Migration as a Safety Net and Effects of Remittances on Household Consumption: The Case of Colombia

Lina Cardona Sosa[†]
Carlos Medina[*]

Abstract

We assess whether international remittances affect Colombian household's expenditure composition and demand of education. We exploit the migratory wave that took place on late 90s due to one of the deepest crises in Colombian history, along with institutional barriers to migration, to identify the effect of remittances on expenditure composition. The empirical exercises find a positive effect over education, beneficiary households expending about 10% of total expenditure more in education than non beneficiaries. In addition although no effect was found on enrollment rates, we found an important effect on the probability of attending a private, rather that a public, educational institution. Such effect is on average 24% for individuals 5-30 years old, 50% for those attending secondary education, and 40% for those attending higher education. On the other hand, effects over consumption, investment and health expenditure, are nil. Finally, we find important effects of remittances on living standards of beneficiary households.

Keywords: International Remittances, International Migration, Safety Net, Consumption Composition
JEL Codes: F22, I31, P36

1. Introduction

The migration phenomenon regained importance in late 1990s in Colombia. This was not only because of the migratory wave that distorted the long term pattern of increasing international mobility of the work force, but also because of the transfers that emigrants who are currently working abroad have sent to their relatives that stayed in Colombia. This figure has been drawing increasing attention, as their aggregate amount at the nationwide level, increased from less than US$0.8 billion (0.8% of GDP) in 1998, to US$3.06 billion (3.8% of GDP) and US$3.17 billion (3.3% of GDP) in 2003 and 2004 respectively. The uncertainty inherent to its measurement, and to its initial source of funding, has generated increasing polemics regarding whether revenues from remittances are a channel through which other types of funds enter into the economy, to what extent such inflows can explain the evolution since 1999 of local currency relative to the US dollar, and for how long will they be sent. Efforts have been concentrated in verifying the total amount in remittances entering the country, and in explaining the socioeconomic profile of beneficiaries. Likewise, they try to identify if in fact that flow of resources corresponds to the revenues of Colombians currently residing abroad (verifying net migration).

In as much as the flow of remittances corresponds to a transfer of private resources among sectors and individuals, the role they play in income redistribution should also be considered, as well as their potential effect on the composition of Colombian households' expenditure. The latter should also shed some light on the performance, at the aggregated level, of remittances, in the sense of whether they constitute or not revenues in favor of human capital accumulation, investment, and long term growth, be it permanently or temporarily. Had these resources affected

1

consumption composition of household sensibly, for example in education or health, given the magnitude of remittances, they should be considered when evaluating government policies.[1]

Lack of household data on migration and remittances has encumbered the study of the phenomenon, and thereby, little has been done in terms of the impact these revenues have on total spending by households. Even though remittances have a final use that may be consumption, investment or savings, among others, their impact is more tangible when observing the marginal increase in the mentioned uses, in contrast with the final destination their income would have had in the case they did not receive the remittance resources.

This paper seeks to determine the role that remittances play on consumption level, demand of education, and living standards of their beneficiary households. Figure 1 describes a sequence of facts to address in order to answer our questions. We observe households in 2003, those that receive remittances and those who do not, and we compare between these groups their consumption profile and living standards as described by (1) and (2) in the figure. Even though the figure leaves open the possibility that some remittances could go to purposes other than household's expenditures, as we will see, under reasonable assumptions it is found that total amount of remittances reported by households in surveys is consistent with the total amount reported in the balance of payments (BP) category for remittances (3 in the figure).[2]

---

[1] Remittances have recently reached levels of magnitude close to those of total public expenditure in health.
[2] Had households reported in surveys they had received remittances in an amount much lower than that accounted for by the BP, it could be because part of the remittances included in the BP were not used to cover household's expenditures, but maybe, other types of investments or expenditures of people not in the household.

Figure 1. Sequence of Crisis, Migration and Remittances Experienced by Colombia
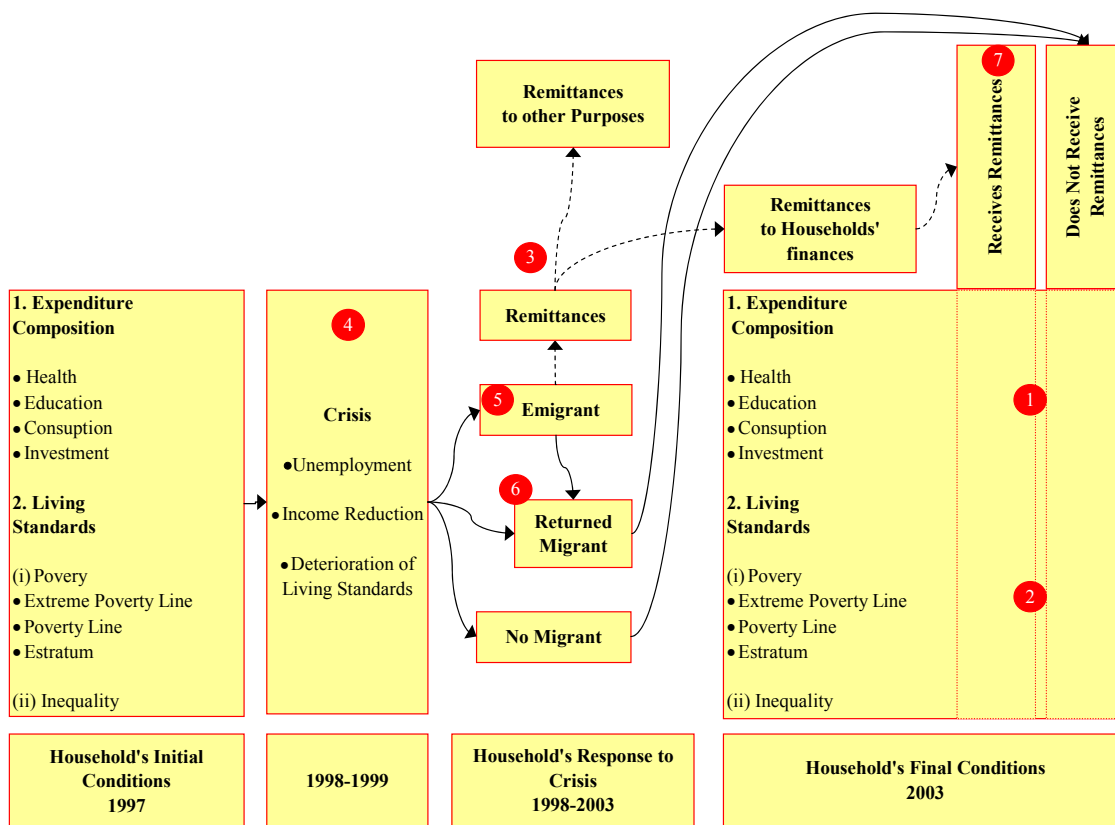
In order to identify the effect of remittances on consumption, it is sought to inquire about their origin, so that we can control for its potential endogeneity. As we will argue, the economic crisis that took place in Colombia between 1998 and 1999 played a key role in the migratory activity observed thereafter, which was correspondingly followed by the constant increase in remittances (4 and 5 in the figure). We use the migratory response of households as a source of exogenous variation to identify the effect of remittances on household's consumption decisions, since migration was meant to cope with the crisis and not to affect in any way such decisions. Thus, we characterize beneficiary households of remittances, but also emigrants, and returned migrants (5-7 in the figure), and use this information to estimate Engel curves, and per capita expenditure levels, for expenditures on health, education, consumption and investment, explained by whether

household receives remittances, along with other control variables. We also estimate the determinants of schooling attendance to private or public institutions.

The results of empirical exercises suggest that, with the exception of a positive effect on education spending, remittances would not have additional effects on the composition of household spending.

In addition, it can be observed that the revenue from remittances not only represents a considerable share of the total revenues their beneficiary households, but also allowed for an improvement in the distribution of income. Nonetheless, the greater income that receptor households have available has not generated substantial increases in the marginal spending on healthcare, consumption and investment. The insignificance of the additional increase in the abovementioned expenditures by households receiving remittances, backed by the demonstrated importance of having a family member leaving the country between 1998 and 2002 (recession period) in the probability of receiving or not remittances, gives indications that the remittance may have turned into an income allowing many households to sustain their initial status.

Along these lines, the final result of the migratory activity and the corresponding evolution of remittances the country experienced in recent years would have rather played a role as a mechanism of social protection for households to keep the living standards they had before the crisis, than as a factor that would have induced significant changes in their spending decisions.

2. Previous Work

Incentives for migrating

To better understand the money transfer phenomenon, and the amounts involved in transfers, it is useful to contextualize who are the people that migrate from the country and the reasons for their migration.

Besides comparing the cost of migrating and the income that they expect to get in the country of destiny versus the income they get in the origin country, the decision to migrate is strongly influenced by the composition and features of the household and family ties (Borjas and Bronars 1991). The above mentioned circumstance is evident in the political decisions of some countries, such as the United States, which favors in particular those persons that already have family members living in that country.

According to Borjas and Bronars (1991), families act as maximizing agents in the moment they realize that the migration of one of its members will eventually increase their income.[3] They argue that countries with higher income inequality would have higher returns to skills than those with less inequality, and thus, less skilled individuals would gain more from migrating to a more equal society than highly skilled. They define such type of migration as negatively selected (immigrant skills are below average).

The income of an unmarried immigrant will also be influenced by its family composition. In fact when there is positive selection (the most qualified people leave) an unmarried immigrant will have earnings above that of an immigrant with a family, while when there is a negative selection (less qualified people leaving) the earnings of an unmarried immigrant will be below that of an immigrant with a family.

---

[3] The intuition is closely related to that used by the Roy Model (Roy 1951).

Since the immigration is part of a maximizing strategy of the household, part of the earnings in the destiny country will go to the origin country as remittances. But, which are the factors that determined the money transfers? The economical literature finds in Lucas and Stark (1985) three reference terms that try to explain this.

The first one makes reference to plain altruism or benefits that the person sending the money gets by sending these resources to the beneficiaries. The second one deals with the migrant's self-interest. Lucas and Stark describe three cases in which self-interest may work: (i) remitter's aspiration to inherit, assuming that the larger the remittance the larger the potential to inherit, (ii) investing in physical or human capital in the country of origin as a way of saving, and (iii) desire to return home in the future, which would move remitters to invest in physical capital for his own future maintenance, or for the migrant's prestige or influence.

The third reason for sending remittances is that which makes reference to a type of informal contract between migrant and home. Johnson y Whitelaw (1974) report cases in which there has been a strong correlation between the most highly-educated individuals and their sending remittances, and therefore, they conclude that their sending remittances corresponds to an amortization of the *investment in migrant's human capital* family made some years ago. On the other hand, decision to send money may also make part of migrant's risk diversification strategy.

The importance of why immigrants send remittances is a key point for identifying the amount of the transfer and its permanence throughout the life cycle. Hence, individuals sending because of altruism implies greater transfers to the poorest households (which originally allocate more

6

resources to consumption), and that is coherent with what Lucas and Stark mentioned, of remittances being a private source of income redistribution.

