

WORKING PAPER / 2008.03



# Looking Behind the Remittances: a CounterFactual Analysis of the Impact of Migration and Remittances on Poverty in the Philippines

Geovana Benedictis; German Calfat; Ana Rivas; Andrea Salvador



University  
of Antwerp



INSTITUTE OF DEVELOPMENT  
POLICY AND MANAGEMENT

Working Papers are published under the responsibility of the IOB Thematic Groups, without external review process. This paper has been vetted by Danny Cassimon, convenor of the Thematic Group Impact of Globalisation.

Comments on this Working Paper are invited. Please contact the author at <**name.surname@ua.ac.be**>.

**Institute of Development Policy and Management**  
University of Antwerp

Postal address:	Visiting address:
Prinsstraat 13	Lange Sint Annastraat 7
B-2000 Antwerpen	B-2000 Antwerpen
Belgium	Belgium

tel: +32 (0)3 265 57 70  
fax +32 (0)3 265 57 71  
e-mail: [dev@ua.ac.be](mailto:dev@ua.ac.be)  
[www.ua.ac.be/dev](http://www.ua.ac.be/dev)

WORKING PAPER / 2008.03

# Looking Behind the Remittances: a CounterFactual Analysis of the Impact of Migration and Remittances on Poverty in the Philippines

Geovana Benedictis; German Calfat; Ana Rivas;  
Andrea Salvador\*

December 2008

\* IOB- University of Antwerp

**TABLE OF CONTENTS**

<b>ABSTRACT</b>	<b>3</b>
<b>INTRODUCTION</b>	<b>4</b>
<b>FROM CRISIS TO OPPORTUNITY : MIGRATION IN THE PHILIPPINES</b>	<b>6</b>
<b>The Filipino Culture of Migration</b>	<b>6</b>
<b>The Overseas Filipino Workers</b>	<b>7</b>
<b>ARE THE MIGRANTS POOR?</b>	<b>12</b>
<b>Characteristics of the Filipino Migrants</b>	<b>13</b>
<b>METHODOLOGY</b>	<b>15</b>
<b>Estimation of per Capita Income of Households not Receiving Remittances</b>	<b>16</b>
<b>Imputation of per Capita Income for Migrant Households in a Counterfactual Scenario     (no migration and no remittances)</b>	<b>17</b>
<b>Simulation of Poverty Rates with the Counterfactual Income</b>	<b>18</b>
<b>RESULTS</b>	<b>18</b>
<b>The selection Equation</b>	<b>18</b>
<b>Earnings Equation</b>	<b>20</b>
<b>Income including remittances and counterfactual income of migrants</b>	<b>22</b>
<b>Estimated changes in Poverty</b>	<b>23</b>
<b>CONCLUSIONS</b>	<b>25</b>
<b>BIBLIOGRAPHY</b>	<b>28</b>

## ABSTRACT

Remittances in the Philippines, as a consequence of an increasing migration, are flowing into the country as 'manna-from-heaven'. For the majority of recipient families, remittances finance on average between 30% and 45% of their living expenses.

While cross-country studies tend to overestimate the poverty reducing effects of remittances, by considering those transfers as exogenous, the counterfactual differential income earned as a result of migration, tend to lower or even vanish these effects depending on the characteristics of the migrants and their households.

The present work analyzes carefully the impact of these cash transfers on poverty, determining heterogeneous results. While many authors find remittances a good poverty reduction strategy, in the Philippines the results show that the poor are not primarily engaged in migration. Therefore the initial conditions of the migrant play a role at defining its opportunities abroad.

Keywords: Migration, Remittances, Poverty, Philippines

JEL classification: F22, F24, I32

## INTRODUCTION

In the most recent Medium Term Philippine Development Plan 2004-2010 (NEDA, 2004), one of the main goals, established by the government, is to halve national poverty by 2010, considering job generation as one of the core strategies for economic growth and poverty alleviation. Total job generation for 2004-2010 is targeted at 9.7-11.5 million, representing on average between 1.4 and 1.6 million new jobs each year. Of which, the targeted overseas employment shall be derived from deployment of one million Overseas Filipino Workers (OFWs)<sup>1</sup> each year.

In the world's long existing war against poverty, nations have chosen different policies to deal with the challenges of development. International migration and remittances are said to be one of the strategies that contribute to poverty reduction, as experienced by many countries. For many years, the Philippine Government has been recognizing the importance of overseas employment as a tool for job generation, economic growth and poverty alleviation. Thousands of Filipino workers are sent abroad each year. Many Filipino families have depended on overseas workers' remittances as a source of income and support for personal consumption expenditure. The National Statistics Office (NSO) Press Release presented in June 2007 reported that in 2006, the number of OFWs who worked abroad anytime during the period April to September 2006 reached 1.52 million. In the same year, the Labor Force Survey (LFS) recorded a labor force population (population aged 15 years and older) of 55.9 million, revealing that, almost 3% of the net employment country mass works overseas.

The economic contributions of international migration and remittances have been manifested in the direct impact on private consumption. The IMF's 2006 Article IV Consultation Report on the Philippines reported that private consumption remained a major driver of growth, as underpinned by remittances. Yet its meaningful impact on poverty alleviation has not been significantly proven. Analysis on the impact of remittances on economic development and poverty alleviation based on the contribution of remittances on private consumption alone could lead to misleading conclusions.

A well-founded assessment on the impact of international migration and remittances on poverty should look beyond the actual remittances. It is necessary to have information on the characteristics of the migrants, their initial condition prior to migration, adjustments made due to migration and the actual situation with migration and remittances in order to have solid bases for conclusions. Comparing a "no migration scenario" with a "migration scenario" while considering the characteristics of the migrants and their households can more likely achieve this target assessment. More specifically, this requires a counterfactual analysis on the impact of migration.

---

<sup>1</sup> The SOF (Survey of Overseas Filipinos) defined (OFW) Overseas Filipino (Contract) Workers as those who are presently and temporarily out of the country to fulfill an overseas work contract for a specific length of time or who are presently at home on vacation but still has an existing contract to work abroad. This term was used interchangeably with the term "migrants" referring to Filipino migrants.

A number of studies on the relationship of international migration, poverty and remittances have been conducted, but most have failed to consider remittances as an exogenous phenomenon, while migration rather involves a process of adjusting from an initial condition and risking it for an 'uncertain' condition. Such a later condition is expected to be better than the initial one but, at a more disaggregated level, it has not always been the case. Failure to consider these facts tends to overestimate the impacts of migration and remittances on poverty.

