People make a decision whether or not to migrate, and are able to do so, not hindered by any barriers. Other types of migration are for example illegal migration, political migration and mass migration.

Determinants that cause migration and the sending of remittances will be treated in the next section.

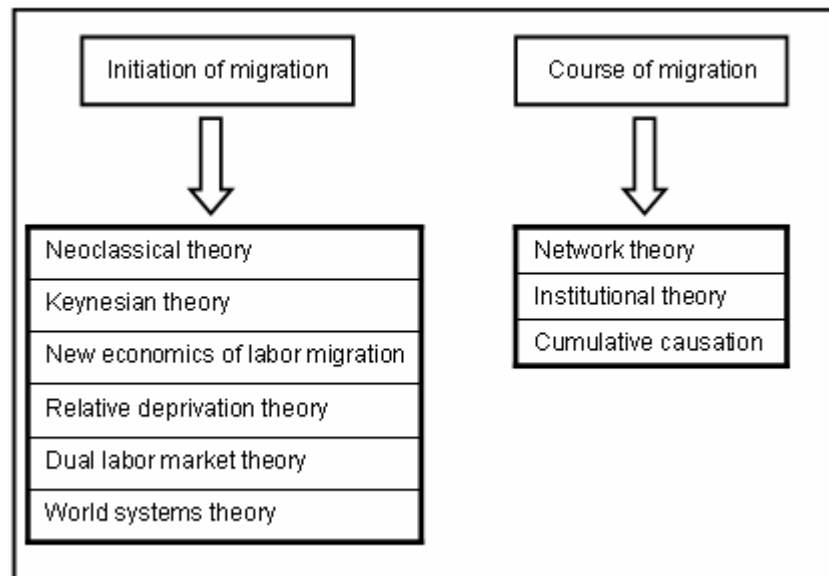
2.2 Migration theories and determinants of remittances

Lots of migration theories exist. These theories will be discussed in this section, together with the determinants of remittances.

2.2.1 Migration theories

The presence of migrants in one country lead to remittances to another country. The more migrants there are, the more remittances are being sent (Niimi and Özden, 2006). Migration theories can be divided in theories which explain the initiation of migration and theories which explain the continuation or the course of international migration over time (Jennissen, 2007). Figure 2.1 gives a clear overview of the most important migration theories.

Figure 2.1 – Migration theories



^a Source: Combination of theories presented by Hart (1975), Hicks (1932), Jennissen (2007), Massey et al. (1993), Myrdal (1957), Piore (1979), Stark and Bloom (1985) and Stark and Taylor (1989).

An overall migration theory, containing all the forces which drive migration, does not exist. Attempts have been made however for instance by Kritiz and Zlotnik (1992) with the migration systems theory. This theory mainly consists of theories which explain the continuation of migration. There also exists an overall framework which explains the initiation of migration. This is represented by push and pull factors. These factors explain why people are pushed out of their country or pulled into another one. The push and pull factors

descend from the ideas of Ernst Ravenstein (1885). The difference between a random theory and the push and pull factors is that a theory explains migration from only one point of view most of the time, for example wage differences, risk, inequality or demand for labour. In contrast, each determinant explaining the initiation of migration is treated by the push and pull factors. The framework of push and pull factors is an umbrella framework for all the migration theories explaining the initiation of migration.

Table 2.1 – Push and pull factors

	Push factors	Pull factors
Economic and Demographic	Poverty	Prospects of higher wages
	Unemployment	Potential for improved standard of living
	Low wages	Personal or professional development
	High fertility rates	
	Lack of basic health and education	
Political	Conflict, insecurity, violence	Safety and security
	Corruption	Political freedom
	Human rights abuses	
Social and cultural	Discrimination based on ethnicity, gender, religion, and the like	Family reunification
		Freedom from discrimination
		Ethnic homeland

^a Source: World Bank (2006a)

Dorigo and Tobler (1983) even established a migration function mainly based on push and pull factors:

$$M_{ij} = (R_i + E_j) / d_{ij}, i \neq j \tag{2.2}$$

According to them, migration from place i to j depends on the push and pull factors, divided by distance. Push factors are represented by R and the pull factors by E. Distance (d) can be measured in kilometres, but also in costs and time. Despite lower travel costs nowadays, it still is a threshold of migration (Mayda, 2005).

The decision to migrate is a micro-economic decision based, among other things, on earnings and costs.² The higher the earnings abroad and the lower the earnings at home and the cost of migration, the more the individual his will to migrate shall be. The earnings and

² A very good model was constructed by Hatton and Williamson (2002)

costs a migrant faces have a large impact on the remittances that could be sent in the future. It is obvious that the higher the income earned abroad, the more of it could be sent home. More migration will take place when the foreign income is higher and therefore there will be more remittances sent too (Adams and Page, 2005). The home income has a negative influence on remittances, since higher income at home will force less people to migrate. There exists an inverted U-relationship between income and migration (Massey, 1988). Migration rates out of poor countries are low, since people have little money to finance the journey. A threshold income is not of interest in this case since the costs to migrate are already taken into account by including them separately. The costs a migrant faces to migrate have both a positive and a negative effect on remittances. Costs caused by travelling or certain immigration policies will have a negative effect on remittances since it will lead to less migration. This is explained in the model of Hatton and Williamson (2002). Less migration leads to less remittances. Yet, if the individual is still able to migrate, and his family paid these costs, it can have a positive effect. Since the individual sometimes has to borrow from his family to pay these costs, he will also have to repay it. He will do this when he is abroad, and these higher costs will lead to higher remittances. This is one of the determinants of remittances, as explained in the next section.

2.2.2 Determinants of remittances

Several reasons exist for migrants to send home a part of their money earned. Remittances can be sent because of sympathy for the people left behind in the home country. These altruistic feelings causes the migrant to send money when conditions in the home country are bad. Remittances will rise when the migrant income raises or when the income of his friends or relatives in the home country declines (Funkhouser, 1995).

Insurance is another determinant to send remittances. Since the migrant will try to work in another sector than in which his friends or relatives at home work in, the people at home are insured against the risk of not having an income.

Remittances are sent home to buy services from their friends and relatives. Migrants can send money to their relatives to buy them a house, to start up a company or even to look after the children of the migrants. Buying these services is a sign that their migration is only temporary (Docquier and Rapoport, 2005).

Migration is expensive. To be able to work in a specific sector, for instance a sector unrelated with the sector the people at home work in, education is needed. The education

costs can be borrowed from the people back home, thus resulting in remittances when the migrant receives its income from abroad. Remittances are sent as repayment. Migration costs and travelling costs, but also the costs determined by immigration policies or the residence of family abroad can be paid by the people at home as well.

The last motive for remittances discussed is self-interest. A selfish reason is the bequest motive, discussed by Bernheim et al. (1985). The testator, which is the migrant, influences the behaviour of the heir by the determination of the division of his heritage. A grandmother, for instance, would love to be visited by her grandchild from time to time. Incorporating this child in her heritage or threatening to leave this child out of it can secure these actions. The death of the grandmother causes the remittances in the form of a heritage to flow. The other way around is also possible. A migrant can send remittances to his parents in order to show his compassion to their situation. This compassion will eventually lead to the acquisition of their heritage.

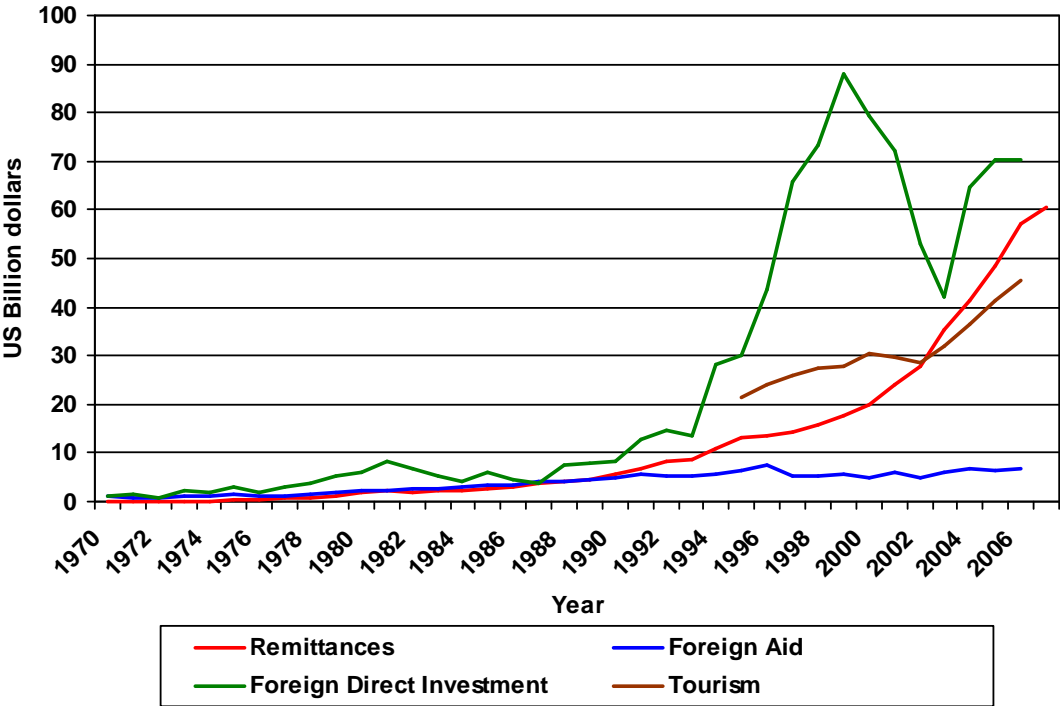
The macro-economic determinants of remittances are less well studied. The income and employment situation in the remittance source country affects the amount of remittances (IMF, 2005). Freund and Spatafora (2005) established the significant effect of transaction costs, economic distortions and migration levels on the volume of remittances. To get a consensus which macro-economic determinants of remittances are most important, more investigation is needed.

2.3 Remittances and welfare and results of previous studies

The Latin American and Caribbean migrant stock in the United States became large from the 1980s. Since this period, the migration stock doubled every ten years. The latest numbers provided by the U.S. Census Bureau show that in 2004, more than 18 million people are born in LAC. Most of the Latin American and Caribbean people which migrated to other parts of the world went to Spain, Canada, United Kingdom and Japan. By the year 2000, continental Europe was the main receiver of Latin American and Caribbean migrants, with a stock of slightly more than 1.8 million people. Canada and the United Kingdom follow with a stock of 550 thousand and 500 thousand people respectively, and Japan has a Latin American and Caribbean migrant stock of approximately 280 thousand people. The total stock of Latin American and Caribbean migrants outside Latin America and the United States around the

year 2000 was almost 2.8 million people³. These large amounts of migrants, most of them residing in the United States, have a large impact on the remittances LAC received. Remittances have the potential to lower poverty and inequality in the remittance receiving countries. 337 Billion US dollars is sent directly towards households in mainly the developing world in 2007. 61 Billion US dollars of it is sent to LAC.⁴ Figure 2.2 shows that the inflow of remittances is catching up with the inflow of foreign direct investment (FDI), around 25 per cent larger than the income of tourism, and much larger than the inflow of foreign aid. Since remittances can be seen as an extra income source for the people in LAC, it has the potential to lower poverty.

Figure 2.2 – The inflow of different capital flows in LAC



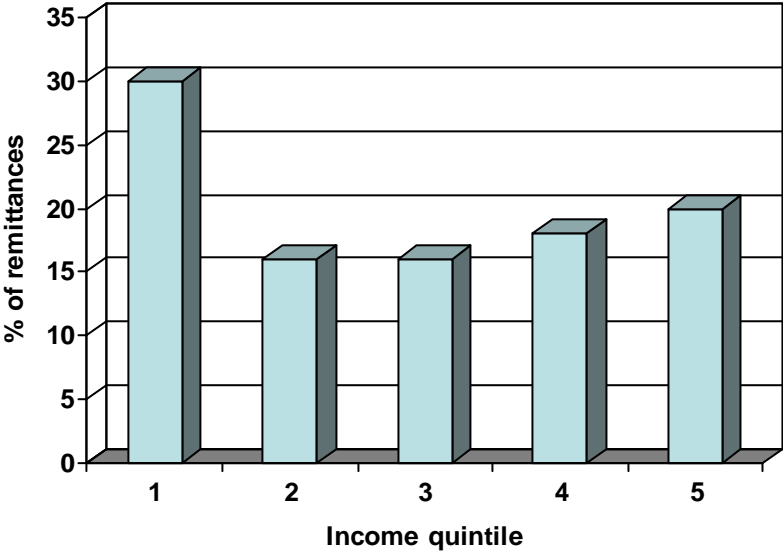
^a Source: World Bank

The strength of remittances, besides its huge amount, is that most of it is directly distributed to poorer and most isolated parts of the society. The people who need the extra money the most, are also the people who received it the most. As figure 2.3 indicates, the lowest income quintile group in LAC received most of the remittances. This indicates that remittances have the potential to lower inequality too.

³ Source: IMILA Project, CELADE (Centro Latinoamericano y Caribeño de Demografía).

⁴ Source: the World Bank, WDI Online. Total remittances sent was \$336.850.643.906.

Figure 2.3 – Households receiving remittances by income distribution quintile



^a Source: Acosta et al. (2008)

Most of the remittances sent to LAC is received by the poorest households. The potential of improving poverty and inequality depends also on which people migrate from LAC. Table 2.2 shows the education level of Latin American and Caribbean migrants in the United States. It seems that most migrants have a primary or secondary education level when leaving their country. Nevertheless, since most of the migrants are from Mexico and Central America, the primary educated migrants form the bulk of all migrants.

Table 2.2 – Education profile of Latin American and Caribbean migrants

	Primary	Secondary	Tertiary
Mexico and Central America	51	37	12
Caribbean	34	53	13
South America	24	48	28

^a Source: U.S. Census Bureau (2000)

It seems that most of the migrants are from the lower class of society. It can be assumed that they know more ‘poor’ people than ‘rich’ people, since there are more poor people in the environment that they live in (colleagues, neighbours, et cetera). When the largest part of their friends and relatives consists of poor people, it is likely that their money will go to a poor person, which will lower inequality. This thought is supported by figure 2.3 and table 2.2.