The motivation of self interest, on its part, may lead to investment and also to some savings, and that may imply two things: on the one hand, the desire of returning (which implies that the flow of resources will not prevail through time), and on the other hand, the contribution to growth via savings and investment.

Beyond what we can infer from information on remittances, there is the information provided by the returnees. Among other things, identifying who they are would help determining in an indirect form whether there will be continuity in the flow of remittances. As Borjas and Bratsberg (1996) stated, the existence of the returnee (person who returns to his/her country of origin), not only backs the fact that migration decisions are reversible, but also that decision to return may have been planned ahead (as part of the life cycle, accumulation of resources and temporary savings), or, otherwise, that it corresponds to a decision made upon erroneous information about the economic conditions in the country of destination. For the USA, the authors find that return migration accentuates the type of migration characterizing immigrant population in the country.

3. Data

To estimate the potential effect of remittances on household's expenditure composition, we use the Living Standards Measurement Survey 2003 (*Encuesta de Calidad de Vida*, ECV03), carried out by the Administrative Department of National Statistics, DANE, but we also get estimates using the survey of International Immigrants and International Remittances in the West Central

Metropolitan Area 2004 (*Encuesta del Area Metropolitana Centro Occidental*, AMCO). To understand the recent migratory activity, we use the AMCO survey, the reports of migration by the Administrative Department of Security of Colombia, DAS, the 2000 United States Population Census, and the immigration statistics of the United States from U.S. Department of Homeland Security (2004). Next we describe each of these data bases.

3.1 Living Standards Measurement Survey 2003, ECV03

This survey was conducted in 2003 to more than 20,000 households across the country, and it is conducted approximately every five years, with the final goal of monitoring the living standards of Colombian population. The survey is abundant in socio economic information, income, household composition, etc. It includes the following question about international remittances: "Have you received any cash income as means of support coming from any other household or institution? (parents, children, relatives, friends)". In case the answer is affirmative, the person is asked if the money came from within the country or abroad or from both parts. Finally, they are asked the amount of money received.

3.2 Survey on International Immigrants and International Remittances in the West Central Metropolitan Area 2004, AMCO

The sampling framework of this survey is made up by the households of the Metropolitan Area of the west central region of Colombia (municipalities of *Pereira*, *Dos Quebradas*, and *La Virginia*) and that appeared in the counting of houses, households and economical units carried out by DANE the first quarter of 2004. In that counting of housing units, DANE asked whether households had any migratory experienced (current emigrants or returned migrants), and whether

8

they received remittances. Thus, the survey was designed to be statistically representative of each of these two populations across socioeconomic strata (See table 1).

Table 1. AMCO Households by Group of Interest

| | With Migratory Experice | | | | | | Without Migratory Experiece | | Total | |
| | With Remittances | | Without Remittances | | Total | | | | | |
Stratum	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1	139	14.2%	78	14.00%	217	14.1	67	14.2%	284	14.2%
2	156	15.9%	83	14.90%	239	15.6	68	14.5%	307	15.3%
3	159	16.2%	84	15.10%	243	15.8	68	14.5%	311	15.5%
4	149	15.2%	81	14.50%	230	15.0	67	14.2%	297	14.8%
5	129	13.2%	76	13.60%	205	13.3	66	14.0%	271	13.5%
6	92	9.4%	70	12.60%	162	10.5	55	14.0%	228	11.4%
Not Reported	152	15.5%	83	14.90%	235	15.3	67	14.2%	302	15.1%
Total	976	100%	555	100%	1531	100%	469	100%	2000	100%

Source: Dane (2004)

The Chapter dealing with international remittances in this survey is very accurate and complete and includes among others the following questions: How many persons send you money from abroad? How long have you been receiving money from abroad? What relationship do you have with the people that send you money from abroad? How often do you receive this money from abroad? How much did you get the last time they send you the money? How do they send you this money?

3.3 Data Consistency

This section assesses the accuracy of the remittances figures included in the ECV03 and AMCO, that is, it tests the accuracy of household surveys to capture the main regularities observed in official records of remittances. On one hand, AMCO survey seems to have accurately captured the key characteristics of remittances, namely the number of transfers and the total amount transferred by level of transfer, as it becomes clear from table 2.

Table 2. Consistency of Individual Amounts of Remittances Reported in AMCO

Interval in US$	Number of Transfers		Total Amount	
	Regulated Money Exchange[*]	AMCO	Regulated Money Exchange[*]	AMCO
< 100	41.4%	46.2%	10.4%	14.4%
100-200	28.8%	32.4%	17.6%	30.3%
201-300	10.3%	9.5%	11.2%	14.8%
301-400	4.9%	5.9%	7.5%	12.9%
401-500	3.9%	0.4%	7.7%	1.0%
Mas 500	10.7%	5.6%	45.7%	26.5%
Total	100.0%	100.0%	100.0%	100.0%

[*] Source: Exchanges under the supervision of Government's Superintendency that account for 40% of remittances sent to the AMCO region

Table 2 shows how distribution of the number of transfers, and the total amount of money transferred, by amount of each transfer, closely resembles that of official records provided by exchanges.

On the other hand, Table 3 illustrates a key feature of ECV03: it accounts for less than one eighth of the total amount of remittances received by Colombians from abroad, based on BP, in the same period of time ECV03 households were asked to report how much they received. Its underestimation of remittances is as well present in the AMCO Region, as long as the total amount of remittances sent to several states covered by the ECV03, add just as much as the total amount of total remittances sent to the AMCO region in such survey on year later, while average monthly amounts sent to those states are less than 70% of that received in the AMCO region.

Table 3. Key Figures to Assess the Accuracy of Remittances in Databases

Region	ECV		AMCO	Official Records [**]	
	National	Central[*]	AMCO	Nat., Jun/03	Nat., Jul/04
Annual Amount ($1000 of Mill.)	800	155	153	6,500	7,500
Monthly amount per recipient household ($1000)	173	353	518		
Average transfer per recipient ($1000)			423	780	
Percentage of recipient households	1.0	2.9	5.6		

[*] Central: Risaralda (which includes AMCO), Caldas, Quindío, Huila, Tolima

[**] Source: Colombian Balance of Payments, *Banco de la República*, Collazos et. al. (2004), and exchanges reports.

In short, the ECV03 survey is more likely to have underestimated the total amount of remittances than the AMCO survey. Nonetheless, we have no reason to think that the underestimation of remittances registered in the ECV could be different in capital municipalities than it was in not capital municipalities. Thus, we proceed to estimate the total amount of remittances received by households according to household surveys based on two assumptions: (i) that the underestimation bias is maintained across these different types of municipalities, to use the ratio of the average remittances received by them, and (ii) that the presumably unbiased average amount of remittances received by household in the AMCO region according to the AMCO survey, can be used as the average remittances received by the average individual in any capital municipality, to get the total amount of remittances received by household according to household survey. Such estimation is presented in table 4.

The estimated remittances account for 128% of those registered in the BP. Such overestimation might be explained due to assumption (ii), since a priori information would permit to argue that average remittances received in the AMCO region should be larger than those received by an average individual of the rest of the capitals of the country.[4]

---

[4] Also average remittances estimated for the AMCO region, as defined in the ECV according to table 3, are larger than that in the rest of the country.

Table 4. Annual Remittances Based on Household Surveys

Región	ECV 2003				
	Annual Remittances ($ Millones)	Population (Individuals)	Per Capita Annual Remittances ($/Individual)	Total People Observations (Individuals)	Total Observations of recipient People (Individuals)
Total Nacional, ECV03	789,259	43,701,349	18,060	85,150	786
AMCO 2004	153,000	450,000	340,000	8,277	962

Remittances 2003 based on BP ($ Millones)	6,500,000
Remittances 2004 based on BP ($ Millones)	7,500,000
Ratio (2004/2003)	1.15

Estimations of Remittances at the National Level

Assumptions: (i) Capitals Average Remittances= Average Remittances AMCO, and (ii) Ratio Average Remittances Capitales/Average Remittances Not Capitals in ECV03 is kept

	Remittances ($ Millions)	Population (Individuals)	Per Capita Remittances ($/Individual)
Annual Averga Remittances 2004 Capitals Based on ECV03	6,005,362	17,662,829	340,000
Annual Averga Remittances 2004 Not Capitals Based on ECV03	3,628,155	26,038,520	139,338
National Annual Remittances ($ Millions)	9,633,517	43,701,349	
Percentage of Remittances Based on BP	**128.4**		

Source: ECV03, AMCO 2004.

4. Reasons for Migration in Colombia in Late 1990

Even though the migration movement of Colombians has shown a significant increase without any precedents in late 1990s, it became notable since early 1960, in particular to the United States. Part of the history of Colombia's migration dynamics is shown in figure 2. The figure was built using the AMCO survey, carried out in Pereira and its metropolitan area, and the 2000 Population Census of the United States.

AMCO survey has used information obtained through a representative sample of households with migratory experience. The figure shows the distribution of the year of emigration of all current emigrants reported by the households, as well as those who emigrated to the United States, and those who emigrated to Spain. The 2000 Population Census of the United States, on the other

hand, gathered the same type of information for residents of the United States whose country of origin was Colombia.

Comparability of curves built based on information taken from the AMCO survey viz á viz data built based on the American Census, significantly depends from the migration phenomenon to be considered. For instance, if the migration of Colombians to the United States around mid 1960 was caused by flexible migration requirements of that country towards immigrants, as suggested by Gaviria and Mejía (2005), we could argue that a representative sample of Pereira and its metropolitan area would be sufficient to draw conclusions on the migration dynamics of the country, taking into consideration that at that time, and even now, the possibility to migrate to the United States, was almost an exclusive possibility of the higher economic income classes of Colombia, and this factor is much more relevant than the region of origin in the country.

Meisel and Vega (2005) provide empirical evidence in favor of this argument. The study, documents the average height of Colombians with passport. Its result is unambiguous: while the average height of Colombians varies per region, the height of Colombians with passport is highly stable. This empirical regularity would clearly allow recognition of regional fixed effects of some magnitude among different regions in the country, which would have an incidence in the height of the average Colombian and quite probably in many other characteristics.

However, the result found for average Colombians with passport would be evidence that the sub-group of those Colombians would have characteristics that would allow then to migrate abroad, which are unconditional of region specific characteristics, and to that extent, that would allow them to respond in a similar fashion to stimulus such as those offered by the United States to

potential immigrants of that time. Therefore, other limitations, such as those corresponding to whether the size of the sample contained in the AMCO survey is enough to draw representative inferences of the phenomenon of interest, in particular, for the initial years of the period under study, would be the most important to be considered in this case.[5]

On the other hand, the migration wave experienced between the second half of the seventies and the first half of the eighties, had different reasons, mainly based on drug trafficking.[6] In this case, based on a priori knowledge on this localized phenomenon in the country, mainly originated in Antioquia and Valle, the information obtained from Pereira and its metropolitan area would be less informative.

Finally, during late 1990 the United States had an aggressive emigration of Colombians. This was mainly due to the economic crisis that started in 1998 and caused a real decrease of the product from 4.2% in 1999.