The objective of this paper is to assess the impact of international migration and remittances on poverty in the case of the Philippines using a counterfactual regional analysis. The study aims to update and verify the findings of the existing literature and places a question, i.e., "Whether remittances will still have poverty reducing effects if these are not treated as exogenous transfers and the initial conditions of the migrants are taken into account?" A counterfactual analysis is specifically important in the case of the Philippines, since the assessment of the characteristics of the migrants revealed that most of them do not belong to the poor segments of the population, and occupied earning jobs prior to leave the country.

Through the adoption of the methodology used by Acosta, Fajnzylber and Lopez (2007), Adams (2006), Barham and Boucher (1998) and Rodriguez (1998), the analysis is based on the assumption that remittances are not likely to be exogenous transfers, rather, are substitutes to the income the migrants would have had if they did not leave the country. The counterfactual scenarios -of no remittances and migration by region- were estimated and compared with the actual income (including remittances) of migrants' households. It decreases the supposed poverty reducing effects of the remittances, but gives more robust analysis of their impact poverty. The study used the most recent household surveys on family income and expenditure (FIES) and overseas Filipinos (SOF). One of the novelties of this study is the use of the merged FIES and SOF surveys which allowed for comparison between remittances recipient and non-recipient households, while incorporating the socio-economic characteristics of the migrants themselves prior and post migration.

The succeeding sections are constructed as follows: section II presents major characteristics of the migration experience in the Philippines, section III includes a poverty assessment of the migrants by region; section IV explains the methodology used in the quantitative analysis on the impact of migration and remittances on poverty, section V includes the results by region of the estimated poverty rates; and section VI concludes.

## FROM CRISIS TO OPPORTUNITY : MIGRATION IN THE PHILIPPINES

### The Filipino Culture of Migration

The Filipino culture of international migration dates from the beginning of the 20th when a first group of workers arrived in Hawaii (USA) in 1906 to work on pineapple and sugar plantations (Asis, 2006) Given the status of members of a US colony, the number of Filipinos working on that country increased enormously during the 20's and 30's, specially in the maritime, agricultural, service and domestic work sectors. Was only in 1934, when the Philippines became subject of migration quotas. This aspect diversified the scope of destinations chosen by overseas workers.

The oil crisis of the 70's imposed serious conditions in the local economy. Economic growth could not absorb population growth and unemployment rates became a major 'push' factors for inhabitants to search for work abroad. At the same time rich Oil-Producers, specially the Gulf countries, experienced an increasing demand for low to medium skilled workers in order to keep up with their infrastructure and production plans. The Marcos administration, recognized an opportunity to match the local supply of workers and the foreign demand of labor, and established the Overseas Employment Program together with a reformed Labor Code of the Philippines, in 1974 (Asis, 2006).

The involvement of the government in the supply side of international labor reshaped the playfield of the migration phenomenon. The Philippines Overseas Employment Administration (POEA) matches the requirements of foreign employers, maritime agencies, multinationals and governments in a system where private and public recruiting agencies sign temporary or long-term contracts that are enforceable under the Phillipine law.

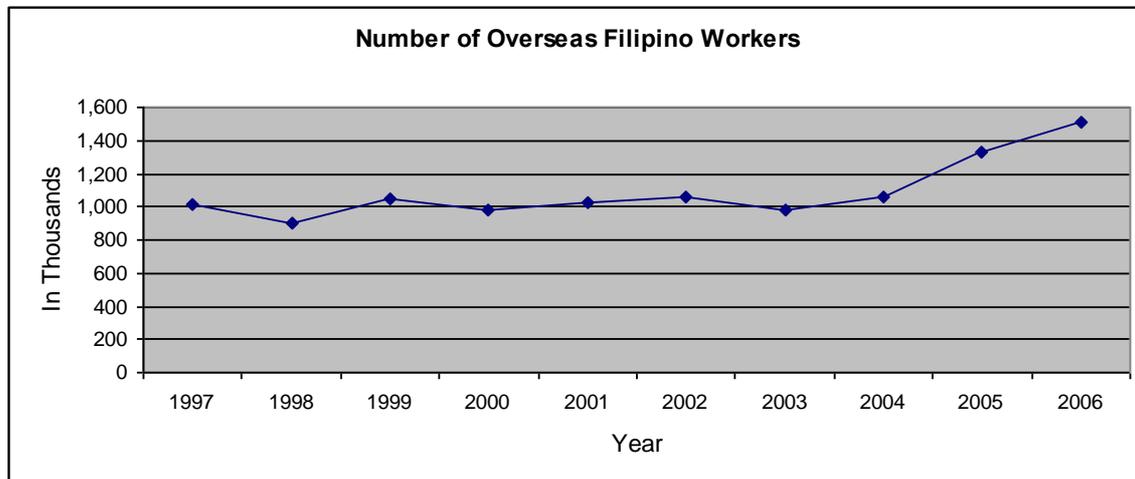
One of the major achievements of the program, is to encourage the use of legal migration channels, provide information and training to future foreign workers, ensure legal support at destination, open official access to foreign labor markets, reduce the costs of overseas recruitment and support the use of official – less costly- channels to send money home.(O'Neil, 2004).

Even though the government has actively promoted the use of legal canals for migration, this has not eliminated the existence of unregulated channels. Official figures consider that almost 10% of the country's 85 million population are working or leaving abroad, from which 20% left the country on irregular basis. Moreover, the existing of a more regulated migration scenario and a continuum inflow of remittances does not guarantee the development effects of this policy. While the pressure over local employment is certainly relaxed by an increasing international demand of cheap labor, the possibility of the poor to reach the economic benefits of remittances is uncertain, and depends on the initial characteristics of their households.

## The Overseas Filipino Workers

The number of OFWs remained high since 1999 and in the subsequent years maintained an increasing trend. Figure 1 illustrates this trend of increasing number of OFWs from 1997 – 2006. The Department of Labor and Employment (DOLE) explained that the remarkable growth in deployment beginning 2003 was achieved as “both emerging and traditional overseas job markets continued to prefer and employ OFWs” (DOLE, 2005). There was an increase in deployment of higher-paid skilled and professional Filipino workers such as nurses, health workers, office and food service staff, and production related workers. The increase in overseas employment is, however, not reflected in the employment statistics of the Philippines as the LFS excludes the “absent population” of the overseas Filipino workers. On average OFWs account for 3% of the labor force which at the end increases the potential employment rate of the Philippines’ population.