Niimi and Ozden (2006) also stated that low-educated migrants remit more to their families than migrants from well-off families.

Remittances accounted for more than sixty billion dollars of extra income for mainly poor people in LAC in 2007. The bulk of this, between 46 per cent and 84 per cent, is spent on basic necessities like food and housing (López-Córdova and Olmedo, 2006). Since poor people have a problem fulfilling their basic needs, it indicates that remittances reaches the people who need it the most. The remainder is spent on education (between 2 per cent and 17 per cent), investment (between 1 per cent and 10 per cent), saving and for acquiring property (López-Córdova and Olmedo, 2006). Other studies emphasize that remittances are spent on health expenditures too. People are eager to start their own businesses, but also to send their children to school. Education is an investment in human capital, although it is an investment in the next generation. Higher future income levels for the poor could be expected when they have the opportunity to attain higher levels of education (Baum and Payea, 2005). Secondary education enrolment increased from 51 per cent in 1991 to 89 per cent in 2006, while tertiary education enrolment witnessed an increase from 17 per cent to 31 per cent. Hanson and Woodruff (2003) found migration to have a significant positive impact on years of schooling completed by children in Mexico.

Without remittances, poor households do not have the money to save, and are therefore of no interest to banks. The extra income gives them the opportunity to have a bank account, which gives them the chance to save. It also provides access to other financial products like loans and insurances (Taylor, 2004), which gives them the opportunity to invest. Remittances act as a safety net too. Section 2.2.2 discussed the role of remittances in diversifying one's source of income in order to always guarantee themselves of a source of income. When things become very bad in the home land, either caused by economic crises, war, or natural disaster, there is still the income from abroad. At the country level, remittances make it possible to import more and have a multiplier effect on GDP, consumption, income, job creation and investment (De Vasconcelos, 2005). The multiplier effect on growth, measured with GDP, could have a poverty reducing effect. Some studies affirm this theory, like Taylor (1992), and some deny this theory, like Spatafora (2005).

Several studies are conducted on the effect of remittances on poverty and inequality. Adams and Page (2005) for example studied the effect of remittances on poverty for 71 developing countries. A ten per cent increase in remittances would lower the headcount ratio, poverty gap and squared poverty gap with 1.19 per cent, 2.08 per cent and 2.15 per cent, respectively. Taking only Latin American and Caribbean countries into consideration, the

effect of remittances was insignificant. Using instruments to overcome the problem of reverse causality resulted in even stronger effects. There is talk of reverse causality when the independent variables are not exogenous to, in this case, poverty. The decrease in poverty can be caused by an increase of the remittances. Yet, the increase of remittances can also be caused by poverty. Reverse causality makes the outcome from the ordinary least squares (OLS), and therefore the estimated effect of remittances on poverty, biased. Using instruments, Adams and Page (2005) found the effect of remittances for LAC to be insignificant as well. It must be said that they only had around 100 observations for the 71 countries they investigated. A more thorough investigation with more observations and specified on LAC could lead to different results. Both Cattaneo (2008) and Acosta et al. (2007) found a positive relation between migration and poverty reduction. Cattaneo (2008) investigated the effect of the number of migrants on the income of the poor. Acosta et al. (2007) focused on LAC, investigating the effect of the ratio of remittances to GDP on poverty. They found that a one per cent increase in this ratio lead to a 0.37 per cent decrease in poverty. The World Bank (2006b) found remittances to be poverty reducing in LAC as well. The positive effect of remittances on poverty is univocal, it only differs on its strength.

Studies done on the effect of remittances on inequality show mainly the same results. The inflow of remittances leads to a reduction of inequality. A doubling of the remittances leads to a reduction in inequality of between 0.5 and 1.1 per cent according to Acosta et al. (2007). Yet, investigating LAC only, remittances are expected to be inequality-reducing or to leave inequality unaffected. Docquier and Rapoport (2003) theoretically explained that in the case of high inequality, to which LAC can be classified, remittances reduce inequality. A negative effect on inequality for Mexico is being found by McKenzie and Rapoport (2004). World Bank (2006b) stated that remittances are assumed to leave inequality unaffected or even to reduce it. An exception is the study of Barham and Boucher (1995). Barham and Boucher (1995) came to the conclusion that when migrants would have stayed at home, in this case Nicaragua, inequality would have been lower than it is now the case. Acosta et al. (2008) stressed the possibility that remittances could have no effect on inequality in Latin America as well.

Remittances provide extra income for the poor, which give them the opportunity to spend their income on more luxurious goods, like health services. Amuedo-Dorantes and Pozo (2004) calculated that 46 per cent of the Mexican remittance senders sent money to cover health expenses. It could also lead to less stress and an easier life (Deaton, 2003). Extra income will lead to better living conditions, and therefore better health outcomes. Migration

may increase the health knowledge of the non-migrants too (Hildebrandt and McKenzie, 2006). Information acquired abroad will be shared with family and relatives at home, which will have a positive effect on the health situation for the home country. More information will lead to more knowledge about health and probably less infant mortality and higher life expectancies. Infant mortality is negatively affected by the inflow of remittances according to several studies. Chauvet et al. (2008) investigated its effect among 109 developing countries. A ten per cent increase in the influx of remittances results in a decrease of infant mortality between 0.45 and 1.04 per cent. Hildebrandt and McKenzie (2006) estimated that children who are born in households with a migrant member have 3 to 4.5 per cent less chance to die in their first year than children born in a household without a migrant member. A ten per cent increase in the share of households which receive remittances will decrease infant deaths with 12 lives according to López-Córdova (2006). To the best of my knowledge, there are no studies investigating the effect of remittances on life expectancy in the remittance receiving country.

According to the theory, it seems that remittances can play a significant role in the improvement of welfare in LAC. Since remittances form a substantial amount of the LAC gross national income (GNI) and are allocated mostly towards poor households, they could lead to lower poverty and inequality. The opportunity for the poor to invest, acquire financial products and to diversify their income give them the chance to escape poverty. The inflow of remittances will result in better living conditions for the poor, which could cause infant mortality to decline and life expectancy to increase. Health knowledge from abroad could support this development.

2.4. What is aid?

Aid is mainly provided from two sources, namely bilateral and multilateral aid. Bilateral aid is the direct assistance of a government or government aid agency from a country to the government of another country. Examples of those agencies are the United States Agency for International Development (USAID), founded in 1961, and the British Department for International Development (DFID), founded in 1997. Multilateral aid is the assistance of a government to an organization, which is devoted to providing aid and helping developing countries. The International Monetary Fund (IMF) and the World Bank are organizations

which are operative in this sector. Other sources of aid are non-governmental organizations, like UNICEF, for-profit organizations and private individuals.

Several types of foreign aid exist. Morgenthau (1962) distinguished six different types of foreign aid: humanitarian, subsistence, bribery, prestige, military and economic development. Besides these major aid types there are several other types like technical assistance, project aid, food aid and programme aid. Aid is sometimes bounded by the wishes of the donor country. This is called tied aid. The donor country decides where the money will be spent on, most of the time to prevent corruption. It can even demand that the money is spent in the donor country.

Foreign aid has already quite a history and a lot of different types exist. Determinants to send foreign aid will be discussed in the next section.

2.5 Determinants of foreign aid

A good theoretical framework which explains the allocation and distribution of foreign aid is not present. However, several studies investigate the effect of various variables on foreign aid, either theoretical or empirical. The determinants can be subdivided in donor country characteristics and recipient country characteristics.

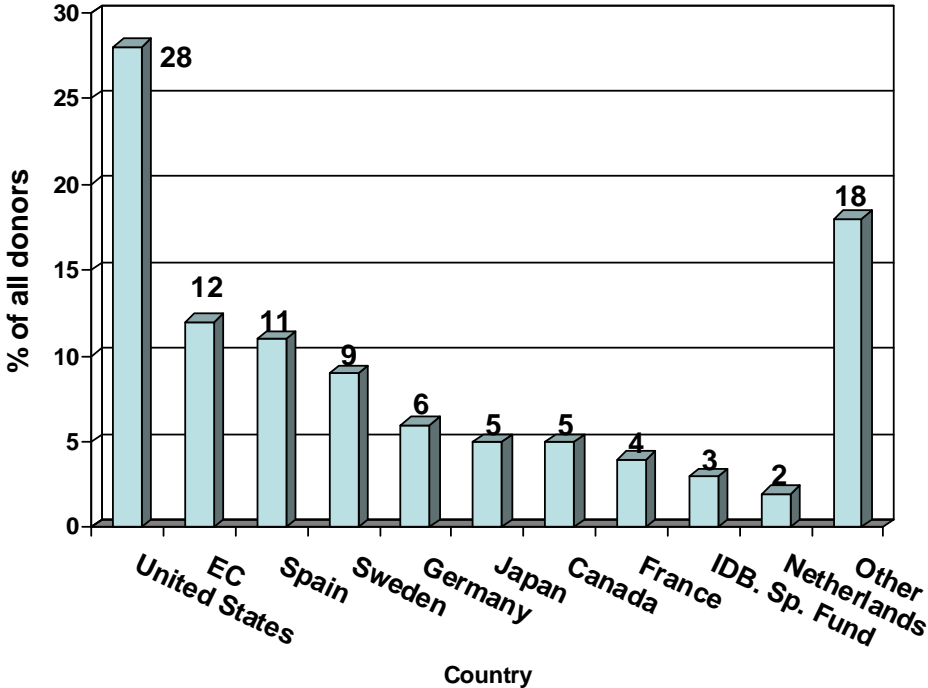
Since the donor country decides whether or not to send aid to countries in distress, a variety of country characteristics determine the amount of foreign aid. Noël and Thérien (1995) stated that domestic welfare state generosity influences the amount of foreign aid positively. Arrangements in terms of labour rights, like pension payment and unemployment benefits, shape the citizen's perspectives about generosity. This should lead to being supportive of generosity towards other people, also abroad. The empirical results about generosity are mixed. While Zimmerman (2007) confirmed the theory, Round and Odedokun (2003) found no evidence of an influence of domestic generosity on foreign aid. The public concern of poverty reduction in a country influences the amount of foreign aid positively, according to Lumsdaine (1993). The public concern will be reflected in the government policy since the public democratically choose its representatives. Although this seems plausible, some people point out the insignificant influence the public opinion has on policy making. Zimmerman (2007) estimated the effect of several variables on foreign aid. Positive effects were found for left oriented political power, values and principles of equality, and low inequality in the donor country. The last donor country determinant of foreign aid discussed is

last year's aid. Gulhati and Nallari (1988) stated that aid agencies use the amount of aid sent last year as a benchmark to determine the amount of aid they will send this year.

Besides the donor country characteristics, foreign aid allocation is also determined by the recipient country characteristics. The main goal of aid is, although not always very effective, poverty alleviation. Poverty is therefore the main aid determinant of a recipient country. Just as in the case of remittances, this could cause reverse causality. Gillis, et al. (1992) discussed the negative effect of population size. It has a negative effect on foreign aid because most donor countries want to spend their aid to achieve the best possible result per person. The larger the population size, the lower the results per person. Political and civil rights are expected to be positively correlated with foreign aid (Trumbull and Wall, 1994). The idea behind it is that it shows the involvement of the government towards the living conditions of the citizens. Countries with good political and civil rights are expected to spend their money in favour of their citizens. The same is true for countries with more interest in human rights (Younas, 2008). In this light, it is strange that corrupt governments are expected to receive as much aid as less corrupt governments (Alesina and Weder, 2002). Younas (2008) also found positive correlations between countries that already receive multilateral aid, import manufacturing goods, and when the majority of its population is catholic. The import of manufacturing products is promoted by donor countries, since these are the goods in which they have a comparative advantage. It is in the economic self-interest of the donor countries to support the recipient countries. More aid to developing countries, leads to more import of manufacturing products in the recipient countries, which will probably be bought from the donor countries. Religion is a variable for cultural affinity between the donor and recipient country. While Younas (2008) found the Catholicism to be significant and the Islam to be insignificant for the amount of aid a country receives, Alesina and Dollar (2000) found both to be insignificant. Differences in the investigated time period may cause the difference of this result. Neumayer (2003) too found the amount of exports traded from the donor country to the recipient country a determinant of foreign aid. Ali and Isse (2006) found a negative correlation between human capital, measured as years of education, and foreign aid. An increase in human capital lowers a country's dependency on foreign aid. Negative correlations are also found for FDI, which is expected to be a substitution for aid, private capital and international trade. Countries with less international trade, measured as imports plus exports as a percentage of GDP, are expected to be less economically strong and therefore probably receive more aid. Taxes on trade have a positive effect on aid, since it leads to trade protection. Alesina and Dollar (2000) put emphasis on the fact that foreign aid is provided

more to countries which have colonial ties with their donor countries. Foreign aid depends this way on both the donor and recipient country its characteristics. All these determinants of foreign aid results in countries sending and receiving large amounts of aid.⁵ Figure 2.4 displays the most generous countries when it comes to aid sending to LAC.

Figure 2.4 – Aid donors of LAC in 2006



^a Source: OECD (2008)

^b EC= European community, IDB Sp. Fund= Intern – American Development Bank, Special Operating Fund.