Since the crisis affected the whole country, and since access to the United States until recently required and continues to require compliance with a series of conditions and demands that exclude a significant part of the population, restricting such access to a small group of privileged individuals, it would be expected that the migration experience observed in Pereira and its metropolitan area in this case, would quite precisely resemble the migration dynamic of the country.

---

[5] Even though mean heights for individuals reported in passports of the mentioned study are estimated after averaging over some cities, which reduces its variation by itself, similar aggregates based on heights reported in individuals id's are unlikely to completely eliminate the initially reported variation.
[6] Gaviria and Mejía (2005)

A conclusion drawn from Figure 2, is that even though migration had historically been more frequent towards the United States than to other destinations, the crisis in late 1990s triggered a massive emigration to destinations different to the United States, in ratios of at least seven times higher than those historically recorded. To the United States there was observed an increase in the migratory flow of Colombians relative to the historical trend, but there were other countries like Spain that had the highest levels of Colombian immigration, with respect to their historical trends. In the particular case of Spain, its level of Colombian immigrants increased up to ten times its historical figures.

Figure 3 allows us to see the close relationship between the greater migration of Colombians to the United States and the crisis at the end of 1990s. In addition, it shows the distribution of the population returning to the country, based on the year they arrived to the States for the last time. The comparison of this curve with that of emigrants currently in the United States, clearly shows an imbalance between Colombians entering and leaving the country to and from the United States, showing an increase of Colombians in this country since the crisis started.

As it is seen in figure 4, this accumulation of Colombians is due to the acceleration of their entering the United States as temporary visitors. According to the AMCO survey, 46% of Colombian immigrants arrived to the United States after 1998, and out of those, 83% are working or looking for a job. These figures confirm their goal of traveling abroad: to find a source of income to compensate it loss due to the economic crisis. It follows that most Colombian immigrants, who entered United States as temporary visitors, have actually entered the country looking for labor opportunities.

Figure 2. Immigration Dynamics of Colombians: Total, USA and Spain

Year of Immigration in a Foreign Country of Current Emigrants

Total Emigrantes, AMCO — Emigrantes USA, Censo — Emigrantes USA, AMCO — Emigrantes España, AMCO
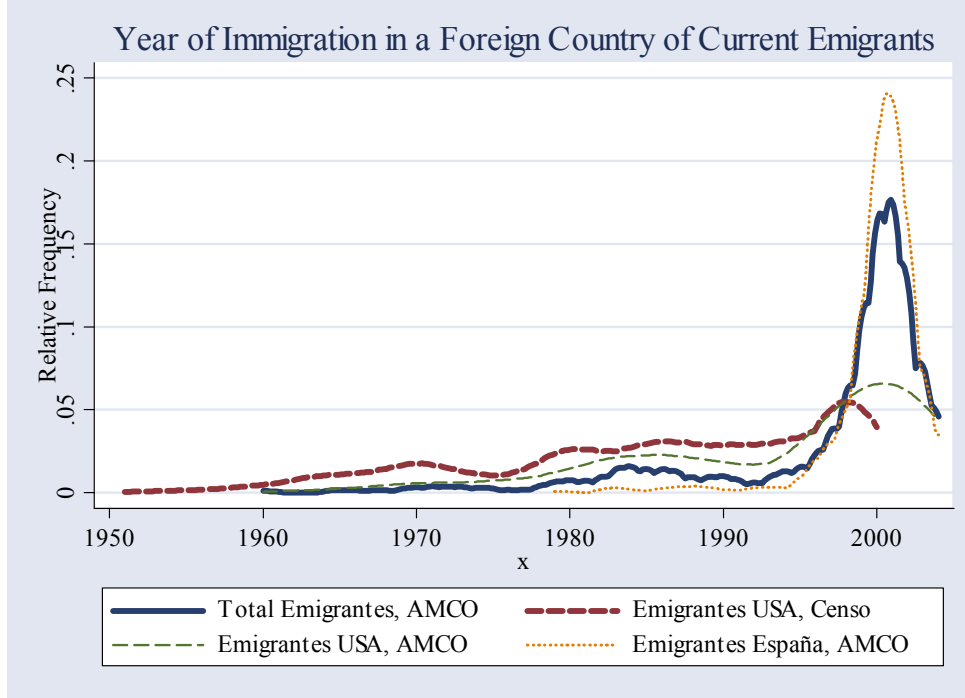
Figure 3. Immigration Dynamics of Colombians to the USA

Share of Current Emigrants/Returned Migrants by Year of Immigration to USA

Emigrants, Censo — Emigrants, AMCO — Returned Migrants, AMCO
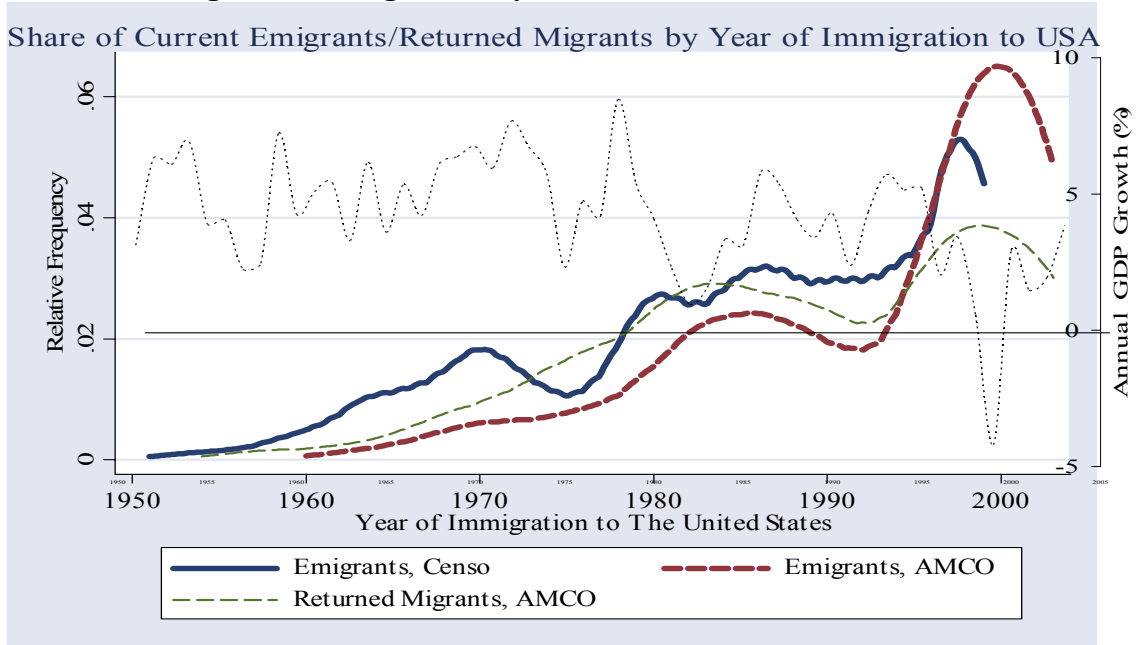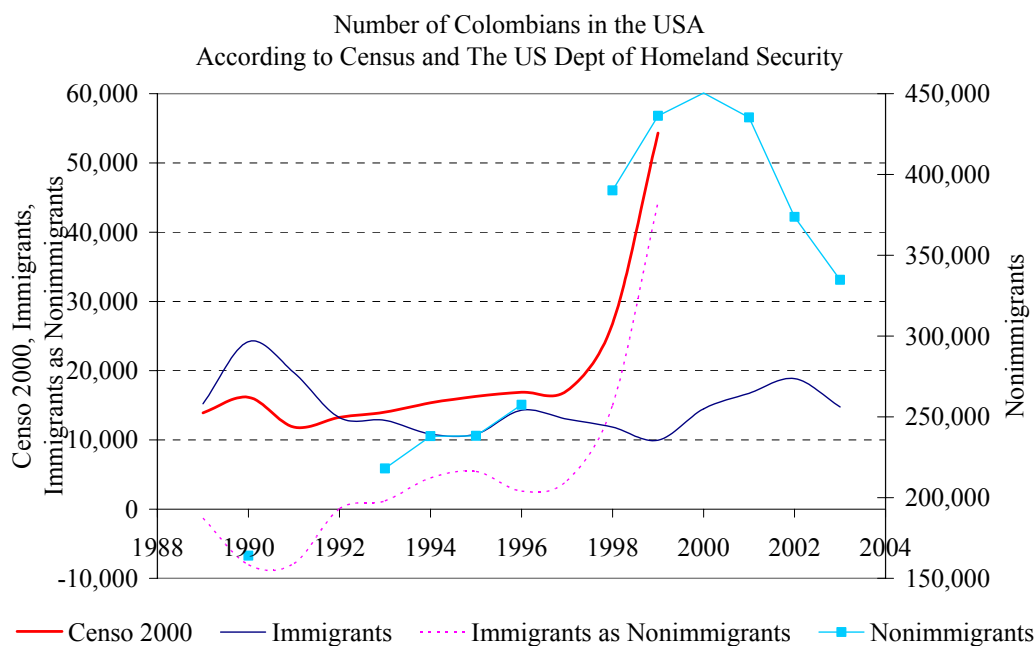
As an estimate of the number of Colombians who would have entered the country as visitors, to settle as residents, can be obtained by deducting from the number of Colombians currently in the

16

States, based on the 2000 Population Census, those accounted for by the Office of Immigration

Statistics, OIS, in their publication: The U.S. Department of Homeland Security (2004). Clearly

the number of Colombians based on the Population Census will be underestimated if it is going to

be used to quantify the number of Colombians in the United States several years ago, since it is

not possible to estimate the number of those who have returned since then. Notwithstanding the

above, for those years around the time of the Census, the estimate would be quite close to reality.

The difference in the number of Colombians in the United States each year, based on information

drawn from the Census and OIS, corresponds to the dotted curve in figure 4. It is observed that

the number of Colombians is underestimated by the Census, mainly around early Nineties. The

number of Colombians who have entered that country as temporary visitors, with the expectation

of settling down there, would be around 45000 in 1999.

Figure 4. Changes in the form of Immigration to the USA During the Crisis

Number of Colombians in the USA
According to Census and The US Dept of Homeland Security

Despite the Census does not provide information after 1999 to make an estimate, the difference among temporary and permanent Colombians observed in figure 4, based on OIS data, suggests that a similar number of Colombians would have entered the country with presumably akin objectives in 2000, where it peaked, and 2001, and the number of Colombians would seem to have decline towards 2004.

In the event the migratory trend observed in the United States would be a generalized situation in other countries, the increase of Colombians abroad would be getting to a halt, and the country would be about to start a period of stability and possible decrease of emigration. That seems to be the case according to figure 5, in which it is shown that net migration to the United States reached in 2003 levels below those observed in 1996, and net migration to all destinies registered a huge decline between 2001 and 2002.