**Figure 1. Number of Overseas Filipino Workers**

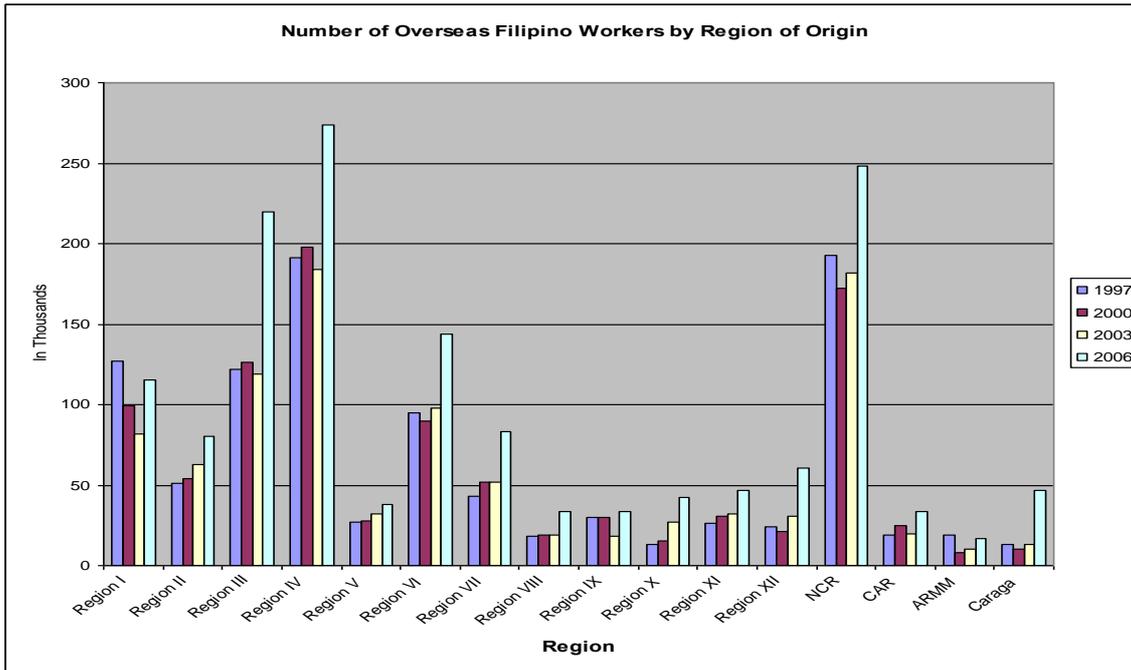


Source: NSO, *Index of Overseas Filipino Workers*, various years

The number of OFWs per region of origin (Figure 2) shows that most of them originated from Region IV (Southern Tagalog Region) and the NCR (the capital region). Since 1997, these regions have been sending the most number of contract workers. In 2006, the Southern Tagalog sent a total of 274,000 OFWs while the NCR sent a total of 248,000 people. Region III (Central Luzon) showed a sharp increase in the number of migrants sent in 2006 with a total of 220,000 of inhabitants that left this region in comparison with 178,000 people in 2005.

On the other hand, the ARMM (Autonomous Region of Muslim Mindanao) registered the lowest number of migrants sent in 2006 followed by the Cordillera Autonomous Region, Region IX (Western Mindanao) and Region VIII (Eastern Visayas), that correspond to some of the poorest regions in the country. In contrast with most countries in South and Central America (e.g., Bolivia, Ecuador, El Salvador, Guatemala, Paraguay, Mexico) the source of origin of the migrants in the Philippines is mostly located in the socio-economic middle class.

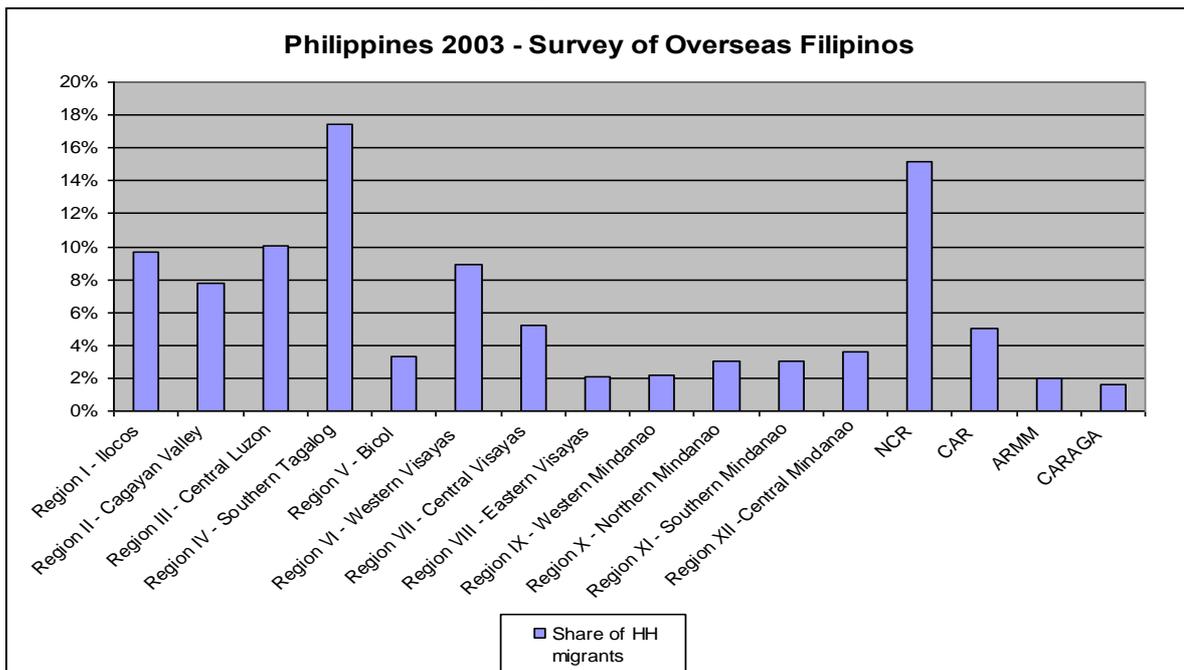
**Figure 2. Number of Overseas Filipino Workers by Region of Origin**



Source: Data from NSO, Index of Overseas Filipino Workers, 1997-2006, various years

While the origin of migrants might determine the poverty reduction effects of migration, a more accurate assessment is required to assess how the characteristics of the migrants and their families play a role in defining the benefits of this strategy. Using the SOF, which includes details on the characteristics of the migrants, a stronger and well-based analysis of the impact of international migration on poverty was established by the study and shall be discussed in the following sections.

**Figure 3. Share of Households with Migrants**



Source: Data from FIES and SOF 2003

When measured relative to the total number of sample households (shown in Figure 3 below), the regions with the highest share of migrants (measured by the number of migrants over total households per region), were Southern Tagalog (RegIV), II and the Capital Region all with almost 9% migrant households each. On the other hand, the Caraga Region has the lowest share of migrant households amounting to 2% of the total households. This measure was only done for 2003 using the merged FIES and SOF surveys in order to measure the proportion of the migrant households over all the sample households per region.