The figure shows that the United States was the largest foreign aid sender. The Pearson Commission Report Partners in Development recommended that each donor country should at least spend 0.7 per cent of their GNI to foreign aid. This target was adopted by the United Nations in 1970. Unfortunately, only five countries were able to meet this target until now. Although the United States sent the most towards LAC, it is the most ungenerous country when comparing the amount of aid to their GNI. Only 0.16 per cent of the United States its GNI was used for foreign aid in 2007.⁶

⁵ Source: the World Bank, WDI Online. Total aid sent in 2006 was 105 billion US dollars (\$105.291.960.000)

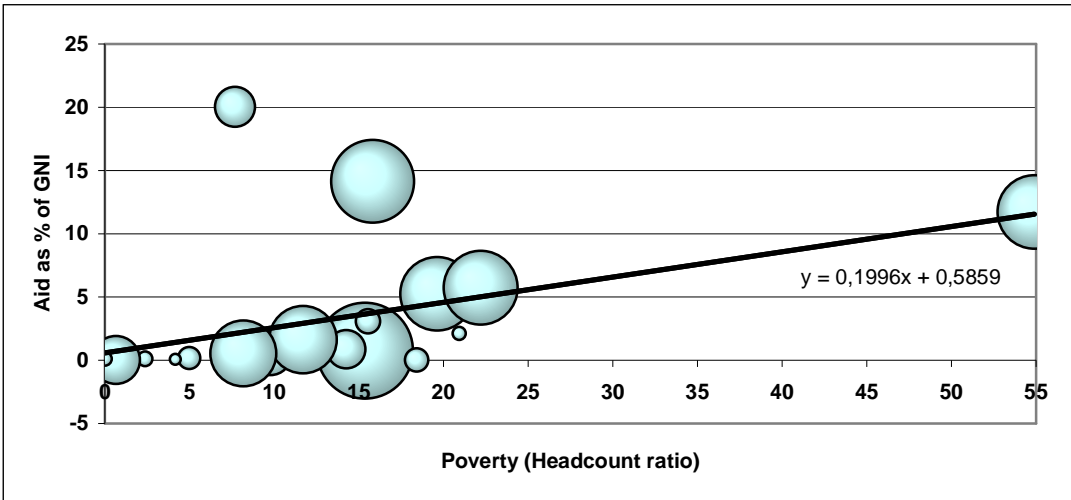
⁶ Source: OECD

2.6 Foreign aid and welfare and results of previous studies

Aid has the potential, just as remittances, to improve welfare. 105 Billion US dollars was sent to the developing world in 2006. Only 6.9 billion US dollars went to LAC, which makes it questionable whether or not aid can have an effect on welfare in LAC. Figure 2.2 shows that the inflow of foreign aid is much smaller than FDI, remittances, or the income of tourism. Besides the period from 1996 to 2002, aid received in absolute terms showed a steady, but slow growth. The development is totally different when looking at the aid received as a percentage of the GNI. Aid is only 0.24 per cent of the GNI of LAC nowadays, while it has been even more than 0.9 per cent. On average, aid was 0.46 per cent of the GNI between 1960 and 2006. The low value in 2006, could be alarming. While remittances almost formed 2 per cent of the Latin American and Caribbean income in 2006, aid did not even represent 0.3 per cent of the total income.

Nevertheless, 6.9 billion US dollars can reduce poverty when it is efficiently allocated. Aid is allocated efficiently when it flows to countries with the highest poverty rates and the best policy environment (Collier and Dollar, 1999). Figure 2.5 presents the amount of aid a country in LAC gets, compared to the poverty in that particular country. If aid is efficiently allocated, it would be distributed towards the poorest countries. Figure 2.5 shows that this is the case. If the country with the highest poverty rate, Haiti, would be left out, this relationship still holds.

Figure 2.5 – Aid in LAC in 2006

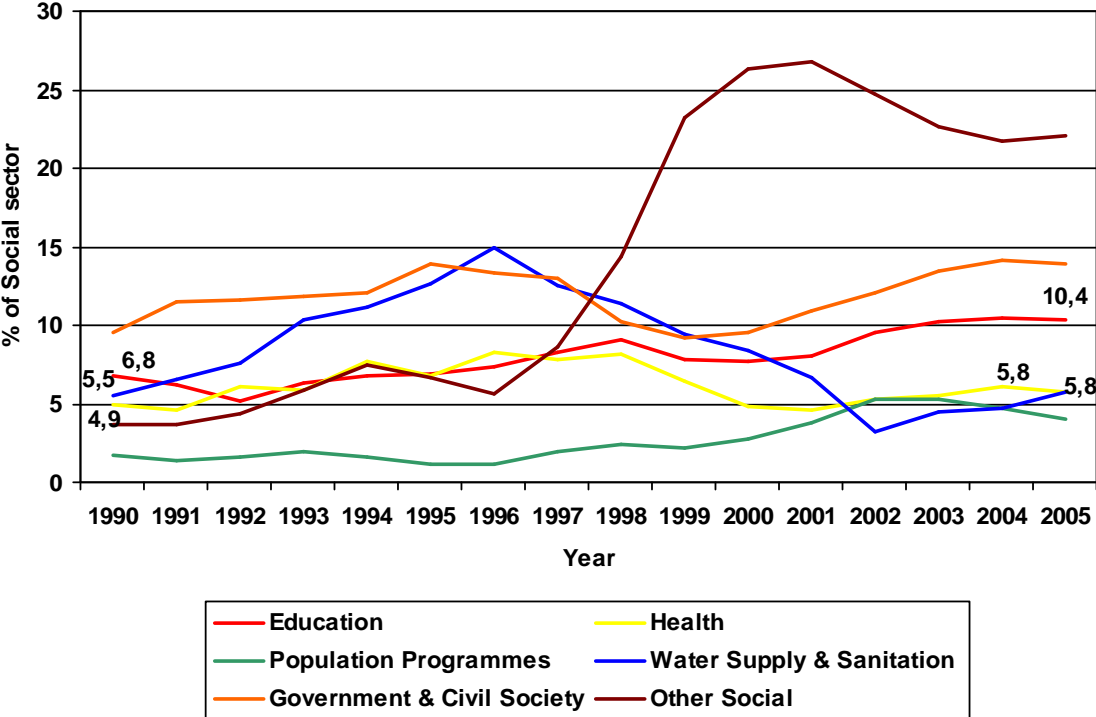


^a Source: World Bank

^b The absolute amount of aid is reflected by the bubble size. Each bubble represent one country (23 countries included). The headcount ratio is the latest ratio available for the particular country.

Aid has the potential to lower poverty too when it is allocated towards countries with the best policies. The World Bank its IDA (International Development Association) Resource Allocation Index (IRAI) classifies countries according to their political and institutional situation, based on the Country Policy and Institutional Assessment (CPIA) index. The index rates countries from 1 (bad policies) to 6 (good policies). The better the situation, the higher the classification, the more aid will be allocated to that particular country. Unfortunately, there are only nine Latin American and Caribbean countries included in the CPIA index. But examining the index, it shows that the countries with the best policies are not the ones that obtain the most aid. For instance St. Lucia, which has a better policy environment and a higher poverty rate than Nicaragua. Yet, it receives less foreign aid, both in absolute terms and per capita. The allocation of aid has the potential to improve welfare in LAC since it is distributed to the poorest countries, although it is not allocated towards the countries with the best policies. This can have a negative influence and makes the impact of aid difficult to predict. The channel through which aid can affect poverty is the public spending on social services, like education, sanitation and health (Gomanee et al., 2003). According to this study, aid contributes positively to poverty reduction by financing these social services.

Figure 2.6 – Allocation of aid in LAC in the social sector



^a Source: OECD (2008)

^b Data is based on 3-year averages.

Figure 2.6 shows that aid in LAC allocated towards education, water supply and sanitation and health increased in the period from 1990 to 2005. A substantial part of aid in LAC is allocated towards sectors which can affect poverty. Besides the increase of aid to the sectors of interest, more aid was distributed towards the social sector. While 23.1 per cent of the total foreign aid was allocated towards the social sector in 1990, this increased to an amount of 43.9 per cent in 2005, and even 55 per cent in 2006. Around 1.9 billion US dollars was allocated to education, sanitation and health in 2006 (OECD, 2008). Since 6.9 billion US dollars aid were sent to LAC in 2006, this comes down to 27 per cent. The impact of foreign aid on a country's growth rate has been investigated several times, in contrast to its effect on poverty and inequality. Only a few studies are focused on this subject. The World Bank policy report about aid (1998) stated that a one per cent increase in aid leads to a one per cent reduction in poverty when good policies are in place. Unfortunately, most poor countries have not the right policies and institutions which favour economic growth and poverty reduction. Calderón et al. (2006) investigated the impact of foreign aid on poverty for 111 countries. Aid seems to have an insignificant effect according to this study.

Although aid is there to support the poor, it does not mean that aid reduces inequality per se. A decrease in poverty can still be accompanied with an increase in inequality. There has not been much research about the channels through which aid can affect inequality. The level of corruption in a country can have an impact on the effect of aid on inequality. An increase in foreign aid from a low to medium level when corruption is low could lead to a decrease in the GINI coefficient (Calderón et al., 2006). When corruption is high, an increase in aid can lead to an increase in inequality. Corruptive governments will use aid for the benefit of the rich. A way to measure corruption is the Corruption Perception Index (CPI). Surveys of different institutions, not the public opinion as in the past, are used to calculate a corruption score for 180 countries. 30 Latin American and Caribbean countries are included in 2008. A score of 1 (highly corruptive) to 10 (no corruption) can be obtained. From the 30 included Latin American and Caribbean countries, 22 have a score below 5 and even 11 have a score of 3 or lower. LAC obtained these kind of scores from the start of the CPI, which was in 1995. This suggests that some countries in LAC are highly corruptive and that aid has the potential to increase inequality. Rudra (2004) found social spending on education to be inequality decreasing in the developing world. Since a substantial part of foreign aid is spent on education, increasing from 300 million dollars in 1990 to a large 700 million dollars in

2006, there is a possibility that foreign aid has an inequality reducing effect.⁷ Studies done on the effect of foreign aid on inequality are not univocal in their outcomes. Where Calderón et al. (2006) found some weak evidence that aid can decrease inequality in the presence of good institutions, the World Bank (2006c) stated that aid has no impact on inequality. Chase-Dunn (1975) found aid to be inequality increasing. He found aid to keep wages low when compared to the income of the elite. The difference between Chase-Dunn (1975) and Calderón et al. (2006) is that Chase-Dunn used a completely different data set. Rubinson (1976) and Bornschier et al. (1978) found the inflow of foreign aid to increase the inequality in a country as well. It seems that aid has the potential to lower inequality, but in the presence of corruption in some Latin American and Caribbean countries, it is possible for aid to be insignificant or to have an inequality augmenting effect.

Mishra and Newhouse (2007) indicated that infant mortality depends, among other things, on health facilities, female literacy and water and sanitation. This view is shared by Alves and Belluzzo (2004), which found education and sanitation to be important too. Soares (2009) finds large-scale immunizations and improved access to water and sanitation, next to income increases, to be important for reductions in mortality in LAC. With a substantial part of aid allocated to education, sanitation and health, infant mortality can decline with this inflow of foreign capital. Since access to improved sanitation increased from 72 per cent to 77 per cent of the Latin American and Caribbean population between 1990 and 2000, while access to treated water increased from 82 per cent to 86 per cent, it can be expected that foreign aid positively affects the reduction in infant mortality. The impact of aid on infant mortality and life expectancy has been investigated more than on poverty and inequality. Investigating 56 developing countries, Burnside and Dollar (1998) came to the conclusion that the influence of aid on infant mortality depends on the quality of the policy environment. A one per cent increase of aid as a percentage of the GDP leads to a decline of infant mortality of zero in a poor policy environment, 0.4 per cent in an average environment, and 0.9 per cent in a country with good policies. Masud and Yontcheva (2005) investigated 58 countries to determine the effect of foreign aid on infant mortality. A distinction is made between NGO aid and bilateral aid. Where aid provided by NGOs reduces infant mortality, bilateral aid seems to be ineffective. A doubling of aid will lead to a one per cent reduction of infant mortality according to Mishra and Newhouse (2007). Boone (1996) found aid to be ineffective in reducing infant mortality.

⁷ Source: data is from OECD (2008)

If foreign aid is spent on health and sanitation facilities, this could have a positive impact on life expectancy as well. Soares (2009) finds immunization and improved access to water and sanitation to be important for the life expectancy gains in LAC. In addition, he estimated that reduction in mortality accounted for 58 per cent for the increase in life expectancy in LAC. When aid affects infant mortality negatively it could be that it increases life expectancy too, since infant mortality is one of the mortality indicators next to child mortality and adult mortality. Some other studies do not support this view. A study of 118 countries carried out by Mishra and Newhouse (2007) concluded that aid per capita has no influence on the life expectancy in the aid receiving countries. Boone (1996) investigated the impact of aid on life expectancy as well. According to his study, there is no clear relationship.

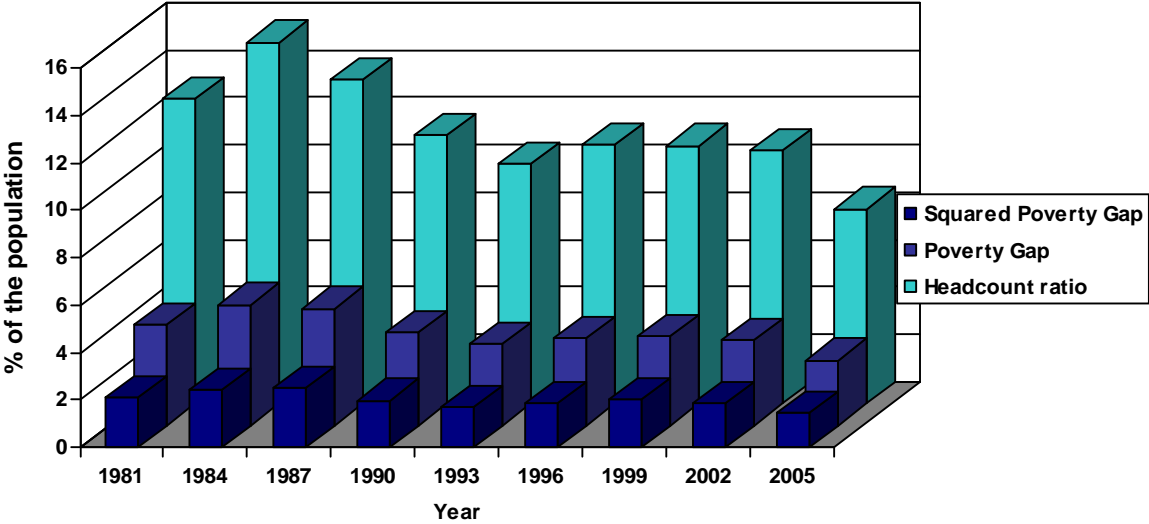
Whether aid has a positive impact on the welfare of the people in LAC is difficult to say. Although aid is allocated to the poorest countries in LAC, the amount is quite low. Aid accounted for less than 0.4 per cent of the Latin American and Caribbean GNI during the period from 1980 to 2006. The effect on poverty through spending on public services may cause aid to decrease poverty. The expected impact on inequality is unclear. Lot of Latin American and Caribbean countries deal with corruption and the existing studies are not univocal on the effect of aid on inequality. The high proportion spent on education has the potential to reduce inequality. Infant mortality is expected to decrease with the inflow of foreign aid. With already a substantial part of the total amount spent on public services which favour conditions to reduce infant mortality, this seems not to be overly optimistic. Most studies investigating the effect of aid on infant mortality found a negative relationship. The positive influence on life expectancy is less sure, since other studies could not determine such a relationship. Nevertheless, the allocation of aid towards sectors which improve certain living conditions of the people can increase the life expectancy.