Figure 5. Recent Evolution of Migration in Colombia
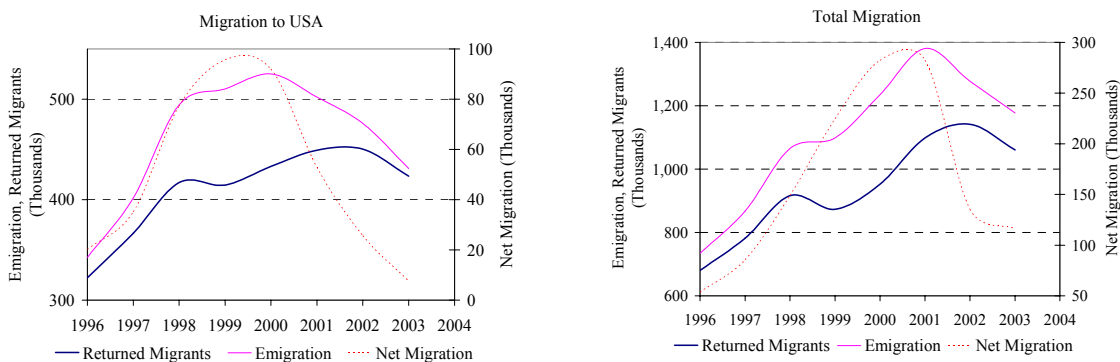
5. Profile of the Emigrant and the Migrant

This section uses data from the 2000 United States census, from an additional survey answered by immigrants through internet, which we denote as RCN, and which results are taking from

Gaviria and Mejía (2005), and finally from the AMCO survey. Based on this information, the profile of the average Colombian emigrant was determined and is shown in table 5.

In the first place, in order to establish representativity of our results and descriptive statistics, it is important to compare the profile of the emigrant found in the AMCO survey with that one from the census of the United States. In particular, we can see that this last one is older, more educated and less likely to be working than that of the AMCO survey. Nevertheless, for some aspects the information coming from AMCO is much more comparable to the one obtained in the census than in the RCN survey. The profile of the emigrants in this last one, presents a person much more educated, more likely to speak English, and that sends amounts in remittances that are 50% higher than those of the Colombians in the census. Clearly internet seems to be an exclusive tool used by elites that are more educated and earn more.

Table 5. Profile of the Emigrant and Returned Migrant

	Emigrants			Returned Migrants	
	AMCO	**USA Census**	**RCN Survey**	**AMCO**	**RCN Survey****
Age	36.14	41.80		39.40	
Years of schooling	11.52	12.30	14.50	12.88	14.25
Sex (Men)	46.9%	43.9%		66.7%	
Single	29.8%	22.8%		19.7%	
Years of residence abroad	6.80		5.50	3.80	5.30
Residence	64.7%				
Frequently communicates by telephone with family	62.9%		81.0%		
Employed	82.0%	64.2%		76.7%	
Unemployed	5.3%	7.7%			
Speaks English		62.3%	79,1%[*]	55.6%	75,7%[*]
Spouse has lived abroad				21.8%	
Parents have lived abroad				18.6%	
Sends remittances	71.2%		73.2%	99.1%	70.2%
Monthly average amount in US$	166.8		247.6		
Spouse lives in Colombia			5.0%		5.65%
Children live in Colombia			21.0%		21.48%
Parents live in Colombia			73.8%		73.22%

Source: AMCO-DANE, 2004; Gaviria (2004); Gaviria and Mejía (2005).
[*] For this Survey, this question applies if people who speak a Language different to Spanish.
[**] For this survey, this column makes reference to desire of return.

The results show that the average emigrant is above 35 years of age. Except for what was observed in the West Central zone (AMCO, 2004) where we can see a much younger migratory flow than the one found by Gaviria (2004) using US census data.

The evidence shows that contrary to what would be expected, most emigrants are women. Years of schooling of the average emigrant are close to 12, although according to the RCN survey their average schooling would be 14 years. More than half emigrants are employed abroad, a similar share speaks a language different to Spanish, and 70% send remittances.

The returned migrant on his part, is older and more educated than the emigrant, and is much more likely to have sent remittances when abroad (99%) than it is currently the emigrant (70%). They seem to be people who left close ties in Colombia when left the country: are more likely to be males, not single, who left on average close to four years before the AMCO survey (year 2000), and were less likely to be employed abroad than current emigrants. According to figures 6 and 7, migrants older than 45 years, with at least complete higher education, are more likely to return to the country, while those below 45, with 11 to 16 years of education, are more likely to stay.

Figure 6. Age of Migrants   **Figure 7. Years of Schooling of Migrants**
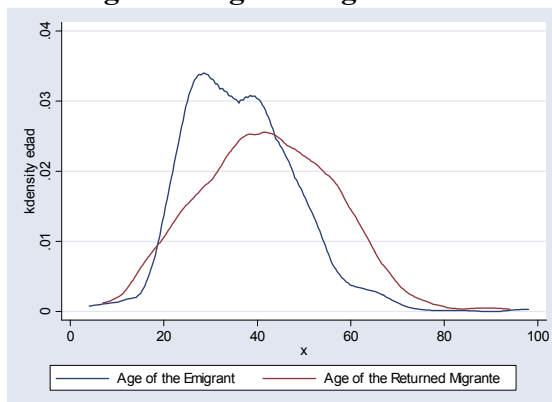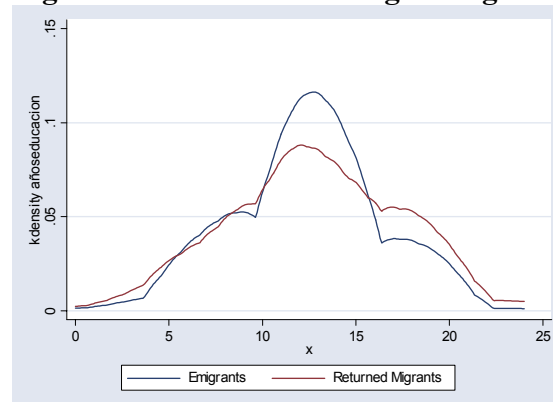
Source: Own calculations based on data of DANE, AMCO, 2004.

This regularity is consistent with the findings of Borjas and Bratsberg (1996), whose model not only predicts that low skill individuals would emigrate from Colombia, which, as pointed by Gaviria (2004), does not hold due to institutional constraints, but also that the returnees would accentuate selection, in this case, their selection would be accentuated if high skill individuals were more likely to return, which is actually what we observe.

6. Migration and Remittances

The migration dynamic described has brought along changes in the dynamic of remittances sent to the country, in especial, those pertaining to remittances. Figure 8, contains information provided by DAS and *Superintendencia Bancaria* to illustrate the net flow accumulated sin 1996 of Colombians traveling abroad, together with the level of remittances received every year.

Figure 8. Dynamics of Migration and Remittances
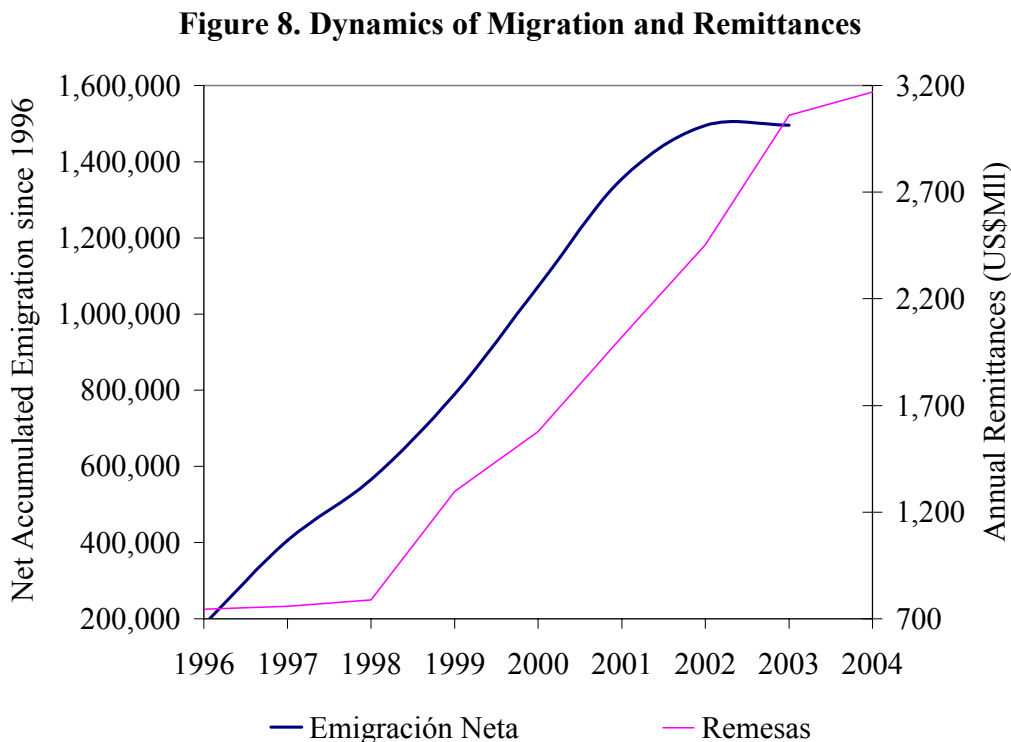
The figure shows the close relation between the number of new emigrants and the number of remittances sent to the country. This is the dynamic situation seen in transferences in the last years, which may be fundamentally explained by a higher emigration of Colombians since the crisis by late 1990.

7. Profile of the Households Receiving Remittances in Colombia

According to EVC03, 3.4% of Colombian households are beneficiaries of international remittances. Differentiating by regions, the populations from Valle, Atlantic Coast, Antioquia and Central regions have greater chances of receiving remittances while the people from the Pacific Region and Orinoquia have less chance.

Initially we have to point out the fact that the household with better incomes are the ones that get the remittances. As a matter of fact the middle class households were the ones that were most favored (strata 3 and 4) as well as those households were the person in charge was more educated (high school graduated). This evidences that in the case of any family member leaving the country and sending remittances back to the country, had to have at some point the minimum investment to cover migration costs.

After a similar characterization Gaviria (2004) concludes that the remittances are an alternative for the middle class with difficulties, but are not an option for the poorest population. Nevertheless we have to consider that if it is true that people need an initial investment in resources and human capital in order to migrate, we also have to bear in mind that the characterization of the receptors is done in an *ex-post* manner, and after reception of the

remittance, this is why we cannot assure that the households have lived or are living in a middle class condition before or after the reception of the remittance, on the contrary, it is very possible that the remittance allows the improving of life conditions from a lower strata to a middle class. Among the characteristics that are associated to higher probability of receiving remittances we find that households who suffer economic contingencies due to the economic crisis of late 90s, and that in addition, any member of the household left the country, are more likely to receive remittances. Head of household women who do not report spouse, households with more members beyond 60 years, larger in number, and with less children (as more children would have represented an additional barrier for leaving the country), are as well more likely to receive remittances.

8. Changes in the Composition of Household Spending

In an economy like the Colombian, which has recently undergone one of its worst recessions in history, the flow of remittances to the country, nearing 4% of GDP, generates all sorts of expectations and speculations concerning the policies that government may adopt for better channeling their usage. Ultimately, the country has fiscal difficulties and great social needs, in the face of which remittances are a potential source to leverage public policies.