Aside from comparing the number of migrants and share of migrant households per region, a relevant piece of information for the analysis is disentangling who among these households actually receive remittances and how much they represent in their total income. Figure 4 presents the distribution of recipients households by region and income quintile.

The positions of the recipients' households in the income distribution show that most migrants' households belong to the highest quintile while and very few come from the lower income categories. The fact that the poorest families – in the majority of the country regions- can not afford the costs and risks of migration limits the potential welfare effects brought by remittances.

<b>Table 2.1. Share of Remittances* in Total Household Income (in yearly basis – 2003)</b>	
Region	Mean
Philippines	35.74%
Region I – Ilocos	37.75%
Region II - Cagayan Valley	28.95%
Region III - Central Luzon	38.79%
Region IV - Southern Tagalog	31.17%
Region V – Bicol Region	38.95%
Region VI - Western Visayas	33.36%
Region VII - Central Visayas	44.70%
Region VIII - Eastern Visayas	31.98%
Region IX - Western Mindanao	47.23%
Region X - Northern Mindanao	37.26%
Region XI - Southern Mindanao	43.50%
Region XII -Central Mindanao	45.56%
NCR	33.04%
CAR	34.83%
ARMM	40.12%
CARAGA	40.34%

Source: Authors. Data: FIES-SOF, 2003

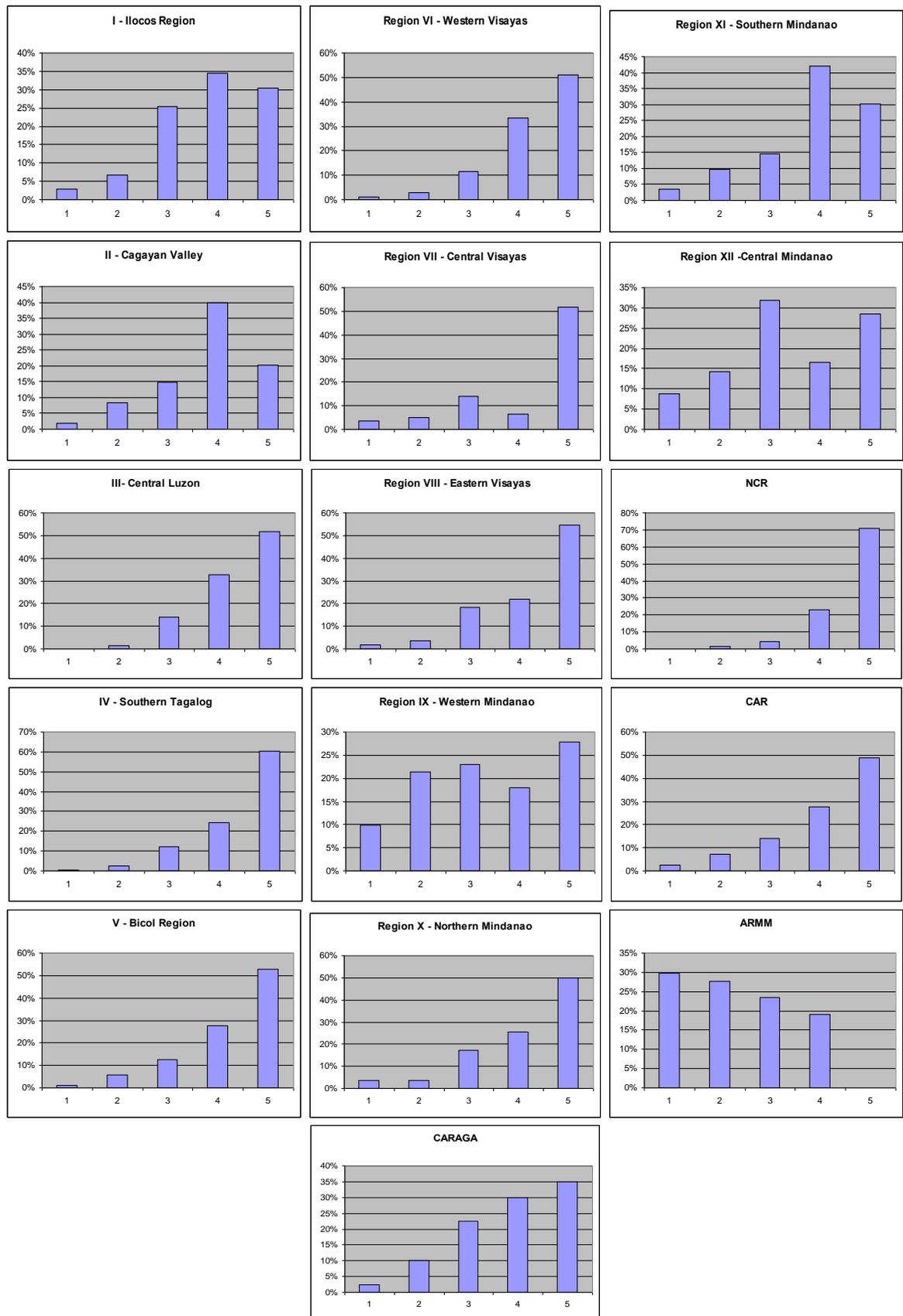
\* Remittances = Sent in cash and/or in kind + remittances brought back home

On the other hand, one out of the 16 regions shows a complete different pattern. The case of ARMM is interesting in the sense the pattern of migrants distribution is opposite to the rest of the other provinces. Almost 62% of the remittance recipient households are located between the first and second income group, showing that dependency of income on remittance is high in this area.

Table 2.1 shows the distribution of remittances on total household income by regions, for the recipient households. On average remittances contribute to finance 35.74% of total household income, at a National level.

Among the regions, Western Mindanao had the highest remittance share to total income with 47.23%, followed by Central Mindanao with 45.56% and Central Visayas with 44.70%. The lowest remittance share to total income was received by households in Cagayan Valley at 28.95%. The figures showed that the remittance recipient households have relatively high dependence on remittances income. It should be noted, however, that since income brought by remittances is not likely to be exogenous but rather s substitute to the income lost by the migrants if they stayed in their country (and occupied a job), the true contribution of remittances to total income might be lower, under a more realistic scenario. This point was also stressed by Acosta, Fajnzylber and Lopez (2007) with mixed results for the case of Central an South American countries.

**Figure 4. Households Receiving Remittances by Quintile and Region  
Income Distribution of 2003**



Source: Data from FIES-SOF 2003 prepared by the authors

## ARE THE MIGRANTS POOR?

A closer look at the actual per capita income of the migrants' households tells that majority of them were not poor. Table 3.1 shows that based on the actual per capita income only 2.7% of all the migrants' households were poor while 97.3% were non-poor households. The ARMM registered the highest number of poor migrant households with 40.74% while the Bicol Region had no poor migrant households at all. Central Mindanao had 11.86 % poor migrant households, Western Mindanao had 7.32 % and Southern Mindanao had 5 % migrant households that were poor. When the poverty levels were assessed based on the non-remittance income of the migrants' households (measured by subtracting the remittances income from the total income), 16.06% of the total migrants' households were poor while the non-poor households were still the majority at 83.94%.