3. The effect of remittances and foreign aid on poverty

This section contains the investigation of the effect that remittances and foreign aid have on poverty. The theory that both have a positive influence on poverty reduction will be tested. The period from 1980 to 2006 will be investigated. Each Latin American and Caribbean country which has available data will be included in the investigation. The effect remittances and foreign aid have on poverty is tested both using OLS and two-stage least squares (TSLS), since there is a possibility of reverse causality.

3.1 Poverty in Latin America and the Caribbean

Figure 3.1 – Poverty in Latin America and the Caribbean



^a Source: World Bank

Poverty moderately declined in LAC during the twenty five year period displayed in the above figure. All poverty measures developed in an undulation, but at the end, each measure declined. The headcount ratio decreased from 12.87 per cent to 8.22 per cent. The poverty gap declined from 4.26 per cent to 2.75 per cent. The squared poverty gap was 1.46 per cent in 2005, while it was 2.07 in 1981.

3.2 Data and the model

The model used to investigate the effect of migration on poverty is based on the standard poverty model of Ravallion and Chen (1997) which stated that poverty depends on growth and inequality. To test the effect of remittances, this variable is added to the equation. The following relationship will be used:

$$\text{Log}P_{it} = \chi_i + \beta_1 \log(\mu_{it}) + \beta_2 \log(g_{it}) + \beta_3 \log(r_{it}) + \varepsilon_{it} \tag{3.1}$$

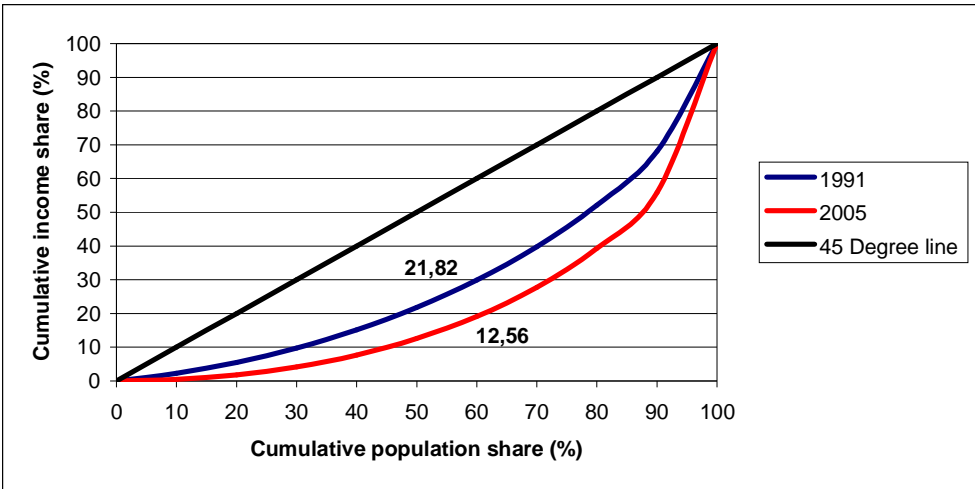
P is the measure of poverty and χ_i is a fixed effect reflecting time differences between the countries. β_1 , β_2 , and β_3 are elasticities of poverty with respect to the income per capita (μ),

inequality (g) and remittances per capita (r), while ϵ designates the error term. According to the model, poverty depends on income, inequality and remittances. The variables are stated in logarithms since this makes the results easier to interpret. Coefficients can be interpreted as elasticities, whereby the outcomes can be seen in proportional changes. A ten per cent increase in remittances will, if significant, lead to a certain percentage decrease in poverty.⁸

The Gross Domestic Product (GDP) per capita in purchasing power parity is used as the income variable.⁹ A negative relation with poverty can be expected since the income of the poor is expected to rise when the average income rises (Dollar and Kraay, 2001). The GDP per capita for LAC as a whole rose from \$7228 in 1980 to \$9047 in 2007.

Inequality is measured using the GINI coefficient. The GINI coefficient can be used to measure the amount of income inequality in a society, country, or even the whole world. The GINI coefficient is a number between 0, indicating perfect equality, and 1, indicating perfect inequality. In 2005, Bolivia was one of the most unequal countries in LAC, with a GINI coefficient of 0.58, and Costa Rica was one of the most equal countries, with a GINI coefficient of 0.48. As one can see in figure 4.1, the GINI coefficients do not differ much between Latin American and Caribbean countries. Inequality can be graphically represented in a Lorenz Curve. This graph shows the income share held by a specific part of the population. Figure 3.2 shows the Lorenz curve of Bolivia as an example.

Figure 3.2 – Lorenz curve Bolivia



^a Source: World Bank

^b Percentage of total income hold by half the population is displayed in the graph.

⁸ When $y = \beta x + \epsilon$, $\Delta y = (\partial y / \partial x) \Delta x = \beta \Delta x$. $\ln y = \beta \ln(x) + \epsilon$, so $\Delta \ln y = (\partial \ln y / \partial x) \Delta x = \beta (\Delta x / x)$. $\Delta \ln y = (\partial \ln y / \partial y) \Delta y = \Delta y / y$.

⁹ Data is from the World Bank. See appendix for measurement.

It is clear that Bolivia has become more unequal, since the curve of 2005 is farther away from the straight line, which represents total equality, than the one of 1991. In 1991, half of the population had 21.82 per cent of the total income. In 2005, only 12.56 per cent of the total income was held by them. When one looks closely, it can be seen that the entire population had less income in 2005 compared to 1991, except for the richest twenty per cent of the population. They held more than sixty per cent of the total income in 2005, compared to 48 per cent in 1991. A positive relation between the GINI-coefficient and poverty can be expected since poverty is expected to decrease more during economic growth in low-inequality countries than in high-inequality countries (Ravallion, 1997).

LAC witnessed a huge growth in the remittances they received. The percentage of the world's total remittances received for LAC rose from 5.7 in 1980 to 19.5 in 2007. The rise of 41 billion dollars could have a positive contribution to poverty reduction. Several poverty measures are used to see if remittances have a positive influence on poverty reduction. The first one is the poverty headcount ratio. The headcount ratio is measured as the proportion of the population living on less than \$1 per day.¹⁰ The strength of this poverty measure is that it is easy to interpret. When the ratio drops from fifty per cent to forty per cent, it simply means that ten per cent of the population was able to escape from poverty. The weakness of this indicator is that it only focuses on the number of the poor, it ignores the depth of poverty. Although the headcount ratio dropped by ten per cent, it is possible that the remaining forty per cent became poorer than before. That is why the poverty gap index is used. This index includes both the number of the poor as well as the depth of poverty. It is defined as the distance of the poor below the poverty line, as a proportion of that poverty line. The last poverty measure which is used is the squared poverty gap. This variable gives higher weight to the poorest.

3.3 Results

3.3.1 Remittances

The OLS method is used to determine the influence of the remittances on poverty, as explained by the cross country regression revealed in section 3.1. The results are presented in table 3.1.

¹⁰ International poverty line: \$1.25 per person per day at 2005 Purchasing Power Parities (Ravallion, et al., 2008).

Table 3.1 – OLS estimates of the effect of remittances on poverty

Variable	Dependent Variables		
	Poverty Headcount	Poverty Gap	Squared Poverty Gap
Constant	-2.707*** (-1.699)	-3.96 (-1.563)	2.085 (-0.789)
GDP per Capita	-0.843* (-6.072)	-1.136* (-5.469)	-1.359* (-5.59)
GINI Coefficient	3.996* (5.092)	5.171* (4.114)	4.325* (3.488)
Remittances per Capita	-0.066*** (-1.738)	-0.155*** (-1.889)	-0.06 (-0.702)
N	136	109	106
R ²	0.414	0.408	0.412
Adjusted R ²	0.401	0.391	0.395
F-Statistic	31.13	24.13	23.83
Time period	1980 – 2006	1981 – 2006	1981 – 2006
Number of countries	23	21	21

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

Differences in the number of observations are caused, just like in any other regression outcome, by the data availability of the dependent variable. All the variables come up with the expected signs. Income, measured as the GDP per capita, is negatively related to poverty and significant at the 0.01 level for each of the poverty measure. For instance, a ten per cent increase in the GDP per capita, while the headcount ratio is used as poverty measure, will lead to a reduction of 8.4 per cent of people living below the international poverty line. The influence of income becomes even larger when the (squared) poverty gap is the dependent variable. The elasticity of poverty with respect to inequality, β_2 , is as expected positive. An increase in inequality in LAC will lead to an even stronger increase in poverty. The variable of most interest is the remittances per capita. Both the influence of remittances on the poverty headcount and poverty gap is negative and significant, although only at the ten per cent level. An increase of ten per cent in the remittances per capita will lead to a 0.66 per cent reduction in the poverty headcount and a 1.55 per cent reduction in the poverty gap. Although the effect on the squared poverty gap is also negative, it is insignificant. The results seem to be

trustworthy, since the number of observations is reasonable, bearing in mind that only LAC is investigated, and the poverty measures are reasonably explained by the model, which can be seen by the R-square. Nevertheless, the results can be biased, as is explained in the next section.

3.3.2 Reverse causality

There is a possibility that an independent variable is not exogenous to poverty. A problem that is likely to be present is reverse causality. The decrease in poverty can be caused by an increase of the remittances. But the increase of remittances can also be caused by poverty. Section 2.2.1 explained poverty as one of the push factors of migration. Reverse causality makes the outcomes from the OLS, and therefore the estimated effect of remittances on poverty, biased.

Using instrumental variables will overcome the problem of reverse causality. The instruments will have an indirect effect on poverty through its effect on remittances. The regression exists of three independent variables. Two of them, the GDP per capita and the GINI coefficient, will be used as instrumental variables. This is in line with Pindyck and Rubinfeld (1997), who stated that some of the original variables can be used as an instrument in the instrumental-variables estimation process. Two other instruments explaining remittances are added.

Since 80 to 90 per cent of the migrants from LAC resided in the United States throughout the entire period and about 80 per cent of the remittances were coming from the United States in 2008 (Ratha et al., 2008), the instruments will be focused on the United States. The first instrument is the distance between the United States and the remittance-receiving country.¹¹ A study of migration from Asia and Africa to Germany from Rotte and Vogler (1999) shows a strong negative and significant effect of distance on migration. Hatton and Williamson (2002) also found a negative and significant effect of distance on migration. Therefore, the distance variable is expected to be negatively correlated to the amount of remittances received. The greater the distance between the countries, the lower the amount of remittances sent. The second instrumental variable is the income level of the United States. One of the pull factors of migration are the prospects of higher wages. A higher income level in the United States is expected to have a positive influence on migration. The influence on

¹¹ See Appendix for the calculation of the distance variable.

remittances can be even stronger. Higher income levels will give the migrated population the opportunity to send more money back home and it will attract new migrants, which will cause to rise the amount of remittances too. This is already explained in section 2.2.2.

Table 3.2 shows the results of the regression explaining remittances. Added to the regression are, besides the GDP per capita and the GINI coefficient, the two other variables which will be used as instrumental variables. The instruments in the regression appear with the expected sign. The distance between the remittance-sending country and remittance-receiving country has a negative influence on remittances. The effect of the distance is around the same magnitude as the estimate of Adams and Page (2005). An increase of the distance with ten per cent will lead to a reduction in remittances of 14.9 per cent, while Adams and Page (2005) found a reduction of 15.7 per cent. The GDP per capita of the United States is positively correlated with remittances. A one per cent increase in the income in the United States leads to an increase of almost ten per cent in remittances received by Latin American and Caribbean countries. The significance level of the total regression, the P-value, is significant. The model showed below does explain remittances well, with an adjusted R-square of 0.56.

Table 3.2 – Testing the instrumental variables

Dependent variable: Remittances per Capita				
Instrumental variables				
Constant	GDP per Capita	GINI Coefficient	Distance	GDP per Capita US
-36.185* (-7.9)	-0.567*** (-1.779)	0.21 (0.181)	-1.491* (-8.063)	9.659* (9.16)
N	Adjusted R ²	F-Statistic		
133	0.56	42.95		

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

Distance and the GDP per capita in the United States seem to be good instrumental variables for remittances. Table 3.3 presents the TSLS results of the effect that the instrumented remittances variable has on the different poverty measures. Remittances per capita appear in each model with the expected negative sign, and is significant for the poverty

headcount and poverty gap. A ten per cent increase in the remittances per capita received by Latin American and Caribbean countries leads to a 1 per cent decline in the poverty headcount. The effect on the poverty gap is stronger, since the increase would lead to a reduction of 1.7 per cent. The effect of the instrumented remittances variable is therefore slightly stronger than the one in the OLS regression, which led to a 0.7 per cent decline in the poverty headcount and 1.6 per cent decline in the poverty gap. The influence of remittances on the squared poverty gap is insignificant.