Even though until recently, interest in the issue of remittances has concentrated in its macroeconomic effects, predominantly in the exchange rate and the consequent loss of competitiveness for the national industry, an overview of the social needs and sources of funding for them leaves the fact clear that the their amount is not only key for promoting social policies, but also for evaluating those that are already being executed.

This point can be illustrated if taking the example of the needs for education and health of the population. In both cases, coverage is far from being universal, and therefore pressing needs abound. Separately, their budgets are sizeable: for education, of around 5% of GDP; for healthcare, 4% of GDP. If there were knowledge that remittances that households receive were spent with a priority in covering the needs for education and healthcare, it would be clear if the recent fluctuations in their amount, which increased from being 1% of GDP between 1998 and 2004 to representing 4% of GDP nowadays, have to be taken into account when evaluating the health and education policies of administration during its tenure.

Based on the aforementioned, it becomes desirable to know about the rationalization that households make of their remittances, with the purpose of better understanding the achievements in the major policy fronts of the government, and also to promote a culture that would encourage a better use of those resources for the wellbeing of households and the country.

The change in the composition of spending is also another form of measuring the effects of the remittances in the wellbeing of companies. It would be expected that at the margin, any increase in the consumption of some goods (education, health, investment and/or consumption in goods not strictly belonging to the foodstuffs group) experienced by some households that receive remittances does not imply an increase in the relative wellbeing of receptors in comparison with households that do not receive remittances.

Adams (2005) conducted a study for Guatemala in which he sought to demonstrate the change in the composition of spending in healthcare, education, and durable goods of households being receptors of remittances. Contrary to what had been expected (given the conditions in that

country), beneficiaries of remittances spent less on consumption than those who did not receive international remittances. Meanwhile, the part of spending allocated to investment increased in a larger degree for remittance-receptor households than for those which were not receptors.

Even though higher spending in goods such as healthcare and education implies greater wellbeing for the household, expenditures in items such as investment, in addition to the latter, may also have direct implications on the country's economic growth, and from there, the importance that this topic and contributing to its understanding has for those in charge of economic policies. Previous studies have described the use of remittances by households based on what households claim in surveys. Garay and Rodríguez (2005) illustrate the use households make of remittances according to what they report in the AMCO survey. AMCO households report to expend the highest share of remittances in food (28%), followed by what they pay to public utilities (23%) and housing (15%). Gaviria and Mejía (2005) present similar statistics for the RCN survey, with figures of 26% for expenditure in food, 19% to public utilities, 16% to health, 14% to housing, and 13% to education. While in AMCO, the figures correspond to what households claim they expend remittances in, in RCN they correspond to what the remitters consider remittances should be expend in. Neither of these studies tries to establish whether these household would keep their consumption patterns had they not received remittances. They proceed to elicit consumption shares by trusting recipients and remitters of remittances, but they do not consider that recipients pool remittances into a single basket of resources for multipurpose expenditures, what makes difficult for them to distinguish what resources are funding each expenditure, neither that independent of what the remitter had in mind when sending the remittances, the recipients have to a large extent discretion on the destination of these resources, since they are aware that its destiny is difficult to monitor by the former.

In the next section, we use variations in the amounts expended in several items, and received in remittances, to try to identify the effect of remittances on household's consumption patterns and education choices. No subjective information is considered in the exercise.

8.1 Estimation of Engel Curves

This section intends to quantify the impact that remittances have on the different items that make up household spending. In particular, it aims at assessing their impact over the share of total expenditures households allocate to education, health, investment, and consumption.

In order to identify the change in the composition of household spending in the wake of changes in revenues (in this case, attributable to remittances), the following Engel curves were estimated:

$$g_i = \alpha_0 + \alpha_1 rr + \alpha_2 \ln(x/n) + \alpha_3 \left(\ln(x/n)\right)^2 + \alpha_4 X + \varepsilon \qquad (1.a)$$

$$g_i = \alpha_0 + \alpha_1 Mr + \alpha_2 \ln(x/n) + \alpha_3 \left(\ln(x/n)\right)^2 + \alpha_4 X + \varepsilon \qquad (1.b)$$

In case (1.a), g_i is the participation of spending in item i (namely education, health, consumption or investment) in total spending; rr is a dummy per household standing for whether or not it receives international remittances; x corresponds to the total spending, n to the total numbers of persons that conform the household, $\ln(x/n)$ is the natural logarithm of the per capita expenditure, a variable that is also included in its square form in order to accomplish a better adjustment of the regression.

Also considered are other factors affecting the composition of household spending, X, such as the total number of persons and the spending unity, the age of the head member of the household,

his/her education level, his/her gender, total number of children, dummies for no children in household, absent spouse, marital status of the household head, dummies for housing characteristics, household's sisben[*] score, and geographical region dummies.

For equation (1.b), the estimation of the Engel curve is performed considering as part of the explicative variables the amount received by households on the concept of remittances, *Mr*. The other variables are the same than for case (1.a).

Model Identification: In order to obtain an unbiased coefficient of the remittance amount variable (*Mr)* or of the receives-remittance variable, it is necessary to consider the problem of the endogenous nature of the variable. Clearly, remittance-receptor households are not a set of households randomly selected from the total. These households have specific conditions, as also do the immigrants sending the remittances to their relatives. In this sense, the error term in the equation would contain non-observable information associated to the mechanisms which determine the household receiving the remittance. And, therefore, it is necessary to instrument that variable with the aim of obtaining an unbiased estimator in its coefficient.[7]

To determine which variable may be an adequate instrument, two aspects of the problem herein are developed. The first has to do with the process that determines if a household is to receive the

---

[*] Sisben is an indicator of permanent income used to classify households, in order to target public subsidies such as health insurance.

[7] According to the evaluation literature, we are assuming homogeneous impact effects across individuals, and to that extent, our coefficient of interest would identify the Average Treatment on the Treated, which under the assumption is the same as the Average Treatment Effect (See Heckman, LaLonde and Smith (1999) and Heckman and Robb (1985)).

remittance, and the second has to do with the institutional framework that is required for a country to be able to leave the country.

The first aspect to develop corresponds to the conditions that characterized the emigrant's exit. As was illustrated earlier, a large share of remittances the country currently receives comes from Colombians who left the country towards the end of the nineties because of the economic crisis. In fact, based on the AMCO survey, approximately 65% of current emigrants left Colombia after 1998, and 70% of them send remittances. Because of the latter, the information based on whether some members of the household left the country because of the crisis would be very informative of the probability that the household receives remittances. In this sense, since people who left the country did it mostly to cope with the crisis and not by any means to satisfy specific expenditure needs, a variable telling if a household member had to leave the country in the juncture of its crisis would be a good instrument to correct the problem of the endogenous nature of the remittance variable.

The other aspect to develop in order to make it instrumental would be the institutional framework for a Colombian to be able to leave the country. In this issue, several aspects need to be considered. The first has to do with the fact that the majority of remittances comes from countries which have several barriers for entering, as are the cases of the United States and Spain. The second has to do with the fact that in Colombia, the access to visas for those countries has been simply a privilege for the upper classes, leaving the ordinary citizen out of it. In the case of the poorest or rural households, merely the trip to the capital city in order to obtain the visa already stands as a barrier against meeting that purpose.

Another aspect which is fundamental in determining whether a person can exit is the existence of relatives or friends outside the country. In order to capture that factor, it is necessary to have information about the household environment, but not only within the short term, but also in the medium term, so that it would allow inferring if at least someone in the household has had the opportunity to leave the country. For that reason, we try to capture these two aspects by using the NBI, which tells us the percentage of households that were poor in the municipality where the parents of the head lived when specific household members were born. This variable has two components: on one side, if the municipality is poor, it is likely that the household faces barriers to leave the country, and on the other side, counting on information for the long term would also make it possible to indicate if someone belonging to the household has left the country. This is a key factor in determining the ability to leave the country.

8.2 Results

We estimate equations (1.a) and (1.b) for four different dependent variables defined as the share of total expenditure expent in each of consumption, education, health and investment, using ECV03 and AMCO.[8] Our estimates using ECV03, are obtained for the whole country, as well as for a specific region of he country.[9]

Theoretically, our estimates might not identify any effect if households' additional earnings due to remittances were expent in the same proportions their initial income was expent (homothetic preferences). That is the empirical question we now address.

---

[8] Consumption expenditure collects spending earmarked for food, apparel, transport and public transportation in general
[9] We include the Center Region (Risaralda, Caldas, Quindío, Huila, and Tolima), and additionally, Bogotá, Antioquia and Valle.

8.2.1 Education expenditure

Once equations (1.a) and (1.b) were estimated for all cases, only effects of receiving remittances on the share of expenditure on education, when using the ECV03 survey, for the specific region of the country previously mentioned, were found to be positive and statistically significant.[10] Results are presented in table 6. It reports our findings using two sets of instruments: one with NBI and a dummy variable for households in which some member left the country between 1998 and 2002 (presumably due to the economic crisis), and the other using the gender of household head as an additional instrument. Results are consistently similar. Once instrumented, the effect of remittances fluctuates around 10% depending on whether we consider potential biases due to the characteristics of the group of households who expend in education in relation to those of all households or not.[11]

The additional increase in education spending could suggest an increase in enrollment, a change form public to private institutions, or both. We now proceed to explore such possibilities. To do it, we estimate equations similar to (1.a) and (1.b), first, using as dependent variable a dummy equal to 1 if the individual assists, and zero otherwise. Then we estimate an additional model using a dummy equal to 1 if the person who assists does it to a public institution, and zero if

---

[10] In all of our specifications we tested the significance of instruments in the firs stage regression, as well as the overidentifying restrictions, getting no rejections at all. Endogeneity of *Receives Remittances* becomes clear when comparing the OLS coefficients with those in the other two columns. Selection bias is corrected to account for the fact that not all households expend in the items considered, and that households who do it, might not be similar to those who do not. The estimation procedure follows steps similar to those used by Mroz (1987) to estimate labor supply equations. Lack of significance in the other exercises may obey to different reasons: (i) results from AMCO survey, are more likely to be biased due to omitted variables, since that survey is not as rich in control variables a it is the ECV03 survey, (ii) for the amount remitted equations, we already know that amounts reported in ECV03 are not as accurate as those reported in AMCO, and thus, such results are not expected to be as robust, and (iii) for the national level equations, it seems that including underdeveloped regions might be introducing noise to the sample, distorting the whole country's results.