These figures suggest that most of the migrants' households are not poor based on the actual income (with remittances), while the poverty headcount based on the non-remittances income supports the positive poverty reduction effects of remittances. The latest simplistic approach denies the fact that remittances are not exogenous transfers. Hence, the counterfactual analysis, which involves predicting the pre-migration income of the migrants' households and simulating poverty levels in this counterfactual scenario, was conducted and shall be presented in the following sections.

**Table 3.1 Distribution of Poor/Non-poor Migrants' Households by Region**

Region	Actual Per Capita Income		Non-remittance Income	
	% of Non-poor	(%) Poor	% of Non-poor	(%) Poor
Region I – Ilocos	96.95%	3.05%	78.68%	21.32%
Region II - Cagayan Valley	98.21%	1.79%	85.71%	14.29%
Region III - Central Luzon	99.03%	0.97%	83.01%	16.99%
Region IV - Southern Tagalog	99.13%	0.87%	86.96%	13.04%
Region V – Bicol Region	100.00%	0.00%	88.06%	11.94%
Region VI - Western Visayas	98.87%	1.13%	89.83%	10.17%
Region VII - Central Visayas	98.20%	1.80%	83.78%	16.22%
Region VIII - Eastern Visayas	97.67%	2.33%	83.72%	16.28%
Region IX - Western Mindanao	92.68%	7.32%	85.37%	14.63%
Region X - Northern Mindanao	98.41%	1.59%	87.30%	12.70%
Region XI - Southern Mindanao	95.00%	5.00%	81.67%	18.33%
Region XII -Central Mindanao	88.14%	11.86%	71.19%	28.81%
NCR	98.53%	1.47%	88.60%	11.40%
CAR	95.65%	4.35%	76.09%	23.91%
ARMM	59.26%	40.74%	37.04%	62.96%
Caraga	96.97%	3.03%	81.82%	18.18%
Total	97.30%	2.70%	83.94%	16.06%

Source: Authors. Data: FIES-SOF 2003

## Characteristics of the Filipino Migrants

The following characteristics of the individual migrants provided bases for more robust analysis of the paper. More importantly, it allowed us to infer on the counterfactual and actual conditions of the migrants. Table 3.2 summarizes some individual characteristics of the OFWs for years 1997-2003 in terms of age, sex, marital status, occupation in the Philippines prior to migration, highest grade completed and occupation abroad.

	1997	2000	2003
Age	35.18	36.09	35.83
Marital Status (Married)	58.44	58.36	60.83
Gender (Male)	57.13	53.8	48.06
Occupation in the Philippines Before Migration			
Officials of the Government and Special Interest Groups	0.65	0.99	4.462
Professionals	5.21	6.77	7.72
Technicians & Associate Professionals	4.25	2.31	2.82
Clerks	5.05	4.65	4.74
Service Workers and Shop and Market Sales Workers	7.73	11.26	7.88
Farmers, Forestry Workers and Fishermen	8.39	4.91	4.05
Trades & Related Workers	11.03	3.66	9.32
Plant & Machine Operators and Assemblers	9.42	7.43	6.34
Laborers & Unskilled Workers	14.79	10.57	8.71
Armed Forces	0.07	0.21	0.09
Special Occupations	0.78		
Housekeepers (own house)	17.03	16.49	17.86
Non-gainful activity	10.73	25.58	12.02
No work	5.39	5.24	3.37
Highest Grade Completed			
No Grade Completed	0.39	0.12	0.35
Elementary Undergraduate	2.65	2.22	1.59
Elementary Graduate	5.2	4.31	3.92
High School Undergraduate	8.14	6.65	5.72
High School Graduate	23.68	22.67	24.39
Post Secondary		3.26	4.57
College Undergraduate	29.56	23.69	24.15

<sup>2</sup> The increase in professionals and officials of the Government and special interest groups was consistent with the statement of DOLE that in 2003, "both emerging and traditional overseas job markets continued to prefer and employ OFWs" (DOLE, 2005).

	1997	2000	2003
College Graduate or Higher	30.23	36.96	35.31
No report	0.14	0.12	
Occupation Abroad			
Officials of the Government and Special Interest Groups	0.54	0.7	2.163
Professionals	3.56	9.77	8.83
Technicians & Associate Professionals	7.14	5.04	8.68
Clerks	4.93	4.46	3.01
Service Workers and Shop and Market Sales Workers	37.9	39.15	10.75
Farmers, Forestry Workers and Fishermen	1.36	0.9	0.3
Trades & Related Workers	5.59	3.62	13.83
Plant & Machine Operators and Assemblers	12.61	12.85	14.59
Laborers & Unskilled Workers	23.83	22.83	33.61
Special Occupations	1.96		
Armed Forces		0.09	0.15
Housekeepers	0.11		
Non-gainful activity	0.46	0.29	0.41
No Work	0.26		3.65

Source: Author's computation; data from SOF, 1997-2003

The main characteristics of the OFWs in 2003 showed a higher tendency among women to leave the country than men. This was a change from the previous years and contrary to the common pattern in most migrant sending countries where migrants were mostly male. This can be attributed to the consequent changing nature of occupations available abroad as manifested in the increased deployment of higher-paid skilled and professional Filipino workers such as nurses and health workers, which are usually women, while traditional overseas job (which include domestic helpers, service workers and laborers) were also maintained (DOLE, 2005). The average age of migrants remained between 35 and 36 years old who were mostly married. It was also observed that majority of the Filipino emigrants were with good educational backgrounds, with the majority (88%) have at least graduated high school and a significant percentage (60%) have reached college level.

Our counterfactual analysis on migration worked on the assumption that migrants have an income prior to migration and the income lost after migration should be accounted for in assessing the impact of migration and remittances. The characteristics of the migrants provide bases for this assumption. The availability of the data also gave more accuracy on the imputation of the counterfactual income being able to identify which households occupied jobs prior to migration.

<sup>3</sup> The increase in professionals and officials of the Government and special interest groups was consistent with the statement of DOLE that in 2003, "both emerging and traditional overseas job markets continued to prefer and employ OFWs" (DOLE, 2005).

A large percentage of the migrants occupied jobs prior to migration. Most of them worked as skilled and semi-skilled workers. However, there is also a significant percentage that is composed of those not formally employed but self-employed, working in their own homes, usually as housekeepers or housewives. In the Philippines, a large percentage of mothers/housewives are forced to leave their homes and children to look for opportunities abroad. Certain authors suggest that migration is caused by push factors in a migrants' origin. Among which are the unstable socio-economic status, such as unemployment, which could cause an emigrant to leave his country and look for opportunities abroad. Once abroad, most of the migrants worked as service workers, laborers and unskilled workers. Large percentages were also plant workers, trade and related workers.