Table 3.3 – TSLS estimates of the effect of remittances on poverty

Variable	Dependent Variables		
	Poverty Headcount	Poverty Gap	Squared Poverty Gap
Constant	-2.414 (-1.475)	-3.545 (-1.373)	-1.715 (-0.653)
GDP per Capita	-0.889* (-5.921)	-1.214* (-5.263)	-1.398* (-5.354)
GINI Coefficient	3.945* (5.048)	5.094* (4.153)	4.163* (3.544)
Remittances per Capita (Instrumented)	-0.099** (-2.056)	-0.172** (-2.103)	-0.042 (-0.54)
N	133	108	105
R ²	0.427	0.408	0.425
Adjusted R ²	0.414	0.391	0.408
F-Statistic	32.09	24.01	24.85
Time period	1980 – 2006	1981 – 2006	1981 – 2006
Number of countries	23	21	21

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

It can be concluded that remittances received by Latin American and Caribbean countries have a significant positive effect on poverty reduction. The OLS estimates that the effect on both the poverty headcount and the poverty gap is negative and significant. The TSLS estimates that the effect on poverty is even stronger. A ten per cent increase in the remittances per capita would lead to a 1 per cent decrease in the poverty headcount and a 1.7 per cent decrease in the poverty gap. The effect of remittances on the squared poverty gap is

insignificant, for both the OLS and TSLS estimates. Both the absolute number of the poor and the depth of poverty are lowered thanks to the influx of remittances. When the poor are given a higher weight than the non-poor, which is the thought behind the squared poverty gap, remittances have no effect on poverty reduction.

The empirics underline the theory of the positive effect that remittances can have on poverty. Large flows, most of it distributed to the poorest part of society contribute to poverty reduction. Opportunities to attain education and to invest, made possible by the remittances, support this impact. The results are in line, but slightly differ compared to other studies. The effect of remittances is somewhat weaker than the one found by Adams and Page (2005), although they found remittances to be ineffective in lowering poverty in LAC. The World Bank (2006b) found remittances to be poverty decreasing, especially in LAC. Acosta et al. (2007) found a negative relation between remittances and poverty, but since a different variable is used, comparing the outcome with this study is difficult. Nevertheless, the results of this section are analogous to the widely believed view that remittances have a positive impact on reducing poverty.

3.3.3 Foreign aid

Replacing remittances per capita (r) for aid per capita (a) makes the equation (3.1) suitable to determine the effect of aid on poverty. Aid is measured as all the official development assistance (ODA) and official aid a country obtains in a certain year.

The OLS method is applied to the adjusted equation (3.1) to determine the influence of foreign aid on poverty. Results show that the GDP per capita and the GINI coefficient come up with the expected signs, negative for GDP per capita and positive for the GINI coefficient, and are significant for each poverty indicator. Aid is only significant when the squared poverty gap is used as the dependent variable. A positive relationship between foreign aid and poverty is determined. This means that the higher the poverty indicator is, more aid is received. It could also be explained that more aid results in a higher poverty indicator. The problem of reverse causality is also present in this case. Therefore it is necessary to use instrumental variables or lagged independent variables. Since the OLS results could be biased, they are not displayed in this study.

3.3.4 Reverse causality

As in section 3.2.2, the problem of reverse causality has to be overcome. One way to deal with this problem is to lag the troublesome independent variable. Lagging the independent variable with one period assures that the influence of an independent variable in a certain period is estimated on the dependent variable in the next period. This way, the influence of aid received in 2000 is estimated on poverty in 2001. A negative sign is expected to appear for aid, since more aid should lead to lower poverty. At least, this is the purpose of aid, lowering poverty. Lagging the independent variable makes it impossible that the regression measures the influence of poverty on aid, since the poverty indicator can not influence the amount of aid in the past. Lagging the aid variable by more than one year, to see whether or not aid has a slow working effect on poverty, is not possible because of holes in the dataset.

Table 3.5 – TOLS estimates of the effect of aid on poverty

Variable	Dependent Variables		
	Poverty Headcount	Poverty Gap	Squared Poverty Gap
Constant	-2.513 (-0.927)	1.104 (0.244)	-0.757 (-0.214)
GDP per Capita	-0.958* (-2.872)	-1.885* (-3.215)	-1.243* (-2.734)
GINI Coefficient	4.048* (4.023)	3.777** (2.242)	3.149** (2.526)
Aid per Capita (t-1)	0.009 (0.106)	-0.158 (-1.006)	0.123 (1.049)
N	119	91	86
R ²	0.403	0.331	0.427
Adjusted R ²	0.387	0.308	0.406
F-Statistic	25.83	14.33	20.33
Time period	1984 – 2006	1984 – 2006	1984 – 2006
Number of countries	21	18	18

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

The signs of GDP per capita and the GINI coefficient are as expected. Although the signs of aid per capita are not always as expected, its effect on poverty is for each indicator insignificant. It seems that aid did not affect the poverty in LAC.

Theory stated the difficulty to predict the effect of aid on poverty. Public spending to specific social services and distribution towards the poorest countries can lower poverty. But this effect can be nullified by the weak allocation towards countries according to its policy environment and the low amount of aid which is sent. The result is in line with the result of Calderón et al. (2006). This study concluded that the effect of aid on poverty is insignificant too. The World Bank policy report of 1998 stated that a one per cent increase in aid would lead to a one per cent reduction in poverty, when good policies are in place. Since the policies of Latin American and Caribbean countries belong to the best of the developing world (Collier and Dollar, 2000), it seems that this conclusion of the World Bank is too optimistic.

4 The effect of remittances and foreign aid on inequality

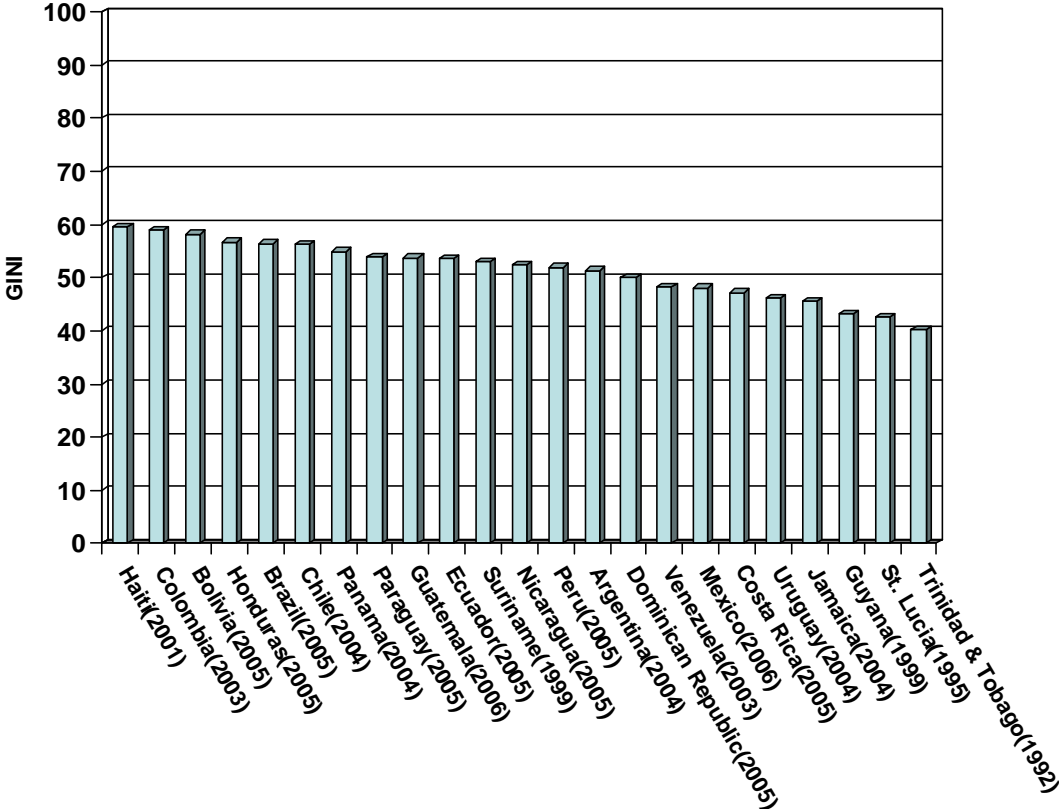
The investigation of the effect of remittances and foreign aid on inequality is presented in this section. Both the remittance and aid variable will be lagged to overcome the problem of reverse causality.

4.1 Inequality in Latin America and the Caribbean

Inequality is, next to poverty, a big problem in LAC. Latin American and Caribbean countries are among the countries with the highest inequality. 14 Latin American and Caribbean countries are in the top twenty countries with the highest inequality in the world in 2004.¹² The World Bank (2003) found that 48 per cent of the total Latin American and Caribbean income is earned by the richest ten per cent, compared to less than 30 per cent in industrial countries. The poorest 10 per cent in LAC only earn 1.6 per cent of the total income. Figure 4.1 illustrates that inequality is not just a problem of a small group of Latin American and Caribbean countries. It is a problem which concerns almost each country.

¹² Source: UNDP (2007)

Figure 4.1 – Inequality in Latin America and the Caribbean



^a Source: World Bank

^b The latest inequality numbers for each country has been used. The GINI index is measured from 0 to 100, indicating the GINI coefficient in percentages.

4.2 Data and the model

Remittances is lagged to estimate its influence on inequality. The problem of reverse causality may also be apparent this time. This is because inequality can be seen as a push factor according to the relative deprivation theory. The regression on inequality sums up to:

$$\text{Log}(g_{it}) = \chi_i + \beta_1 \log(\mu_{it}) + \beta_2 \log(f_{it}) + \beta_3 \log(w_{it}) + \beta_4 \log(c_{it}) + \beta_5 \log(r_{it-1}) + \varepsilon_{it} \quad (4.1)$$

As in equation 3.1, inequality, income and remittances are represented by g, μ and r, respectively. β2, β3 and β4 are elasticities of inequality with respect to FDI (f), unemployment (w) and the capital stock (c), while ε designates the error term.

According to the widely known Kuznets curve, inequality rises together with income in the initial stages of development. At a certain point of development, income will continue to grow, but inequality will decrease. There is a lot of criticism on this theory, especially on the dataset used to prove this relationship between inequality and income. According to the

Kuznets curve, income should have a positive effect on the inequality of Latin America and the Caribbean, since the countries in this continent have not reached the state of highly industrialized countries, which is the turning point for inequality to decrease. Hemmer, et al. (2005) found a positive correlation between income and inequality, but only for the squared income variable. It seems that the effect of the income variable depends largely on the countries which are investigated.

FDI is measured as the net inflow of investment from enterprises from abroad. The effect of FDI on inequality is not clear. Investing in enterprises speed up technological progress, which could lead to higher growth and job creation. This is beneficial for the unemployed and the poor. The reverse side of technological progress is the destruction of unskilled jobs. This could lead to increasing inequality when the poor have no opportunity to attain education. Studies investigating the influence of FDI on inequality are not univocal. The effect of FDI is insignificant according to Bussmann et al. (2002) and Milanovic (2003). Tsai (1995) found a positive correlation between FDI and inequality. The difference between his study and this one is that Tsai used the stock of FDI, instead of the net inflow. Using stocks instead of flows includes the history of FDI, since quantity has been accumulated in the past. Since FDI flows look at the quantity over an interval of time, this could lead to different results. Hemmer, et al. (2005) found a positive and significant effect of the FDI stock on inequality in the Latin American area.

The effect of unemployment on inequality is expected to be positive according to several studies. Both Nolan (1986) and Cardoso (1993) found this positive correlation. Its effect largely depends on the income group in which the number of people experiencing unemployment increases or the duration of unemployment increases. When it are the lower income groups of society, inequality is expected to rise. When the higher income groups have to deal with more unemployment, it is the other way around. Since the unemployment level of people attained tertiary education rose relatively more during the investigated time period than the ones followed secondary or primary education, a negative relation is expected.

The capital stock of a country, measured as a percentage of the GDP, includes land improvements, plant, machinery and equipment purchases and the construction of roads, railways and more. Gupta, et al. (2001) found a positive and significant effect of the capital stock on inequality. An employer makes a decision between capital and (low-skilled)labour to realise his production process. More capital, means less low-skilled labour, and therefore it is expected that the capital stock in LAC, has a positive influence on inequality.

4.3 Results

4.3.1 Remittances

As stated earlier, the remittance variable is lagged to overcome the problem of reverse causality. The relative deprivation theory explained the initiation of migration by the income position of a person compared to the people around him (Massey et al, 1993). In this case, inequality is a push factor of migration. Lagging this variable with one period assures that the influence of remittances on inequality is tested.

Table 4.1 – TOLS estimates of the effect of remittances on inequality

Variable	Dependent Variable
	GINI Coefficient
Constant	2.269* (20.016)
GDP per Capita	-0.167* (-5.092)
FDI	0.036* (4.146)
Unemployment	-0.024 (-1.645)
Capital as percentage of GDP	-0.165* (-3.253)
Remittances per Capita (t-1)	-0.006 (-1.141)
N	114
R ²	0.313
Adjusted R ²	0.281
F-Statistic	9.85
Time period	1984 – 2005
Number of countries	19

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

The effects of the independent variables need some explanation. The influence of the income variable is negative. An increase in the GDP per capita will lead to a decrease in inequality. First of all, this result does not support the Kuznets curve. The income variable should be positive according to this theory, since LAC is still developing in becoming a highly industrialized continent. The income rise during the investigated period was probably relatively higher in the lower income groups, which caused a decrease in inequality. A rise of ten per cent in the inflow of FDI will lead to an increase of 0.36 per cent in inequality. This is in line with the results of Hemmer, et al. (2005) and Tsai (1995), although they found evidence for the FDI stock. The effect of unemployment is insignificant while an increase in the capital stock would lead to a decrease in inequality. The negative correlation of capital is more difficult to explain. When capital as percentage of the GDP is high, a high capital-output ratio, it can be seen as low productivity of that capital. An increase in the capital-output ratio means that there is more capital needed to produce the same. In other words, productivity has gone down. Lower productivity is probably caused by using more low-skilled labour in stead of capital. Low-skilled labour is most of the time situated in the bottom groups of the income share. More low-skilled labour leads to higher income shares of the bottom income groups, which leads to lower inequality. This is exactly what the negative relationship in the regression shows. A ten per cent increase in the share of capital to GDP leads to a 1.7 per cent decrease in inequality. The relationship between remittances and inequality is negative, but insignificant.