[11] That is, depending on whether we correct for selectivity bias.

assists to a private institution.[12] We perform these exercises first for individuals 5-30 years, and then for the sets of individuals who attend to each education level (primary, secondary or higher education), or who does not assist, but if were going to assist, could do it to that specific level.[13]

Results of this exercise are presented in table 7. We found no impact of remittances on enrollment for individuals 5-30 years old, but we do find an important substitution effect from public to private institutions for individuals 5-30 years old, and for those in secondary and higher education for individuals in household that receive remittances in the specific region previously described, using ECV03. Individuals 5-30 years old, in households that receive remittances, are 24-25% more likely to assist to a private institution than those in a household that does not receive remittances. The largest effect (50%) is for individuals assisting to secondary, while that for those assisting to higher education s as well large (40%). For these, individuals living in households receiving the average remittance are 14% more likely to assist to a private institution that those living in household with no remittances.[14]

Table 6. Effect of Reception of Remittances on the Share of Expenditure on Education

Instrumental Variables	Receives Remittances		
	OLS	2SLS Without Correcting for Self Selection	2SLS Correcting for Self Selection
Left the country between 1998 and 2002 NBI*	2,9 (3,19)	10,6 (2,11)	9,3 (1,84)
Left the country between 1998 and 2002 NBI* Hhold Gender	2,9 (3,21)	10,7 (2,15)	9,6 (1,93)

* NBI of Parents' municipality at birth of individual.

---

[12] In this case we correct for selectivity since the sample is restricted to individuals who assist.

[13] For example, to estimate whether individuals assist to secondary education in a public or private institution, we include all individuals who assist to secondary, plus those who do not assist, but if they were going to assist, they could only assist to secondary, since their education level is either complete primary, or incomplete secondary.

[14] The former result is in the framework of the study by Ramirez, Muñoz y Zambrano (2005), in which it is observed that between 1997 and 2003, Colombian households experienced a generalized fall in total spending, and even more in the proportion of that spending dedicated to education, which suggests that such decrease could have been greater for those beneficiary households, if there had not been revenues from remittances. They also find that there was a transfer of resources from the private to the public education (as a consequence of the fall in household's revenues).

Table 7. Effects of Reception and Amount of Remittances on Education Attendance (2SLS)

Dependent Variable	Receives Remittances		Amount of Remittances	
	Without correcting for self selection	Correcting for self selection	Without correcting for self selection	Correcting for self selection
Attends Public Institutions (5-30 years old)	-23,82 (-1,82)	-24,9 (-1.88)		
Attends Secundary in a Public School	-50 (-2,59)	-51 (-2,55)		
Attends Higher Education in a Public Institution	-38 (-2,19)	-41 (-2,29)	-7,24e-7 (-3,41)	-7,24e-7 (-3,42)

Instruments: Left the country between 1998 and 2002, and NBI of Parents' municipality at birth of individual.

8.2.2 Consumption expenditure

When a remittance has that exclusive destination, according to literature, it suggests that the motivation for the money transfer is simply "altruism" (Lucas y Stark, 1985) on the side of the sender of the remittance towards the beneficiaries of it. Simultaneously, in the case when strict reference is made to food consumption, this latter destination as the one with greater proportion of the total expenditure implies that in the view of lesser disposable revenue, any additional increase would be directed to satisfying basic needs, such as nourishment.

Initially, one would not expect that the greater revenue per remittance would be translated into a greater aggregate consumption (not strictly foodstuffs) for the beneficiary households. Even though in the margin, the fact of receiving or not remittances is not a determinant of greater spending in household consumption relative to total expenditure, the amount of remittances can become that in some specific cases.

In general, the results obtained in the consumption spending suggest the rejection of a hypothesis of what Adams (2005) denominated *"new status"*, given that a highly significant increase in consumption of additional goods on the side of the household is not observed.

8.2.3 Expenditure in Healthcare

In none of the estimations for the different samples, the fact of receiving remittances or their magnitude represented a greater consumption in health services of the beneficiary households.

Considering the fall in healthcare spending between 1997 and 2003 and the character of luxury that it acquired for Colombian households during that lapse, as also Ramirez, Muñoz and Zambrano (2005) conclude, the fact that the remittance does not imply a change in the receptor households' consumption of the said service supports the idea that international remittances have not been a source of revenues leading households to increase their spending in consumer goods, in this case luxury ones, referring to healthcare (according to the finding for Colombia). Instead of that, it has become a substitute income which makes up to maintain the necessary consumption of households. This backs the hypothesis that households found in the revenues from remittances a resource to buy the maintenance of their *status* or quality of living standards (different from the "*new status*" to which Adams makes reference), which may have been altered by some contingency for households during that period, affecting them nationwide.

8.2.4 Investment Expenditure

Because the ECV03 national sample lacks representative data on people receiving remittances and making some type of investment, the estimation could not be performed. For that reason, in relation with the previous results, with the national and regional samples and that comparable

with AMCO obtained with the information available for 2003, evidence remains that households are sustaining their status with revenues from remittances.

Lack of significance in this result can be considered as additional evidence in favor of the hypothesis that remittances are remaining in standard items of expenditure of households, and mostly, in basic needs. This fact, jointly with the consistency of total amount of remittances received by households as reported by household surveys, with respect to the figures reported in the Balance of Payments, are additional evidence that remittances in Colombia behave actually according to its definition, and are not obeying to dubious mechanisms.

9. Effects of remittances on living standards of households

Even though literature concerning the motivation and description of those who send remittances is considerable, the statistical information available which allows us to identify their final destination and impact on the quality of life of households is unfortunately poor.

Acknowledging the mentioned difficulty, recently the World Bank has sought more evidence of the final use that households give to remittances and the impact that they have. In relation with this point and being aware of the role that the flow of remittances has in the distribution of revenues, Murrugarra (2002) demonstrated that in fact the remittance became a substitute of the transfer by the government for spending, in this particular case, the one assigned to healthcare, and for that reason, once the government increases its transfers to that sector, the amount received by households starts to diminish.

As the remittance becomes additional revenues for the household, it is possible that the change it experiences will have implications in the composition of spending in some particular goods. The last study conducted by the World Bank (Adams, 2005) searched evidence of the final

destination of those flows. Three hypotheses were the starting point: investment in human capital of household members who remain in the country of origin, investment in physical capital or a source to buy what he calls the "*new status*" or that spending directed to the consumption of certain goods.

The change in the composition of expenditure is one of the forms in which the wellbeing of economic agents is affected, in the case of households, but not the only one. According to this, it is clear that the wellbeing would be the result not of the greater revenues enjoyed by high income people, but of the increase that may simultaneously be generated in persons of lower revenues.

In table 8, the distribution of per capita revenues of Colombian households is shown in quintiles. According to ECV-2003, households in Colombia are close to 11.2 million, and 379 thousand of them (3.4%) are beneficiaries of remittances. For receptor households, the remittance represents by itself a considerable fraction of the household's total revenues. As can be seen in the last column of the table, for the lowest quintiles, remittances represent between 35% and 67% of their total income.

Table 8 gives evidence of the role that remittances play in the distribution of income, presenting the quintile that households occupy, according to the revenue before and after receiving the remittance.

This table contains three consecutive frames for households receiving remittances. In the last row of the first frame the total of households that make up each quintile is presented in absolute terms, according to the revenue without remittance, and in the last column, the total of households in each quintile is observed according to the level of revenues once the amount received from remittances is added to its initial revenues.

In the lowest quintiles (1, 2) after the remittance, a reduction is observed in the amount of households conforming it, which gives evidence of the improvement that it represents for the revenues of households and that now places them in the higher quintiles (3,4,5) thus representing an enhancement in the distribution of revenues, and therefore, in a gain in their wellbeing.

Table 8. Per capita income quintiles

Quintil	Number of Households			Hholds without remittances		Household that receipt remittances				
	No. Households	per capita Income ($)	Remittance/ Income with remittances	No. Households	per capita Income ($)	No. Households	per capita Income before remittances ($)	per capita Remittances ($)	per capita Income after remittances ($)	Remittances/ Income after remittance
1	2,239,687	41,188	6.6%	2,167,280	41,427	72,407	34,035	68,651	102,844	67%
2	2,239,111	97,884	1.7%	2,180,263	97,839	58,848	99,551	51,629	151,180	34%
3	2,238,837	165,163	0.8%	2,163,020	165,171	75,817	164,922	31,509	196,831	16%
4	2,238,742	286,417	1.0%	2,144,405	286,216	94,338	290,988	56,171	347,212	16%
5	2,237,732	1,041,758	0.5%	2,159,608	1,048,380	78,124	858,720	123,327	981,979	13%
Total	11,194,109	326,482	0.8%	10,814,576	327,807	379,532	289,643	66,257	356,009	19%

Nonetheless, the number of households improving their revenues after the remittance and the displacement of households located in the lowest quintiles which are moving up to the higher ones, it may happen that some of the households before the remittance found themselves in high quintiles, but after receiving it they descended to a lower quintile, thereby displaying a reduction in their wellbeing in relative terms.

For 2003, the aforementioned was observed with 1,372 households that were beneficiaries of remittances, 887 of which stood in the fifth quintile and after having received it, they moved into the third quintile, while 485 did followed suit by moving form the fifth to the fourth quintile (see table 9). Partly explaining the latter is the fact that the amounts sent are diverse, and for some households it may represent, as was stated earlier, more than 50% of their final revenue, having a greater impact the revenue increased by the remittance than the initial revenue.

According to the second box in the table, for households in the first quintile, after receiving the remittance there is a 38% probability of moving up to higher quintiles. For the second quintile, there is a probability of 44% of improvement, while for the third and fourth

quintiles it is close to 20%. On the contrary, in the case of the last quintile, there is a 0.6% probability of moving down to lower quintiles after having received the remittance.

Table 9. Household distribution by quintiles before and after remittances

	Quintil	Quintil without remittances					
	Quintil	1	2	3	4	5	Total
	1	44,819					44,819
	2	10,911	32,803				43,714
	3	10,707	20,045	59,749	887		91,388
	4	3,762	4,745	15,782	75,398	485	100,172
	5	2,200	1,253	283	18,041	77,633	99,410
Quintil with remittances	Total	72,399	58,846	75,814	94,326	78,118	379,503
	1	61.9					11.8
	2	15.1	55.7				11.5
	3	14.8	34.1	78.8	0.9		24.1
	4	5.2	8.1	20.8	79.9	0.6	26.4
	5	3.0	2.1	0.4	19.1	99.4	26.2
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	1	100.0					100.0
	2	25.0	75.0				100.0
	3	11.7	21.9	65.4	1.0		100.0
	4	3.8	4.7	15.8	75.3	0.5	100.0
	5	2.2	1.3	0.3	18.1	78.1	100.0

Source: ECV-2003, DANE

Finally, the last box in the table shows the probability of a household standing in a certain quintile remaining in the same one, even after the remittance. For the first quintile it is of 62%; for the second, of 75%, for the third, of 65%; for the fourth, of 75%, and close to 80% for households initially located in the fifth quintile of revenues.

10. Conclusions

The Colombian crisis of 1998, characterized by a fall of GDP of 4.2%, and a huge increase of unemployment to levels never registered in the country's history, affecting severely the mean income of households. Such situation moved some members of affected households to

respond by migrating to other countries, leading to a migratory wave of Colombians to several destinies, among which the increases in emigrants to Spain and the United States were the most notable. Those emigrants have sent since the crisis, USD 7,500 Millions beyond the annual transfer of USD 1,000 they used to send before the crisis. Even though such large amount of resources can potentially affect several patterns of household behavior, and in particular, their expenditure decisions, we only find evidence of effects on education expenditures and demand.