From the observed characteristics of the OFWs, it can be said that despite their good educational backgrounds, their initial status in the Philippines as skilled, semi-skilled workers or service workers, they still tend to seek employment abroad. The problem of underemployment can be seen as one of the intervening factors. As emphasized by Schelzig (2005), the basic problem of the poor of the Philippines is not necessarily low employment; rather both low wage rates and underemployment. This behavior can also be explained by the neoclassical micro theory of migration, which suggests that migration is an individual decision of migrants, taking into account the cost and benefit and monetary returns of migration with their human capital investment (Sjaastad, 1962; Todaro, 1969, 1976, 1989; Todaro and Mamszko, 1987; cited in Massey, et. al., 1993). Once abroad, they end up, however, in jobs as unskilled workers/service workers abroad. Consistent with the migration theories, migrants tend to compare the income that they will have if they stayed at home in low-paying jobs or work abroad even as low skilled workers but paid higher salaries.

## **METHODOLOGY**

This section discusses the methodology used for a counterfactual analysis of the impact of remittances on poverty. This analysis aimed to verify the significance of the following given hypotheses, i.e., 1) The total household income of the migrants' family increased with remittances compared to the counterfactual scenario if the migrant stayed and worked in the Philippines; and 2) The additional income from remittances decreased the incidence of poverty in the regions of the Philippines.

The available data on the pre-migration occupation of the migrants, their characteristics and their households' gave more accurate bases for the study. This allowed the study to adopt the methodology used by Acosta, Fajnzylber and Lopez (2007), Adams (2006), Barham and Boucher (1998) and Rodriguez (1998) and to test our hypotheses. With the use of a counterfactual analysis, the methodology prevented overestimating the impacts of remittances on the household income and poverty levels of the regions.

The basic idea of the methodology is to impute the prior-migration income, using the coefficients from the estimation of the determinants of per capita income of households who were not engaged in migration. The use of the said coefficients on the sample of migrants,

including their particular characteristics in terms of gender, age and prior employment, allowed us to estimate their original income before migration. More formally, the steps involved in the estimation of the counterfactual income are presented in the following paragraphs:

### Estimation of per Capita Income of Households not Receiving Remittances

The estimation involved variables that are likely to influence the level of income of the non-recipient households. This was estimated using the following equation:

$$\log Y_i = \alpha + \beta X_i + \gamma H_i + \mu_i \quad (1)$$

where  $Y_i$  is the per capita income of the households that do not receive remittances,  $X_i$  is the vector of household characteristics that are likely to determine household income (total number of household members, members less than 15 yrs. old, members between 15 and 24 yrs. old, members older than 25 yrs, number of employed members, regional dummies),  $H_i$  are the characteristics of the household head that are likely to determine household income (average years of education of the household head, sex of household head, age of household head, etc), and  $\mu_i$  is the unobserved determinants of income.

Since the estimation of household income was intended to be performed among non-recipient households, mere selection of non recipients among the sample households could suffer from selection bias if this selection into the non-remittance group is correlated with the factors affecting household income. In other words, this could be the case if the sub-sample of recipient households were not randomly drawn from the population but were self-selected on the basis of the identified determinants of non-remittance income, which we used as regression parameters. If so, OLS estimation of equation (1) using sub-sample of non-remittance recipient households will be biased and inconsistent. In order to control for the potential selection bias, following Acosta, Fajnzylber and Lopez (2007), the Heckman two-step estimation was adopted. This process involved an estimation of two equations, i.e., the selection equation (equation 2) and the earnings equation (equation 3).

$$M_i^* = \alpha + \beta X_i + \gamma H_i + \omega Z_i + u_i \quad (2)$$

Equation (1) was modified by adding a variable ( $M_i^*$ )<sup>4</sup> that represents the households' propensity to not receive remittances. This served as the selection rule for non recipient of remittances. Another variable was added ( $Z_i$ ) which acts as a selection restriction variable which is a determinant of household status but does not necessarily affect the probability of not receive remittances. Based on data availability, the Household Asset Index<sup>5</sup>

<sup>4</sup> As explained in Acosta, Fajnzylber and Lopez (2007) one can only observe the sign of the variable  $M_i^*$ , which represents the selection rule for non-recipient households. This variable can either have positive (to be selected as non-recipient) or negative (not included among the non-recipient households).

<sup>5</sup> The Household Asset Index was derived using the Principal Component Analysis factors reduction technique. The components included variables that are likely to express household status but that are not determinants of migration. We included type of roof, walls and toilet facility of the house, existence of electricity service, type of water service and land line phone service as the variables of the PCA. Two main components were determined, one corresponding to the material characteristics of the house and a second one expressing the availability of basic services used by the family.

was used as a restriction variable. A probit estimation of the probability of being a non-recipient, using equation (1) was performed and marginal effects were computed.

$$\log Y_i = \alpha_2 + \beta_2 X_i + \gamma_2 H_i + \theta \lambda_i + \varepsilon_i \quad (3)$$

The next step was the construction of an inverse Mill's ratio ( $\lambda_6$ ). This was derived from estimates from the probit regression. This was then included as an additional regressor in equation (1), creating equation (3). This allowed the remaining unexplained component  $\varepsilon_i$  to have the usual i.i.d. properties. Its significance shall serve as an indication that the selection into the non-recipient status is correlated with factors that affect household earnings (Acosta, Fajnzylber and Lopez 2007). Table 4.1 below summarizes the variables used in the regression.

<b>Table 4.1. Definitions and descriptive statistics for variables in the regressions</b>		
Variable	Mean	Std. Dev.
Log total per capita income	11.47	0.85
Total Household Members	4.84	2.21
Members less than 15 yrs. Old	1.00	1.18
Members less than 25 yrs. Old	0.92	1.14
Members 25 yrs. and over	2.13	0.97
Average Years of Education (HH Head)	8.30	4.35
Number of Employed Members	1.71	1.00
Age (HH Head)	46.28	14.25
HH Asset Index	0.68	1.03
	Proportion	
Dummy Variables	(1)	(0)
Dummy for non-recipient households	Non-recipient 95.35%	Recipient 4.65%
HH Head Sex	Male 55.79%	Female 44.21%

Source: Authors. Data: FIES-SOF 2003

### **Imputation of per Capita Income for Migrant Households in a Counterfactual Scenario (no migration and no remittances)**

The estimated coefficients and the set of characteristics of the remittance recipient households were used in order to calculate the counterfactual non-remittance per capita income of the recipient households. Unlike Rodriguez (1998) and Acosta, Fajnzylber and Lopez (2007),

<sup>6</sup> This is equivalent to the selection inverse Mill's ratio and is used to construct a selection bias control factor. This reflects the effects of all unobservable characteristics related to selection into the non-remittance recipient status of the households. This is added as an additional independent variable in the earnings equation. This controls for the effect of the unobservable characteristics related to the selection into the non-migration status which are also related to the non-remittance income of the households (Smits, 2003).

the characteristics of the migrants' and migrants' households were not based on assumptions, but on actual data.