Remittances are not allocated enough to the poorest households to influence the Latin American and Caribbean income distribution. Although most of it is sent to the poorest households, there is still a substantial amount provided to the richest households as well. The theory of Docquier and Rapoport (2003) that in the case of high inequality remittances will lead to inequality reduction, does not hold for LAC according to this study. Both the World Bank (2006b) and Acosta et al. (2008) stated that remittances are assumed to leave inequality unaffected or to reduce it. Acosta et al. (2007) and Acosta et al. (2008) stressed the possible insignificant effect of remittances on inequality in LAC. This is confirmed by the outcome of this study.

4.3.2 Foreign aid

Foreign aid will be lagged because of the possible aid attracting effect of high inequality present in LAC. Investigating the effect of foreign aid on inequality is the only interest. The table mentioned below presents the results. The variables have the same signs and are about the same size as the results in table 4.1. The difference between table 4.1 and table 4.2 in the significance of unemployment and the capital stock is caused by the slightly different data set. The negative relation between unemployment and inequality is probably caused by the higher unemployment level in high income groups than in low income groups.

Table 4.2 – TOLS estimates of the effect of aid on inequality

Variable	Dependent Variable
	GINI Coefficient
Constant	2.309* (15.363)
GDP per Capita	-0.181* (-5.354)
FDI	0.027* (3.348)
Unemployment	-0.04** (-2.584)
Capital as percentage of GDP	-0.068 (-1.487)
Aid per Capita (t-1)	-0.027* (-3.023)
N	120
R ²	0.329
Adjusted R ²	0.3
F-Statistic	11.19
Time period	1984 – 2005
Number of countries	20

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

Even in the presence of corruption in some countries, foreign aid was able to reduce inequality. An increase of aid per capita of ten per cent, leads to a decrease of 0.27 per cent in inequality. The impact of aid on inequality is present, this in contrast to the impact of remittances. The social spending, in particular education, could have contributed to this result. The result is quite different compared to some other studies since the literature is not univocal in the effect of aid on inequality. It corresponds to the findings of Calderón et al. (2006). World Bank (2006c) found aid to be ineffective in lowering inequality. Studies by Chase-Dunn (1975), Rubinson (1976) and Bornschier et al. (1978) found an increasing effect of aid on inequality. It seems that this study joins other studies in emphasizing the inequality-reducing effect of foreign aid.

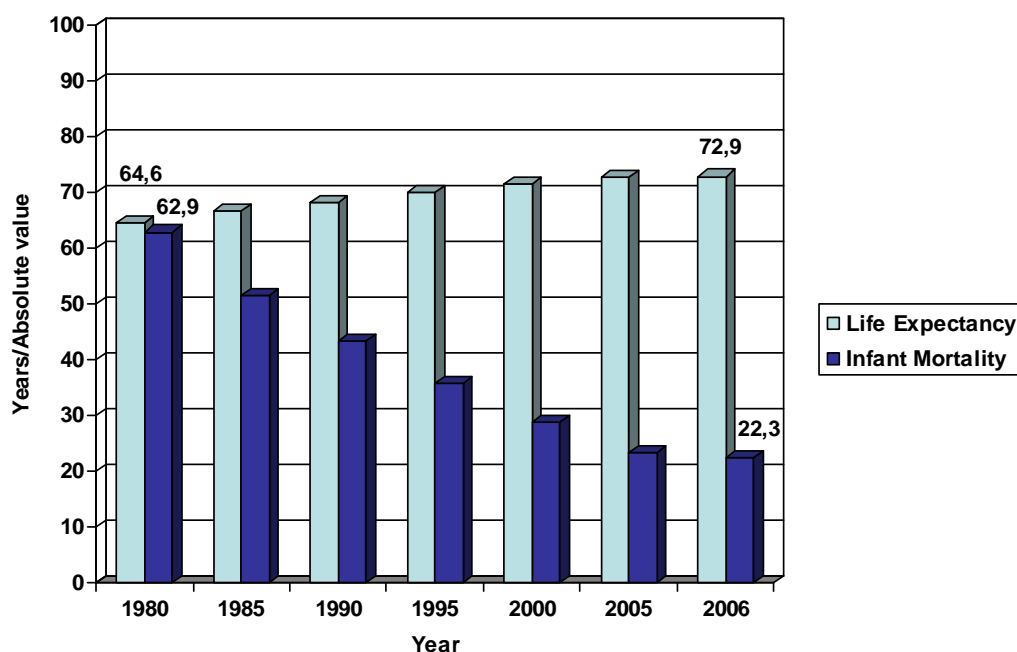
5. The effect of remittances and foreign aid on health

This section contains the investigation of the effect of remittances and foreign aid on life expectancy and infant mortality. Results show that both variables are important for the welfare of the Latin American and Caribbean people.

5.1 Life expectancy and infant mortality in Latin America and the Caribbean

Remittances and foreign aid proved to be important factors for poverty and inequality reduction. Two other important indicators reflecting the welfare of people are the life expectancy and the infant mortality rate. Both these variables can be seen as measurement of welfare of a person. Figure 5.1 shows how both variables have evolved during the last 27 years. While the average person became eight years older, infant mortality decreased with almost 65 per cent. The welfare of the average LAC person increased, when these two variables are used as indicators.

Figure 5.1 – Infant mortality and life expectancy in Latin America and the Caribbean



^a Source: World Bank

^b Life expectancy is stated in years and infant mortality is presented as the number of infants dying before reaching one year of age, per 1000 births.

5.2 Data and the model

Whether or not migration had an impact on this positive development is investigated by the following regression:

$$\text{Log}l_{it} = \chi_i + \beta_1 \log(\mu_{it}) + \beta_2 \log(d_{it}) + \beta_3 \log(z_{it}) + \beta_4 \log(r_{it}) + \varepsilon_{it} \quad (5.1)$$

Life expectancy (l) is explained by GDP per capita (μ), the immunization rate of children between one and two years old for DPT¹³ (d), the percentage of the population that live in urban areas (z) and remittances per capita (r). To estimate the influence of the independent variables on infant mortality, the dependent variable life expectancy (l) is exchanged for infant mortality (m).

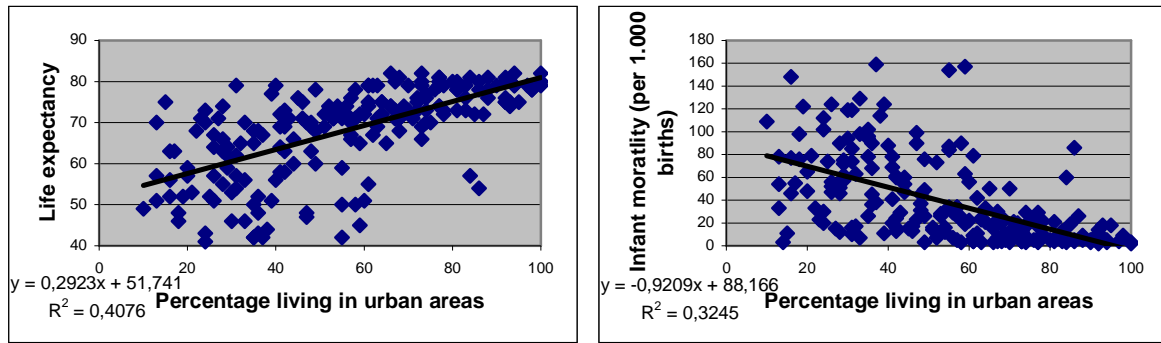
Each variable is expected to influence life expectancy positively. An increase in the GDP per capita or remittances increases income, which gives people the opportunity to live in better conditions and to pay more attention to their health. Paying more attention to one's health can mean that someone has a healthier diet, but also the ability to pay for health care

¹³ DPT stand for diphtheria, pertussis and tetanus.

which offers the chance to treat diseases. More income should also lead to less infant mortality, since better living conditions are provided for young children. Chauvet et al. (2008) showed the negative relation between GDP per capita and infant mortality. The relation between the immunization of children for DPT and life expectancy speaks for itself. More immunization means less children that die from these diseases, which means that the average age of the population increases, and thereby the life expectancy. The immunization rate for DPT grew from 37 per cent to 92 per cent in LAC between 1980 and 2006.¹⁴ The negative relationship with infant mortality is even more straight forward. Soares (2009) emphasizes the high infant mortality rates and low life expectancy in Haiti accompanied with the low immunization rate. Other countries, like Bolivia and Honduras, experienced huge immunization rates increases together with life expectancy increases. Lower mortality rates in developing countries can be expected with higher rates of immunization of DPT according to Owen and Wu (2004). The last variable, the percentage of the population that lives in urban areas, seems less obvious. However, medical conditions are much better in urban than rural areas and medical knowledge is also more present in urban areas. That does not mean that people living in rural areas do not have access to hospitals or medical knowledge, but it is possible that the larger absence of hospitals and medical knowledge negatively influences life expectancy. Besides, living circumstances in rural areas or most of the time less well than in urban areas. Figure 5.2 offers scatter diagrams with the relation between the percentage of people living in urban areas and life expectancy, and its relation with infant mortality. A clear positive relation is found between life expectancy and people living in urban areas and a negative correlation is found between people living in urban areas and infant mortality. The negative relationship between urbanization and infant mortality is confirmed by Haines and Avery (1982) and McGuire and Frankel (2005).

¹⁴ Source: the World Bank, WDI Online.

Figure 5.2 – Life expectancy and infant mortality versus the percentage living in urban areas



^a Source: World Bank.

^b The data from both scatters is from 2006. 208 countries throughout the world are investigated for the life expectancy scatter, while 206 countries are investigated for the infant mortality scatter.

5.3 Results

5.3.1 Remittances

The OLS method is used to determine the influence of migration on life expectancy and infant mortality. It is not necessary to instrument the remittances variable, since life expectancy and infant mortality do not directly influence remittances. Since persons do not migrate because the life expectancy is low in their country, it is not a push factor, reverse causality is not present. The Cochrane-Orcutt (C-O) procedure is applied to overcome the problem of (positive) serial correlation. The low value of the Durbin-Watson statistic in the original regression, below the value of one, is an indication of positive serial correlation. The correlogram of the residuals show the presence of serial correlation too. Figure 5.3 point out the transformation of the C-O procedure. Both graphs display the behaviour of the residuals. In the left graph, before the C-O procedure is applied, it is clear that the residuals are highly correlated. A positive residual in a period is expected to remain positive in the next period. The right graph, after the procedure is applied, shows that the residuals are uncorrelated. The residual in one period is not affected by the residual in the previous period.

Figure 5.3 – Correlation of the residuals

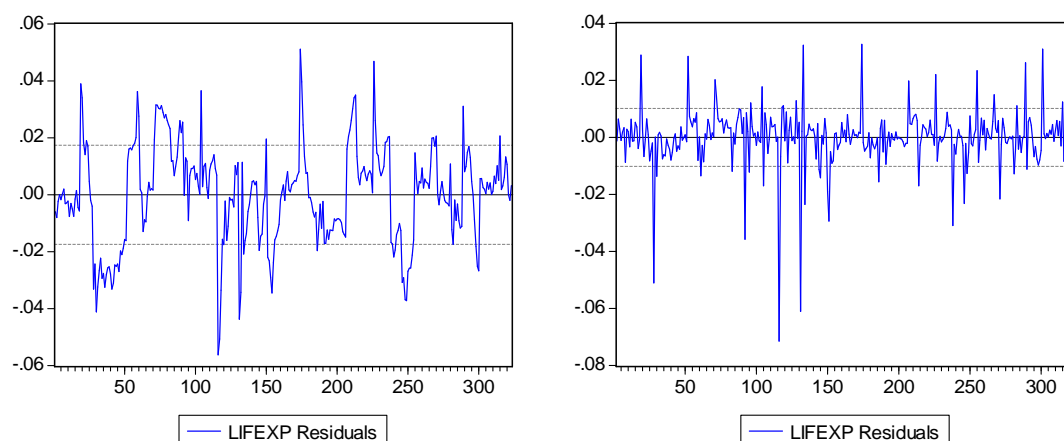


Table 5.1 shows the Breusch-Godfrey serial correlation test before and after the application of the C-O procedure. It shows that the application removed the serial correlation. The null-hypothesis of no serial correlation can not be rejected after the C-O procedure for both dependent variables.

Table 5.1 – Breusch-Godfrey serial correlation test for remittances

Life Expectancy				Infant Mortality			
Before C-O Procedure							
F-Statistic	239.26	Probability	0.00	F-Statistic	87.12	Probability	0.00
Obs*RSquared	194.53	Probability	0.00	Obs*Rsquared	90.08	Probability	0.00
After C-O Procedure							
F-Statistic	0.31	Probability	0.731	F-Statistic	0.33	Probability	0.722
Obs*RSquared	0.64	Probability	0.725	Obs*Rsquared	0.69	Probability	0.71

After examining the correlogram of the residuals of the OLS results in table 5.2, there are no significant (partial) correlation coefficients. The Durbin-Watson statistic is also close to 2. Altogether, there seems to be no problem of serial correlation anymore.

The results are displayed in the table below. The income variable is positively correlated to life expectancy, and negatively to infant mortality. The immunization of DPT and the percentage living in urban areas increases life expectancy as expected by the theory. Both have a significant negative effect on infant mortality. A ten per cent increase in remittances leads to a 0.07 per cent increase in life expectancy and a 0.68 per cent decrease in infant mortality.

The results are completely in line with the theory that remittances positively influence life expectancy and infant mortality reduction. Additional income provide opportunities to live healthier and less stressful, while health knowledge will be shared by the migrants with their friends and relatives at home. The positive contribution of remittances to lowering infant mortality is in line with the outcome of other studies. Chauvet et al (2008) found a reduction of between 0.45 and 1.04 per cent when remittances would increase with ten per cent, while this study suggest that infant mortality would lower with 0.7 per cent for LAC. Although other studies use different measures for migration, it is clear that the overall view of the impact of migration on infant mortality is negative.