First we note that total amount of remittances reported by household in household surveys is consistent with the amount registered by the Balance of Payments, which alleviates in good part the fears of remittances being contaminated by dubious funds.

Secondly, the empirical exercises find a positive effect over education, beneficiary households expending about 10% of total expenditure more in education than non beneficiaries. In addition although no effect was found on enrollment rates, we found an important effect on the probability of attending a private, rather that a public, educational institution. Such effect is on average 24% for individuals 5-30 years old, 50% for those attending secondary education, and 40% for those attending higher education. On the other hand, effects over consumption, investment and health expenditure, are null.

Finally, we find important effects of remittances on living standards of beneficiary households, since because of them, they enjoy living standards of households several quintiles above what they would get without remittances. Thus, international migration ended up working on the one hand, as a possibility to gain access to private education, and on the other hand, as a safety net for some of the affected households in the economic crisis that took place at the end of the 1990s in Colombia.

References

Adams, Richard H. (2005) "Remittances, Household Expenditure and Investment in Guatemala" *World Bank Policy Research Working Paper* No. 3532. March http://ssrn.com/abstract=695362

Borjas, George J. and Bratsberg, Bernt (1996) "Who Leaves? The Outmigration of the Foreign-Born" *The Review of Economics and Statistics*, MIT Press, vol. 78(1), pages 165-76.

Borjas George J. and Bronars, Stephen G. (1990) "Immigration and the Family" NBER Working Paper 3509.

Cadena, Ximena, and Cárdenas, Mauricio (2004) "Las Remesas en Colombia: Costos de Transacción y Lavado de Dinero" Documento de Trabajo. Fedesarrollo.

Collazos, María Mercedes, Monte, Enrique, and Muñoz, Santiago (2004) "Estructura de Costos de Transacción de las Remesas de trabajadores en Colombia − 2003" *Borradores de Economía No. 306, Banco de la República.* http://www.banrep.gov.co/docum/ftp/borra306.pdf

DANE (2004) "Metodología de Diseño Muestral Encuesta de Emigrantes Internacionales y Remesas en el AMCO"

Garay, Luis Jorge and Rodríguez, Adriana (2005) "La Emigración Internacional en el Area Metropolitana Centro Occidente Colombia: Caracterización Socioeconómica de la Población Emigrante y Evaluación del Impacto de las Remesas Internacionales" en Estudio sobre Migración Internacional y Remesas en Colombia, Cuadernos Alianza País, Volumen 3.

Gaviria, Alejandro (2004) "Visa USA: Fortunas y Extravíos de los Emigrantes Colombianos en los Estados Unidos" *Documento CEDE* No. 17.

Gaviria, Alejandro (2005) "La Otra Cara de la Diáspora: Los Nexos de los Emigrantes Colombianos con su País de Origen" *mimeo, CEDE*, Facultad de Economía de la Universidad de los Andes.

Heckman, J., LaLonde R. y Smith J. (1999). *The Economics and Econometrics of Active Labor Market Programs.* In O. Ashenfelter and D. Card, Chapter 31, Handbook of Labor Economics, Vol. IV.

Heckman, J. and Robb, R. (1985), "Alternative Methods for Evaluating the Impact of Interventions", in Longitudinal Analysis of Labour Market Data, New York: Wiley.

Johnson, George E., and Whitelaw, W. E. (1974) "Urban-Rural Income Transfers in Kenya: An Estimated Remittances Function" *Economic Development and Cultural Change* 22, April: 473-79

Lasso, Francisco (2004) "Incidencia del Gasto Público Social sobre la Distribución del Ingreso y la Reducción de la Pobreza". Documento de trabajo realizado para la Misión para el diseño de una estrategia para la reducción de la pobreza y la desigualdad (MERPD).

Lucas R.E.B. and O. Stark (1985), Motivations to Remit: Evidence from Botswana, *Journal of Political Economy*, 93, 901-918.

Meisel, Adolfo and Vega, Margarita (2005) "The Stature of the Colombian Elite Before the Onset of Industrialization, 1870-1919" *Cuadernos de Historia Económica y Empresarial-CEER, Banco de la República, Cartagena*.

Mroz, Thomas A. (1987) "The Sensitivity of an Empirical Model of Married Women's Hours of Work to Economic and Statistical Assumptions" Econometrica, Vol. 55, No. 4, July, 765-799.

Murrugarra, Edmundo (2002) "Public Transfers and Migrants' Remittances: Evidence from the Recent Armenian Experience" In: Shantayanan Devarajan [ed.] *World Bank Economists' Forum*: volume 2. World Bank, Washington D.C., pp. 25-47

Roy, Andrew D. (1951) "Some Thoughts on the Distribution of Earnings" *Oxford Economic Papers* 3, June: 135-46

U.S. Department of Homeland Security (2004) "Yearbook of Immigration Statistics, 2003" U.S. Government Printing Office: Washington, D.C.

Zambrano A., Ramirez M. y Muñoz M. "Hogares: Comparación en sus Gastos de Consumo entre 1997 y 2003 según Resultados de las Encuestas de Calidad de Vida: Magnitud y Composición", *mimeo Universidad del Rosario.*

Annex 1
Glossary of Variables employed in the model

Hhold expenditure in i over total expenditure	Share of household expenditure (i: education, healthcare, consumption, investment
Receipt Remittances	Dummy if at least someone in household receipt remittances
Amount of Remittances by Hhold	Monthly amount of remittances receipt by the hhold in dollars
Ln percapit expenditure	Ln percapit expenditure
Ln^2 percapit expenditure	Ln^2 percapit expenditure
1 or 2 years living in the same town	Dummy 1 or 2 years living in the same town
Level of education of the Hhold's head	Dummies level of educ of the hhold's head: elemetary, high school, college, university; complete or incomplete
Hhold's head age between 25 and 54 years	Dummy household's head age between 25 and 54 years
Hhold's head age older than 55 years	Dummy household's head age older than 55 years
Stratum	Dummies of Stratum (1,2,3,4)
Score new sisben	Score new sisben
Score new sisben computable separating missing values	Dummy score new sisben is positive
Score old sisben	Score old sisben
Score old sisben computable separating missing values	Dummy score old sisben is positive
NBI[*] Parents town of born	NBI Parents town
NBI[*] parents town of born is positive	Dummy NBI parents town is positive
nbi93 of the town he lives	Dummy nbi93 of the town he lives
NBI of the town he lives	NBI of the town he lives
Level of education of the head's father:	Dummy level of education of the head's father: elemetary, high school, college, university; complete or incomplete
Level of education of the head's mother: complete primary school	Dummy level of education of the head's mother: elemetary, high school, college, university; complete or incomplete
Old sisben 1 or 2	Dummy sisben 1 or 2
Number of people older than 60 in Hhold	Number of people older than 60 in household
Older than 60 years old * children younger than 5	Interaction older than 60 years old and children younger than 5
Hhold without spouse	Dummy household without spouse
Hhold without children	Dummy household without children
Number of children in Hhold	Number of children in household
Number of people under 18 in Hhold	Number of people under 18 years old in the household
At least one person between 12 and 18 in Hhold	Dummy at least one person between 12 and 18 years old in the household
Ata least one person between 25 and 30 in the Hhold	Dummy at least one person between 25 and 30 years old in the household
Number of people in the Hhold excluding no relatives	Number of people in the household excluding no relatives
Number of people in the Hhold	Number of people in the household
Number of bedrooms in the Hhold	Number of bedrooms in the household
Wasted Human Capital	Wasted Human Capital
Rustic floor	Dummy if the floor is made with rustic material
Children younger than 5 in Hhold	Number of children younger than 5 years old in the household
"Name" Region	Dummies of Region (Atlantic, Orinoquia, Central, Pacifica, Antioquia, Valle)
Left the country between 1998 and 2002	Dummy if someone of hhold left the country between 98 and 02
Hhold´s head who became unemployed between 98 and 02	Dummy if hhold´s head became unemployed between 98 and 02
Spouse who became unemployed between 1998 and 2002	Dummy if spouse became unemployed between 98 and 02
Someone in the Hhold became unemployed between 1998 and 2002	Dummy if someone in household became unemployed between 1998 and 2002
People who left the country * people younger than 18	Interaction of dummy if someone in the household left the country and people under 18
An independent Hhold went out of business between 1998 and 2002	Dummy if an independent household went out of business between 1998 and 2002
Hhold had another economic contingency between 1998 and 2002	Dummy if household had another economic contingency between 1998 and 2002
Gender of Hhold's head	Dummy if household head´s is a man
Hhold with at least one person with cronic dissease	Dummy if someone in the household has a cronic dissease
Left the country between 1998 and 2002*Someone became unemployed	Interaction of dummy if someone in the household left the country and dummy if someone in the household became unemployed between 1998 and 2002
Left the country between 1998 and 2002*Hhold head´s Married	Interaction of people who left the country and someone in the household became unemployed between 1998 and 2002
Hhold head´s Marital Status	Dummies hhold head´s marital status (married,free union,widower)
Left the country between 1998 and 2002*Hhold without children	Interaction of people who left the country and dummy if household doesn´t have children
Left the country between 1998 and 2002*"Name" Region	Interaction of people who left the country and dummy if lives in Some region (Antioquia, Valle, Central)

* NBI: Estimates the sahre of households in a municipality who live with unsatisfied basic needs