The resulting imputed counterfactual income, however, was based only on the estimated coefficients of the equation. As pointed out by Rodriguez (1998) and Acosta, Fajnzylber and Lopez (2007), the variance of the counterfactual income would be artificially small because it ignores the unobserved determinants of the income. Barham and Boucher (1998) explained that this method of imputation takes into account the observed components/determinants of income only as given by the coefficients in the equation but excludes the unobserved components, which are included in the error term of the equation. This exclusion causes the decrease in variance in the predicted income.

A potential solution was proposed by Barham and Boucher (1998) and was adopted by Acosta, Fajnzylber and Lopez (2007) where a random error component was added to the predicted household income. In this manner, the unobserved components were included in the imputation of a more appropriate non-remittance income. The suggested methodology was, thus, adopted in this paper as well. Random error components were drawn from a distribution that has the mean and standard deviation of the actual estimated errors. While the error components were drawn randomly from a specified distribution, the draws were repeated 1000 times. Each drawn error term was added to the predicted non-remittance income, creating 1000 different imputed counterfactual income for each household. The 25th and 975th estimates were identified as point estimates to form a 95% confidence interval for the imputation, while the mean of this distribution was considered as the truly random error to be added to the predicted counterfactual income.

### **Simulation of Poverty Rates with the Counterfactual Income**

Poverty rates were estimated based on the imputed counterfactual income. The mean and the 95% confidence interval poverty rates in the counterfactual scenario were also computed. These were compared with the actual poverty rates and poverty rates based on the non-remittances income (without adjustment for lost income) derived by subtracting remittances from the total income. The effect of remittances was estimated from the change in poverty rate in a no migration scenario and actual scenario with migration.

## **RESULTS**

This section discusses the results of the counterfactual analysis of the impact of migration and remittances on poverty in the Philippines using the 2003 data from the merged FIES-SOF and applying the methodology discussed in Section IV. Tables 5.1 and 5.2 summarize the results of the Heckman two-step estimation for the selection equation and earnings equation.

### **The selection Equation**

The regression of the selection equation, whose dependent variable was the selection variable for non-recipient households revealed the expected signs of the coefficients.

Among the set of variables, the one with the highest influence on the propensity to not migrate is the gender of the household head (male).

<b>Table 5.1 Tobit Auxiliary Regressions – Selection Equation</b>		
<b>Dependent Variable – Households not Recipient of Remittances (based on 2003 FIES-SOF data)</b>		
Variables	Coefficient	z value
Total Number of Household Members	0.055***	4.25
Members less than 15 yrs. Old	-0.009	-0.51
Members 15 – 24 yrs. Old	-0.137***	-8.77
Members 25 yrs. and over	-0.18***	-10.27
HH Head sex (male)	-0.614***	-22.5
Average Years of Education (HH Head)	-0.008**	-2.48
Age (HH Head)	-0.007***	-7.51
Number of Employed Members	0.081***	6.03
Asset Index	-0.282***	-27.44
Dummy for Region I	-0.229**	-3.34
Dummy for Region II	-0.357***	-5.04
Dummy for Region III	0.139**	2.04
Dummy for Region IV	0.144**	2.25
Dummy for Region V	0.3***	3.67
Dummy for Region VI	-0.109	-1.56
Dummy for Region VII	0.312***	4.08
Dummy for Region VIII	0.375***	4.16
Dummy for Region IX	0.324**	3.39
Dummy for Region X	0.463***	5.31
Dummy for Region XI	0.341***	4.04
Dummy for Region XII	0.14**	1.69
Dummy for Region XIII	0.313***	4.72
Dummy for Region XV	-0.169**	-1.72
Dummy for Region XVI	0.542***	5.49
Constant	5.879***	44.92
Observations	40.784	
Pseudo R-Squared	0.185	

\*\*\* Significant at 1% level. \*\* Significant at 5% level.

The results indicated that a male headed household has a 5% higher probability not to be a remittance recipient household. According to the Survey of Overseas Filipinos (SOF) 2003, around 86% of the households not engaged in migration were headed by men. This can be attributed to the nature of the occupations available abroad (i.e; domestic helpers and service workers) and the increasing demand of skilled Filipino workers such as nurses and health workers health workers (usually women).

Aside from the regional dummies, the next strongest predictor is the sex of the Household head, the number of members between 15 and 24 years old and older than 25, both of which are negatively correlated with the non-remittance recipient indicator. These are the members of the households that are in conditions to be part of the labor force. A household with

less members in working ages and hence more children have a higher propensity to migrate in order to secure sufficient income for the maintenance of the family.

The number of household members employed is positively correlated with the non migration scenario, since the lack of local employment opportunities is one of the major drivers of migration. This is consistent with the theory of new economics of migration that defines migration as a household rather than an individual decision, taken in order to maximize income and minimize risks for the family income. The more earnings the family receives locally, the lower their members would risk the stability of the households by searching for alternative income abroad.

The age of the household head is statistically significant but remains a weak predictor. The statistics tells that the average age of migrants was between 35 and 36 years old. This explains the signs of the coefficient, which is negative for age, limiting the probability of migration to middle-aged household heads. Another significant predictor is the average years of education of the household (represented by the level of schooling of the household head). The coefficients indicate that households whose heads have longer years of education have 0.8% lower probability not to have migrants or receive remittances. Level of education is indeed one of the determinants of emigration in the Philippines. The statistics revealed that most of the migrants have completed high levels of education. The longer the years of education, result in a higher probability for the person to be able to leave the country and work abroad. One of the assets of Filipino workers is their proficiency in speaking English, which is considered an internationally business spoken language. This enables them to interact and work with more people in different parts of the world. Yet, English proficiency can only be achieved if one has minimum educational background. This explains why most of the migrants have had at least high school education. Those who are better trained/ well-educated are more likely to seek for better salaries abroad which they cannot get in the Philippines.