Table 5.2 - OLS estimates of the effect of remittances on life expectancy and infant mortality

Variable	Dependent Variable	
	Life Expectancy	Infant Mortality
Constant	1.455* (27.447)	4.358* (9.635)
GDP per Capita	0.06* (5.474)	-0.463* (-4.634)
Immunization DPT	0.052* (6.696)	-0.326* (-5.869)
Percentage living in urban areas	0.033*** (1.956)	-0.275*** (-1.864)
Remittances per Capita	0.007* (3.269)	-0.068* (-4.106)
AR(1)	0.841* (27.648)	0.765* (8.467)
N	322	178
R ²	0.912	0.829
Adjusted R ²	0.91	0.824
F-Statistic	652.84	166.61
Time period	1980 – 2006	1980 – 2006
Number of countries	30	30

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses. The results are after the application of the Cochrane-Orcutt procedure.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

5.3.2 Foreign aid

Adjusting equation (5.1), by changing remittances (r) for foreign aid (a), is necessary to estimate the impact of foreign aid per capita on life expectancy and infant mortality. Table 5.3 present the Breusch-Godfrey serial correlation test for aid, and shows that serial correlation is removed after the application of the C-O procedure.

Table 5.3 - Breusch-Godfrey serial correlation test for aid

Life Expectancy				Infant Mortality			
Before C-O Procedure							
F-Statistic	244.77	Probability	0.00	F-Statistic	79.811	Probability	0.00
Obs*RSquared	209.5	Probability	0.00	Obs*RSquared	89.742	Probability	0.00
After C-O procedure							
F-Statistic	0.159	Probability	0.853	F-Statistic	0.916	Probability	0.402
Obs*RSquared	0.326	Probability	0.85	Obs*RSquared	1.902	Probability	0.386

After examining the correlogram of the residuals of the OLS results in table 5.4, there seem to be no significant (partial) correlation coefficients. Since the Durbin-Watson statistic is also close to 2, there is no problem of serial correlation anymore.

The OLS results in table 5.4 show that most of the independent variables are significant, come up with the expected signs and are about the same size as the results in table 5.2. GDP per capita, immunization of DPT, and the percentage of the population living in urban areas positively affect the life expectancy and have a negative impact on infant mortality. The impact of aid on life expectancy is positive, yet it is insignificant. The effect of aid on infant mortality is significant. A ten per cent increase in foreign aid per capita leads to a decrease of 0.63 per cent in infant mortality.

Foreign aid reduces infant mortality as expected. The substantial part of foreign aid spent on education, sanitation and health are probably important for its infant mortality reducing effect. A 0.63 per cent decrease in infant mortality is in line with the results of Burnside and Dollar (1998). The effect of aid found by Mishra and Newhouse (2007) is weaker, yet it also leads to a reduction in infant mortality. The insignificant effect of aid on the life expectancy is analogous to the studies of Boone (1996) and Mishra and Newhouse (2007).

Table 5.4 - OLS estimates of the effect of aid on life expectancy and infant mortality

Variable	Dependent Variable	
	Life Expectancy	Infant Mortality
Constant	1.436* (25.106)	4.75* (11.713)
GDP per Capita	0.062* (5.236)	-0.565* (-6.325)
Immunization DPT	0.06* (6.95)	-0.405* (-5.674)
Percentage living in urban areas	0.032*** (1.827)	-0.196*** (-1.92)
Aid per Capita	0.004 (1.592)	-0.063** (-2.241)
AR(1)	0.823* (25.907)	0.708* (12.569)
N	360	195
R ²	0.907	0.834
Adjusted R ²	0.906	0.829
F-Statistic	692.27	189.64
Time period	1980 – 2006	1980 – 2006
Number of countries	30	30

^a All variables are expressed in logs. The White-correction is applied to correct for heteroskedasticity. T-values are stated in the parentheses. The results are after the application of the Cochrane-Orcutt procedure.

^b *: Significant at the 0.01 level, **: Significant at the 0.05 level, ***: Significant at the 0.10 level.

It can be concluded that remittances and foreign aid are also important for these chosen welfare indicators. While life expectancy is only raised through remittances, infant mortality is lowered thanks to remittances and foreign aid.

6. The weaknesses and future improvements of remittances and foreign aid

The effectiveness of remittances and foreign aid will be discussed in this section, together with some recommendations regarding future decisions that should be made to make remittances and aid more effective in reaching their objectives.

6.1 Remittances

The impact of remittances on the welfare of people in LAC is quite large. Although it leaves inequality unaffected, it lowers poverty and infant mortality, while it raises the life expectancy.

6.1.1 The weaknesses of remittances

Despite the nearly total positive effect of remittances on welfare in LAC, there is still a lot of room for improvement. The biggest obstacle that migrants have to face is the high cost of sending remittances to their home land. According to the US Department of State, the fees that have to be paid to banks are around \$30 per transaction. These costs are quite substantial, since the average remittance to LAC is beneath \$300. Orozco (2002) stated that the costs of sending remittances ranged between 10 and 20 per cent of the total amount sent. These high costs lower the actual amount that reaches the remittance receiver and thereby its impact on welfare. It also could cause the sender to send the remittance through informal channels or not to send it at all. Newer data, presented by the IDB (2005), stated that the average cost of sending remittances has fallen to 7 per cent. Although the costs decreased, they still form a substantial part of the transaction sent.

Sending remittances through informal channels is another problem. Remittances sent through informal channels are hard to measure and banks have problems in distinguishing remittances from other private transfers (International Migration Outlook, 2006). This will make the collection of data difficult. Under Secretary of the US Treasury of International Affairs John Taylor said that remittances sent through informal channels are at least 50 per cent of the recorded remittances (Taylor, 2004). Under-reporting and non comparable data between countries is the result of this bad data collection (López-Córdova and Olmedo, 2006).

Another problem is the amount of poor people involved in the banking sector. This is partly caused by the banks. Banks do not consider remittances as one of their important businesses since it is not the most profitable one and remittances are most of the time sent by persons who are not very wealthy and therefore enjoy little attention from banks (Ratha and Riedberg, 2005). The lack of involvement with banks is also caused by the lack of financial knowledge of the poor people themselves. Few poor in the financial system and the lack of

financial knowledge will result in the use of informal channels and a lower volume of remittances.

The amount of remittances sent to LAC is already quite high. Yet, improvements of these weaknesses can increase the remittance flow. Measures are needed, since the flow of remittances are expected to stabilize in the next couple of years thanks to the worldwide financial crisis (Ratha et al., 2008).

6.1.2 Improvements to enhance the effectiveness of remittances

The previous named problems could be resolved when remittance companies, but also governments of remittance sending and receiving countries, take several measures.

The high transaction costs could be diminished in several ways. An increase in competition is an important solution. Governments should improve the remittance market by means of harmonizing the regulations. This will increase the number of remittance companies and thereby increase the competition which will result in better service and lower costs (Ratha and Riedberg, 2005). Remittance companies in the United States only need a license for remittances or even no license at all to perform their business. This in comparison to other countries, where a banking license is needed. The problem which arises in the United States is the difference in regulations between states. Ratha and Riedberg (2005) show the enormous differences between states in the United States when it comes to bonds and net worth. While a remittance company in Texas needs a net worth of half a million and bonds between \$100.000 and \$400.000, not even 2 per cent of that net worth is needed to start the same business in Alabama. Harmonizing the regulations for remittance companies would make the market more synoptic, and thereby increase competition.

Another important measure stressed by different studies is the allowance of illegal migrants to have a bank account. This would give them the opportunity to send their money through formal channels, since the holding of a bank account is most of the time a requisite. Whether or not this idea is supported by banks too, more result can be obtained by choosing the right remittance sending technology in my opinion. A much used technology to send remittances to the Philippines is through mobile phones (Ratha and Riedberg, 2005). The money of the migrant is sent via a remittance company, which is affiliated to a mobile phone provider. In some cases, a visit is not even necessary. The Filipino gets a text message which informs him of the remittance transfer. The amount sent will be stored on his prepaid card. He can either use this pre-paid card directly to purchase goods, or he can choose to withdraw his

money from a cash machine or from affiliated stores. It would be wise to widely use this technology for remittances from the United States to LAC too. The only requirement is that a large part of the Latin American and Caribbean population has a mobile phone. Since 67 of the 100 people in LAC are subscribed to a public mobile phone service, there is no problem in fulfilling this requirement.¹⁵ Using this system will significantly lower the transaction costs. Ratha and Riedberg (2005) estimate costs to be \$2 in the remittance sending country (in this case Hong Kong), and 1 per cent of the transaction plus the costs of the text message (between 4 and 5 cent) in the Philippines. If the remittance would be \$300, total transaction costs would be \$5.05. This comes down to only 1.7 per cent. This would be a huge decrease compared to the average 7 per cent charged nowadays. As long as the remittance is larger than \$34, the transaction costs will be lower than the current average transactions costs. Besides the lower transaction costs, prepaid cards can be used by people which are not involved in the banking sector and can reach people in even the most poor and isolated parts of a country.

De Vasconcelos (2005) stresses the importance of the hidden cost structure of remittance companies. The transparency in the cost structure should be improved according to that study. The problem is that companies are always shivery to inform others about the costs they make for a specific product, since this would diminish their competition position. Transparency in the cost structure is only possible when it would be obliged by the government. Since this would lead to more regulation, it seems not wise to demand complete insight in the cost structure of companies. It is important to create conditions to lower the transaction costs as much as possible, instead of focusing on how much the costs of companies actually are at the moment.

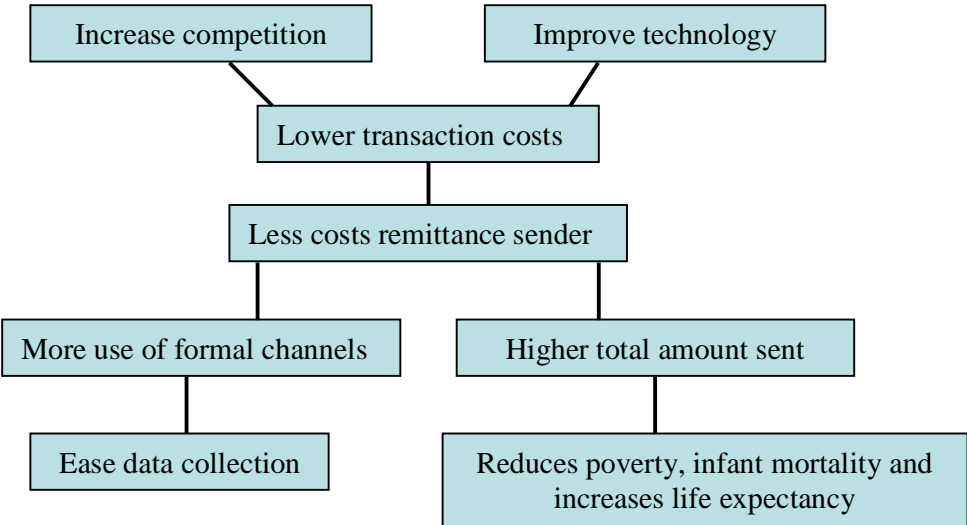
An increase in the flow of remittances can have a large impact on the welfare of the poor in LAC. Lower transaction costs will lead to an increase in the amount of remittances. Governments can increase the amount by not taxing the flows. Western Union, one of the largest money transfer companies, is obliged by the United States government to tax remittances by 0.15 per cent. Cancelling this tax would increase the amount of remittances. Since illegal migrants do not pay taxes on their income, this is a disguised income tax. Still, when a legal migrant uses the service of Western Union, the remittance is taxed too. To exempt the remittances sent by legal migrants from taxes would be nothing more than fair and would lead to increases in the amount of remittances.

¹⁵ Data is from the International Telecommunication Union, World Telecommunication Development Report and database, and World Bank estimates.

Governments can add a certain amount of money to each remittance transfer of a migrant too. States in Mexico and El Salvador already have such initiatives, where the government spends two or three dollars on infrastructure, for each dollar donated by the migrant (López-Córdova and Olmedo, 2006). Raising the remittance transfer with a certain amount or percentage will encourage people to use formal channels and to send even more. Governments of countries in LAC can also improve the financial sector frameworks to increase the possibilities and effectiveness of the remittances services and to ease the collection of data (MIF-IDB, 2004). Lowering costs and risk are key to enhance the effectiveness of spending, investing and saving of remittances.

Lower transaction costs will promote the use of formal channels, which will simplify the data collection. Increasing the knowledge of the people about the financial sector will raise the interest in and involvement of people with the banking sector. A task is reserved for both governments and remittance companies to educate the poor. Other measures stressed earlier can be taken to raise the volume of remittances and thereby its effect on welfare. All of them would have a positive contribution, but some of them are more important than others. It seems that measures to lower the transaction costs are the most important ones. Besides the direct effect of the lower costs for the remittance senders, it increases the amount of the remittances received by the people at home, increases the usage of formal channels and thereby will ease the collection of data. Although it has not been investigated which measure is the most effective one, it seems that lowering the transaction costs unleashes a chain reaction.

Figure 6.1 – Chain reaction of lowering transaction costs



It is difficult to affect the purpose of remittances. Once people in LAC have the money, it can not be expected that it will be used differently than their other income. Therefore the focus should be at measures raising the total volume of remittances.

6.2 Foreign aid

The previous chapters in this study showed that foreign aid has varying effects on the welfare in LAC. Foreign aid only contributed positively to poverty reduction when the squared poverty gap was used as indicator, and this result is probably even biased because of the possible reverse causality. While aid has a significant effect on lowering inequality and infant mortality, it does not affect the life expectancy of the Latin American and Caribbean people. Most of the recommendations to improve the influence of foreign aid can be divided in four components: recommendations concerning the allocation of aid, the policy environment, the spending of aid, and the total volume of aid. These changes can enhance the welfare effect of aid in LAC.