Annex 2.
Descriptive Statistics

a. Quality life Survey

	REGIONAL				NATIONAL			
	Household without Remittances		Household with Remittances		Household without Remittances		Household with Remittances	
Variable	**Mean**	**Std.Dev.**	**Mean**	**Std.Dev.**	**Mean**	**Std.Dev.**	**Mean**	**Std.Dev.**
Share of household expenditure in Education	0.116	0.117	0.146	0.124	0.102	0.110	0.132	0.115
Share of household expenditure in Health	0.089	0.103	0.087	0.100	0.088	0.110	0.089	0.124
Share of household expenditure in Consumption	0.847	0.160	0.809	0.164	0.861	0.154	0.831	0.159
Share of household expenditure in Investment	0.127	0.170	0.127	0.163	0.117	0.158	0.141	0.181
Share of household expenditure in Education >0	0.577	0.494	0.671	0.470	0.595	0.491	0.656	0.475
Share of household expenditure in Health>0	0.994	0.075	0.998	0.049	0.993	0.084	0.994	0.077
Share of household expenditure in Consumption>0	0.681	0.466	0.794	0.404	0.642	0.479	0.747	0.435
Share of household expenditure in Investment>0	0.577	0.494	0.671	0.470	0.595	0.491	0.656	0.475
Amount of Remittances by Hhold			182,990.600	281,946.800			173,310	280,551
Ln percapit expenditure	11.972	12.942	12.356	0.984	11.836	1.352	12.215	1.031
Ln^2 percapit expenditure	144.995	27.711	153.629	23.796	141.921	27.417	150.265	24.548
1 or 2 years living in the same town	0.066	0.247	0.035	0.184	0.071	0.257	0.042	0.200
Level of education of the Hhold's head: complete elementary school	0.173	0.378	0.166	0.372	0.177	0.382	0.141	0.349
Level of education of the Hhold's head:incomplete high school	0.192	0.394	0.261	0.440	0.184	0.388	0.240	0.428
Level of education of the Hhold's head: complete high school	0.147	0.354	0.143	0.351	0.143	0.350	0.141	0.348
Hhold's head Level of education: incomplete college or university	0.086	0.280	0.116	0.321	0.070	0.255	0.097	0.296
Hhold's head Level of education: complete college or university	0.103	0.304	0.094	0.292	0.083	0.276	0.092	0.289
Hhold's head age between 25 and 54 years	0.655	0.475	0.554	0.498	0.654	0.476	0.523	0.500
Hhold's head age older than 55 years	0.290	0.454	0.395	0.489	0.293	0.455	0.419	0.494
Stratum 1	0.077	0.267	0.065	0.247	0.110	0.313	0.102	0.303
Stratum 2	0.325	0.468	0.222	0.416	0.300	0.458	0.226	0.418
Stratum 3	0.317	0.466	0.455	0.498	0.247	0.431	0.381	0.486
Stratum 4	0.067	0.250	0.137	0.345	0.056	0.230	0.110	0.313
Score new sisben	29.217	19.373	35.853	20.850	26.478	18.415	32.972	20.700
Score new sisben computable separating missing values	0.022	0.148	0.006	0.076	0.026	0.159	0.009	0.096
Score old sisben	60.374	19.769	67.484	13.122	55.933	20.742	64.061	15.102
Score old sisben computable separating missing values	0.021	0.145	0.000	0.017	0.020	0.141	0.000	0.017
NBI parents town of born is positive	0.109	0.312	0.070	0.256	0.108	0.310	0.069	0.253
NBI Parents town of born	22.102	15.087	19.067	9.100	31.012	22.543	26.629	17.978
Level of education of the head's father:	0.179	0.383	0.186	0.389	0.173	0.378	0.167	0.373
Level of education of the head's father:	0.048	0.213	0.076	0.266	0.044	0.205	0.073	0.261
Level of education of the head's father:	0.099	0.299	0.112	0.316	0.084	0.277	0.125	0.331
Level of education of the head's mother: complete elementary school	0.208	0.406	0.220	0.415	0.193	0.395	0.212	0.409
Level of education of the head's mother: complete elementary school	0.062	0.241	0.091	0.288	0.053	0.223	0.083	0.277
Level of education of the head's mother: complete elementary school	0.077	0.267	0.092	0.289	0.068	0.251	0.084	0.277
Old sisben 1 or 2	0.130	0.336	0.041	0.200	0.179	0.383	0.067	0.250
Number of people older than 60 in Hhold	0.317	0.606	0.517	0.743	0.323	0.609	0.555	0.753
Older than 60 years old * children younger than 5	0.066	0.357	0.101	0.611	0.085	0.421	0.104	0.552
Hhold without spouse	0.391	0.488	0.496	0.500	0.378	0.485	0.510	0.500
Hhold without children	0.259	0.438	0.246	0.431	0.240	0.427	0.256	0.437
Number of children in Hhold	1.524	1.317	1.418	1.160	1.648	1.424	1.430	1.207
Number of people under 18 in Hhold	1.376	1.357	1.299	1.333	1.550	1.488	1.331	1.310
At least one person between 12 and 18 in Hhold	0.278	0.448	0.343	0.475	0.293	0.455	0.350	0.477
Ata least one person between 25 and 30 in the Hhold	0.186	0.389	0.171	0.377	0.195	0.396	0.160	0.367
Number of people in the Hhold excluding no relatives	3.657	1.792	3.844	1.869	3.865	1.984	3.951	1.952
Number of people in the Hhold	3.693	1.805	3.863	1.877	3.902	1.995	3.992	1.953
Number of bedrooms in the Hhold	3.435	1.547	4.069	1.361	3.333	1.521	3.961	1.329
Wasted Human Capital	0.797	1.985	0.860	2.288	0.895	2.141	0.825	2.179
Rustic floor	0.899	0.301	0.941	0.235	0.854	0.354	0.935	0.247
Children younger than 5 in Hhold	0.411	0.667	0.247	0.551	0.464	0.730	0.277	0.581
Atlantic Region	-	-	-	-	0.187	0.390	0.257	0.437
Orinoquia Region	-	-	-	-	0.190	0.393	0.072	0.258
Central Region	0.240	0.427	0.174	0.380	0.129	0.335	0.111	0.314
Pacific Region	-	-	-	-	0.073	0.261	0.032	0.177
Antioquia Region	0.247	0.431	0.256	0.437	0.132	0.339	0.163	0.370
Valle Region	0.188	0.390	0.358	0.480	0.100	0.301	0.227	0.419
Hhold´s head who became unemployed between 1998 and 2002	0.201	0.401	0.210	0.408	0.173	0.378	0.191	0.394
Spouse who became unemployed between 1998 and 2002	0.081	0.273	0.079	0.270	0.070	0.255	0.073	0.260
Someone in the Hhold became unemployed between 1998 and 2002	0.074	0.262	0.140	0.347	0.061	0.239	0.117	0.322
An independent Hhold went out of business between 1998 and 2002	0.039	0.194	0.088	0.284	0.035	0.185	0.069	0.253
Hhold had another economic contingency between 1998 and 2002	0.060	0.238	0.066	0.249	0.059	0.236	0.063	0.244
Chronic disease	0.256	0.436	0.427	0.495	0.238	0.426	0.406	0.491
Hhold head´s Married	0.275	0.447	0.172	0.378	0.306	0.461	0.175	0.380
Hhold head´s livings in free union	0.275	0.447	0.172	0.378	0.306	0.461	0.175	0.380
Hhold head´s is separated or widowed	0.244	0.430	0.347	0.476	0.248	0.432	0.375	0.484
Gender of Hhold´s head	0.680	0.466	0.530	0.500	0.696	0.460	0.529	0.499
Left the country between 1998 and 2002	0.006	0.078	0.077	0.266	0.005	0.073	0.067	0.250
nbiorigpd	30.712	20.797	25.384	16.124	37.163	24.153	32.756	21.417
nbiorigpdd	0.130	0.337	0.114	0.318	0.121	0.326	0.095	0.294
Observations	**16993**		**545**		**22269**		**680**	
Frequency of Household	**5790538**		**241179**		**10810579**		**379503**	

b. AMCO

Variable	Short description of the variable	Household without Remittances		Household with Remittances	
		Mean	Std Dev,	Mean	Std Dev,
scomprasco~p	Share of consumption expenditure	0,704	0,342	0,690	0,325
scomprasco~1	Dummy if household spent in education	0,994	0,077	1,000	0,010
sgastosaludp	Share of healthcare expenditure	0,034	0,086	0,042	0,082
sgastosalu~1	Dummy if household spent in healthcare	0,342	0,475	0,497	0,500
sgastoedup	Share of education expenditure	0,041	0,117	0,044	0,115
sgastoedup1	Dummy if household spent in education	0,288	0,453	0,342	0,475
montoremesah	Amount of Remittances by Hhold	0,000	0,000	422.218	748.114
lnpcgastotot	Ln percapit expenditure	12,166	1,527	12,337	1,147
lnpcgas2	Ln^2 percapit expenditure	150,333	35,356	153,523	29,214
lleva1o2h	1 or 2 years living in the same town	0,049	0,217	0,032	0,177
educa2jh	Level of education of the Hhold's head: complete eleme	0,182	0,386	0,210	0,408
educa3jh	Level of education of the Hhold's head:incomplete high	0,166	0,372	0,174	0,379
educa4j	Level of education of the Hhold's head: complete high :	0,196	0,397	0,252	0,434
educa5jh	Hhold's head Level of education: incomplete college or	0,151	0,359	0,107	0,309
edad2jh	Hhold's head age between 25 and 54 years	0,662	0,473	0,528	0,500
edad3jh	Hhold's head age older than 55 years	0,304	0,460	0,403	0,491
dE1	Stratum 1	0,104	0,305	0,077	0,267
dE2	Stratum 2	0,271	0,445	0,178	0,383
dE3	Stratum 3	0,282	0,450	0,365	0,482
dE4	Stratum 4	0,074	0,262	0,169	0,375
puntajens~cd	Score new sisben	16,571	17,035	20,970	17,577
puntajens~dd	Score new sisben computable separating missing value	0,723	0,448	0,777	0,417
puntajeincd	Score old sisben	56,996	14,141	58,997	11,357
puntajeincdd	Score old sisben computable separating missing value:	0,981	0,138	0,981	0,137
nbi93dd	nbi93 of the town he lives	1,000	0,000	1,000	0,000
nbi93d	NBI of the town he lives	22,782	2,790	22,656	2,373
ds1ys2inc	Old sisben 1 or 2	0,150	0,357	0,015	0,123
Comphnmay602	Number of people older than 60 in Hhold	0,386	0,648	0,585	0,812
inte1	Older than 60 years old * children younger than 5	0,144	0,756	0,186	1,136
nocony	Hhold without spouse	0,406	0,491	0,441	0,497
nohijos	Hhold without children	0,232	0,422	0,170	0,376
tothijos	Number of children in Hhold	1,452	1,191	1,769	1,321
und18	Number of people under 18 in Hhold	1,236	1,242	1,351	1,389
dedad1218	At least one person between 12 and 18 in Hhold	0,281	0,450	0,305	0,461
dedad2530	Ata least one person between 25 and 30 in the Hhold	0,164	0,371	0,212	0,409
hhs	Number of people in the Hhold excluding no relatives	3,845	1,812	4,593	2,057
hhstodos	Number of people in the Hhold	3,916	1,809	4,691	2,067
cuartos	Number of bedrooms in the Hhold	3,626	1,328	4,125	1,272
khpes	Wasted Human Capital	1,049	2,376	0,877	1,987
pisoRS	Rustic floor	0,948	0,222	0,982	0,133
nedad05	Children younger than 5 in Hhold	0,300	0,585	0,236	0,503
generojefeh	Gender of Hhold's head	0,606	0,489	0,473	0,500
saliopais3h	Left the country between 1998 and 2002	0,021	0,144	0,221	0,415
paremig		0,002	0,039	0,099	0,299
llama1h	Emigrant calls once a week	0,006	0,078	0,185	0,388
interetorn~h	returned*emigrant	0,002	0,043	0,034	0,182
residenciah	The emigrant is resident in foreign country	0,031	0,173	0,372	0,484
emigranteh	At least one emigrant in Hhold	0,051	0,220	0,558	0,497
retornadoh	At least one returned in Hhold	0,044	0,205	0,108	0,311
casado	Hhold head´s Married	0,403	0,491	0,392	0,489
unionlibre	Hhold head´s livings in free union	0,216	0,412	0,208	0,406
sepoviudo	Hhold head´s is separated or widowed	0,266	0,442	0,326	0,469
Observations:		**1179**		**802**	
Frequency of household:		**90.404**		**20.457**	