6.2.1. Improvements to enhance the effectiveness of foreign aid

A better allocation of aid goes hand in hand with the responsibility of the receiving countries to improve their policies. Aid is more effective when it is allocated to countries with policies and institutions that enhances a country's economic condition (Collier and Dollar, 1999). A low level of income is, besides good policies and institutions, a prerequisite too. A combination of high poverty rates and relatively good policies and institutions assures that aid will have the most effect (Sawada et al., 2008). Radelet (2004) also argues that countries with strong policies should not only receive more aid, but also must have a say in the spending of it. This in contrast to countries with a weak policy environment, which should receive less aid, but also for a shorter period of time and in the form of project aid. One could criticize the suggested efficient allocation. Poor countries in the presence of some uncontrollable disadvantages, like the climate, are ignored according to the efficient aid allocation since poverty would not be lowered much when aid would be provided. Other poor countries would end up with much less aid than they receive now because of the presence of a corrupt government. Llavador and Roemer (2001) argue that aid should be allocated according to an equal-opportunity allocation. The different allocation principles all have its advantages and

disadvantages. While the poverty-efficient allocation neglects the less poor and the poor countries with disadvantages outside their control, the equal-opportunity allocation does not maximize poverty reduction in the world. I want to stress the goals that were set by 189 countries worldwide during a United Nations conference in September 2000, the so-called millennium development goals (MDG). The first MDG is to halve the proportion of people whose income is below one dollar a day between 1990 and 2015. The MDGs have been made and must be achieved. Therefore the focus should be on actions which enhance the chance of achieving these goals. A poverty-efficient allocation is more successful in lowering poverty than the equal-opportunity allocation. Governments and aid agencies should therefore opt for this strategy. There is no need in providing aid to countries where it does not affect the living conditions of the poor. This does not mean that poor people in countries with a weak policy environment or with uncontrollable disadvantages will never receive aid anymore. Ultimately, aid receiving countries become less poor, and aid will be targeted to other countries. Over time, each country will receive aid. Some only sooner than others. Even the countries with the weakest policies will receive aid at the end of the day. Achieving the MDG, which is a goal countries have set for themselves, is most plausible when a poverty-efficient allocation is applied.

Since LAC is less poor than other regions, changes in policies and institutional environments in LAC are therefore probably the most important improvements that have to be made. It will cause LAC to receive more foreign aid and to allow it to be more effective. Distributional policies, for instance tax policies that tax the rich heavier than the poor, the presence of social safety nets and other policies which enhance the economic situation in a country are important (Collier and Dollar, 1999). Although only a fourth part of Latin American and Caribbean countries is added to the IDA (International Development Association) Resource Allocation Index (IRAI), it is clear that on average the public sector management and institutions is the weakest cluster from the four clusters from which the list has been built up. These countries can gain especially in improving the property rights and rule-based governance and by improving the quality of the public administration.

When the right policies are in place and foreign aid is actually allocated towards LAC, it is important how to spend it. According to this study, foreign aid lowered inequality and infant mortality. Public spending on education, sanitation, and health seem to be key in lowering inequality and infant mortality, and maybe makes it even possible to lower poverty and increase life expectancy when the allocation is efficient and more aid is provided.

LAC received slightly more than 6.9 billion dollars development assistance in 2006. This is not much compared to other regions in the world, only 7.9 per cent of the world total, or compared to capital flows like remittances. The total amount sent by the Development Assistance Committee (DAC) countries was only 0.28 per cent of their total GNI in 2007.¹⁶ This comes down to an amount of almost 103.5 billion dollars. The goal that each donor would have to spend 0.7 per cent of their GNI would raise this amount to almost 260 billion dollars in 2008. If this amount would be divided the same as in 2006, LAC would have received 20.4 billion dollars of foreign aid in 2008. Unfortunately, it does not seem plausible to assume that the world will more than double its aid expenditures in just one year. Preliminary data from the OECD show that in 2008, DAC countries have spent 0.3 per cent of their GNI on foreign aid. In the presence of the current financial crises, there is a chance that countries even lower their aid expenditures in the next couple of years.

When countries improve their policies and institutions, aid should be targeted to the poorest countries with relatively the best policy environment. When these conditions are met, and aid is spent in welfare enhancing sectors, it will pay off even more to raise the total amount of aid. Since LAC does not belong to the poorest aid receiving countries in the world, it is extremely important to enhance its policy environment and to spend their received aid in those sectors which influences the lives of the poor the most.

6.2.2 The effect of an efficient aid allocation for LAC

When the donor countries allocate their aid efficiently, some regions will witness an increase of foreign aid, while some will have less.

Using the World Bank its CPIA index, Collier and Dollar (2000) showed that LAC had the best policies from the entire developing world, followed by East Asia and the Pacific. 'Unfortunately', poverty is not high enough compared to other regions. Sub-Saharan Africa, South Asia and also East Asia and Pacific are poorer than LAC, which will make the effect of aid on poverty stronger.

Collier and Dollar (2000) estimated that poverty in LAC, measured as the headcount based on \$2 per day, would drop from 43 per cent in 1996 to 26 per cent in 2015 if current trends in policies, aid allocation and the amount of aid which is sent persist. This would be quite an improvement. Table 6.1 shows the improvement so far.

¹⁶ Source: OECD.

Table 6.1 – Poverty in the developing world

Region	Poverty (Headcount, \$1 per day, %)		
	1990	2005	2015
East Asia and Pacific	54.72	16.78	27.36
Europe and Central Asia	1.96	3.65	0.98
Latin America and the Caribbean	11.32	8.22	5.66
Middle East and North Africa	4.31	3.6	2.16
South Asia	51.71	40.34	25.86
Sub-Saharan Africa	57.58	50.91	28.79
Developing World	41.9	25.19	20.95

^a Source: World Bank

^b Poverty rates of 2015 represent the MDG that poverty, compared by 1990, should be halved by that time.

To achieve the MDG in LAC, extreme poverty will have to drop around 2.5 per cent in a period of ten years. This does not seem to be impossible. Nevertheless, there should be consensus between the MDG to halve poverty by 2015 and the poverty-efficient allocation. Poverty-efficient allocation could mean that some poor regions will not reach the goal of halving poverty since they would receive little foreign aid. But since the goal is to halve poverty in the entire world, we should not look at it on a regional level, but at a global level. Moreover, it is important to reach agreement to what extent the allocation of foreign aid should change when a country’s poverty rate lowers or when its policies improve (ODI, 2007).

When the allocation is altered, LAC could receive less aid than before. High poverty regions like Sub-Saharan Africa and South Asia have weaker policies and institutions than LAC. Improvements made in those regions will have a much bigger impact than improvements in LAC. When the donor countries will allocate their aid to the poorest regions with the relative best governance, it is possible that LAC will get less aid, while other regions will receive more. The only way it seems that LAC will get more aid than it gets now, is when it is able to improve its policies and institutions relatively more than other regions or when the donor countries increase their amount of aid.

More interesting than the amount of aid LAC will receive in the future is what its effect will be on welfare. Collier and Dollar (2000) tried to estimate the impact of multiple scenarios on poverty in several regions in the world. Whether aid will be allocated efficiently or more aid will be sent together with an efficient allocation, the poverty headcount of \$2 a

day will not decrease any further than the 26 per cent in the baseline scenario. Whether the same insignificant effect holds for the poverty headcount of \$1 a day is not investigated. A possible reason for the ineffectiveness could be the small role that foreign aid has in reducing poverty in LAC in the presence of the current policy environment and aid spending.

Since efficient aid allocation, either accompanied with more aid or not, will possibly not lower poverty more than in the current situation, the actions LAC will take in the future will be extremely important. Improving its policy environment even more, especially when it comes to the property rights and rule-based governance and the quality of the public administration, could give them an advantage above poorer countries in the world with a weak policy environment. If LAC will not succeed in improving their policies and institutions, it could end up with much less aid than it receives now, when a poverty-efficient allocation is accomplished. Investing it in welfare enhancing sectors is important too. Spending foreign aid in sectors as education, water and sanitation, and health seem to be key.

7. Summary and conclusions

This study has shown that both remittances and foreign aid positively affect the welfare of the Latin American and Caribbean people. Remittances have a significant poverty reducing effect. This is mainly caused by the fact that the largest part of this substantial capital flow goes to the poorest people. Remittances are found to have an insignificant effect on inequality. This corresponds with most studies investigating LAC. Although remittances are mostly distributed towards the lowest income quintile, this is probably not enough to reduce inequality. Both life expectancy and infant mortality reduction are positively affected by the inflow of remittances.

The effect of foreign aid on the welfare of the people in LAC differs compared to that of remittances. Poverty, aid its main target, is unaffected by the inflow of foreign aid. Although aid is targeted towards the poorest countries of LAC, it is not targeted to the ones with relatively the best policies. This could be a cause of the insignificant effect on poverty, together with the low amount which is actually sent to LAC. Aid does have an inequality reducing effect on LAC. The presence of corruption in some countries does not cause the effect on inequality to be insignificant. While foreign aid does not have an influence on life expectancy, it does have a reducing effect on infant mortality. The negative effect on infant mortality is as expected, since a large part of aid is spent in infant-mortality-reducing sectors.

This study's objective was not to show whether remittances or foreign aid are more important, but to address the importance of both flows and their effect on welfare. Several measures should be taken to strengthen this effect. Lowering the transaction costs to send remittances is the most important one. Increasing the competition and improving the technology are important measures to lower the transaction costs and thereby increase the total amount of remittances sent to LAC. Using a mobile phone prepaid card to send remittances as a standard will lower the transaction costs significantly, while competition in the remittance market will increase when regulations are harmonized. Not taxing remittances by the host country will contribute to the total volume sent. Remittance receiving countries can raise this amount by adding a certain amount to the remittance as complementary to these measures. Increasing the knowledge of people about the financial sector is important too.

It is important for aid donors to improve their allocation. Aid should be targeted towards countries with the highest poverty rates and the best policy environment. This way, foreign aid its effect will be maximized and the chance of achieving the MDG of halving extreme poverty will be the highest. The focus of LAC should be on improving their policy environment and to spend their aid well. When the donor countries allocate their aid to the poorest regions with the relative best governance, LAC could receive less aid since poverty rates are much higher in other regions. Much can be gained by improving the poverty rights and rule-based governance and by improving the quality of the public administration. Public spending on education, water and sanitation, and health seem to be key in lowering inequality and infant mortality. The total amount of aid sent by DAC countries was only 0.28 per cent of their GNI in 2007, this in comparison with the agreed 0.7 per cent. If this target will be reached, the amount of aid that LAC receive will more than double. Increasing the volume of aid is important, but can only affect LAC welfare when the right policies are in place and when it is spent well.

Both remittances and foreign aid are important flows for LAC and seem to be complementary. A positive welfare effect of both flows is found in this study. Where remittances lower poverty and infant mortality and increases the life expectancy, foreign aid reduces inequality and infant mortality. Future research should be focused on the channels through which both flows are effective and which measures are the most effective in increasing the impact of both remittances and foreign aid on the welfare of the Latin American and Caribbean people. In the presence of the current financial crisis it is plausible, though not desirable, that both flows will diminish in the near future. This makes it even more important to spend both flows of funds as effectively as possible.

8. Appendix

Table 8.1 – Description variables

Variable name	Description	Source
Remittances	Workers' remittances and compensation of employees, received (US\$).	All data is provided by the World Bank, World Development Indicators Online.
Foreign Aid	Official development assistance and official aid (US\$).	
Poverty	Poverty Headcount, poverty gap, and squared poverty gap are used. All three are explained in the text.	
GINI	The extent to which the distribution of income within an economy deviates from a perfectly equal distribution.	
Life expectancy	Life expectancy at birth for an infant if prevailing patterns of mortality stay the same during his live.	
Infant mortality	Number of infant dying before reaching one year of age.	
GDP per capita	Gross Domestic Product per capita based on purchasing power parity (ppp) in constant 2005 International dollars.	
Foreign direct investment	Net inflows of investment to acquire a lasting management interest (US\$).	
Unemployment	Share of the labour force that is without work but available for and seeking employment.	
Capital stock	Gross Capital Formation; outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Measured as percentage of the GDP.	
Immunization DPT	Percentage of children ages 12-32 months who received vaccinations before 12 months.	
Percentage living in urban areas	Midyear population in areas defined as urban as percentage of total population.	
Distance	Distance between the most southern point of the US (Florida, Key West) and the capital of a country in LAC.	
GDP per capita US	Gross Domestic Product per capita based on purchasing power parity (ppp) in constant 2005 International dollars.	
Aid previous year	Official development assistance and official aid (US\$), lagged one period.	

Table 8.2 – Country list

	Poverty	Inequality	Life Expectancy / Infant Mortality
Remittances	Argentina, Bolivia*, Brazil*, Chile*, Colombia*, Costa Rica*, Dominican Rep.*, Ecuador*, El Salvador*, Guatemala*, Guyana*, Haiti*, Honduras*, Jamaica*, Mexico*, Nicaragua*, Panama*, Paraguay*, Peru*, St. Lucia*, Trinidad & Tobago*, Uruguay, Venezuela*	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Rep., Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad & Tobago, Venezuela	Antigua & Barbuda, Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts & Nevis, St. Lucia, St. Vin. & Gren., Suriname, Trinidad & Tobago, Uruguay, Venezuela
Foreign Aid	Argentina, Bolivia*, Brazil*, Chile*, Colombia*, Costa Rica*, Dominican Rep.*, Ecuador*, El Salvador*, Guatemala*, Guyana, Honduras*, Jamaica*, Mexico*, Nicaragua*, Panama*, Paraguay*, Peru*, Trinidad & Tobago*, Uruguay, Venezuela	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad & Tobago, Uruguay, Venezuela	Antigua & Barbuda, Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts & Nevis, St. Lucia, St. Vin. & Gren., Suriname, Trinidad & Tobago, Uruguay, Venezuela

^a Stars are added in the poverty column. They indicate that the country is used for each poverty indicator. When there is no star added, the country is only used when the poverty headcount is used as poverty indicator.

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