The asset index has a negative coefficient. This is consistent with the findings of Sawada and Estudillo (2006), where they identified possession of assets such as land, as relevant among the determinants of migration. This was explained in the context of the high amount of money needed for placement fees for migration and the necessary assets that will allow access to credit facilities. Credit availability was said to be a key deciding factor for a household to invest in overseas migration. Hence, those households that have more assets have a 28% lower probability not to leave the country. The regional dummies appeared to be strong and significant predictors of non-migration. Among which, the strongest predictor is Region XVI or Caraga, which is consistent with the fact that Caraga had the least number of overseas contract workers registered in 2003. The high coefficients of the regional dummies tell that characteristics of regions affect the propensity of the migrants not to migrate and/or receive remittances.

### **Earnings Equation**

In the earnings equation, which predicted the per capita income of the households not receiving remittances, the  $\lambda$  appeared to be significant. This means that the bias that would have resulted from estimating the equations by ordinary least squares without selection controls would be small. While the data used was from a merged dataset of two separate surveys (FIES

and SOF), an appropriate sampling design<sup>7</sup> was employed. Both surveys used the same national sample of about 41,000 sample households. The FIES involved the interview of these sample households, while the SOF drew a probability sample from the same 41,000 households (NSO, n.d).

The coefficients of the variables have the expected signs and the model explained 37% of the variability in the household per capita income of the households that do not receive remittances. The number of members younger than 15 yrs. old, members 15 – 24 yrs. Old, members older the 25 years, average years of education and sex of the household head, the number of employed members and the assets index were positive predictors. On the other hand, total number of household members and the age of the household head are negative predictors, being the last one not even significant.

The findings on the relationship of gender and income reinforces the idea that households who are headed by male tend to have lower per capita income compared to female headed households. A study by Cororaton and Corong (2006) found cases where female headed households are better off because of the expansion of the semi-conductors, textile and garments, and wholesale and retail trade subsectors which mainly employs highly educated/skilled female workers.

The regional dummies appeared to be significant and strong predictors of the per capita income of the non-remittance recipient households. This explains that differences in regional characteristics can define the variability in per capita income of the households. Regions III, IV, XIII and XIV have positive coefficients while the rest have negative coefficients. These are among the regions that have low poverty rates and explain that households belonging to these regions are more likely to have higher per capita income.

<b>Table 5.2. Earnings Equation: Dependent Variable: Log Per Capita Income of HHs (Counterfactual scenario)</b>		
Variables	Coefficient	t value
Total Number Household Members	-0.243***	-68.47
Members less than 15 yrs. Old	0.046***	9.37
Members less 15 – 24 yrs. Old	0.165***	35.94
Members 25 yrs. and over	0.239***	43.59
HH Head sex (1=male, 2=female)	0.008	0.56
Average Years of Education (HH Head)	0.013***	13.03
Age (HH Head)	-0.002***	-5.82
Number of Employed Members	0.014***	3.54
Assets Index	0.047***	15.44
Dummy for Region II	-0.043**	-2.03
Dummy for Region III	0.265***	13.58
Dummy for Region IV	0.195***	11.02

<sup>7</sup> The sampling design of the SOF and FIES adopted that of the Integrated Survey of Household (ISH) as of July 1996 (NSO, n.d.).

<b>Table 5.2. Earnings Equation:</b>		
<b>Dependent Variable: Log Per Capita Income of HHs (Counterfactual scenario)</b>		
Variables	Coefficient	t value
Dummy for Region V	-0.129***	-6.12
Dummy for Region VI	-0.074***	-3.77
Dummy for Region VII	-0.059***	-2.87
Dummy for Region VIII	-0.139***	-6.41
Dummy for Region IX	-0.405***	-17.72
Dummy for Region X	-0.19***	-8.52
Dummy for Region XI	-0.088***	-4.05
Dummy for Region XII	-0.175***	-8.14
Dummy for Region XIII	0.678***	34.78
Dummy for Region XIV	0.165***	7.16
Dummy for Region XV	-0.208***	-9.16
Dummy for Region XVI	-0.28***	-12.07
Lambda	0.696***	10.31
Constant	9.857***	247.12
Observations	40.784	
R-Squared	0.376	

\*\*\* Significant at 1% level. \*\* Significant at 5% level.

### Income including remittances and counterfactual income of migrants

Based on the imputed counterfactual income, Table 5.3 summarizes the effect of the changes in income from a no migration scenario to the actual scenario of earning remittances from migration, i.e., the number of households whose income either increased or decreased under the presence of remittances. There are 18% of the households with migrants whose income decreased after migration, while 82% experienced an increase in income. The benefits of remittances were measured on the assumption that these are not exogenous transfers but are substitutes to the income the migrants would have had if they did not leave the country.

The Capital Region (NCR) who has the most (97%) while ARMM has the least number of migrants' household (26%) whose income increased with remittances. Most of the remittance recipient households in NCR are non-poor households, while ARMM has relatively larger number of poor remittance recipient households compared to the other regions. This allowed us to assess what kind of households most likely have benefited from these increases in income.

**Table 5.3 Effect of Remittances on Per Capita Income of Recipient Households**

Region	Income Decreased (Total HH)	% to Total HH	Income Increased (Total HH)	% to Total HH
Region I – Ilocos Region	47	24%	150	76%
Region II - Cagayan Valley	39	23%	129	77%
Region III – Central Luzon	28	14%	178	86%
Region IV - Southern Tagalog	38	11%	307	89%
Region V – Bicol Region	8	12%	59	88%
Region VI - Western Visayas	25	14%	152	86%
Region VII - Central Visayas	16	14%	95	86%
Region VIII - Eastern Visayas	10	23%	33	77%
Region IX - Western Mindanao	19	46%	22	54%
Region X - Northern Mindanao	14	22%	49	78%
Region XI - Southern Mindanao	22	37%	38	63%
Region XII -Central Mindanao	25	42%	34	58%
NCR	9	3%	263	97%
CAR	16	17%	76	83%
ARMM	20	74%	7	26%
Caraga	10	30%	23	70%
Total	346	18%	1,615	82%

Source: Author's computation; data from FIES-SOF 2003

### Estimated changes in Poverty

The results of the simulations are reported in Tables 5.4 and 5.5. The effects of remittances were estimated for all the regions of the Philippines using regional poverty lines in order to determine the poverty incidence relevant for each region. In order to measure the effect of remittances, poverty measures were compared in terms of the actual per capita income, non-remittance per capita income without adjustment for lost income (total income minus remittances) and counterfactual income imputed from the estimates (with adjustment for lost income).

The observed poverty incidence rates based on the actual per capita income of the households are presented in Panel A. Poverty rates were presented on a regional level for all the households and for recipient households. Panel B presents the effects on poverty rates of non-remittance income without adjustment for lost income and counterfactual income with adjustment for lost income.

When the poverty rates based on the non-remittance income (without adjustment for lost in income) were compared with those based on the actual total income with remittances, it was observed that remittances decreased poverty rates of the recipient households in all regions at significant rates. Decreases in poverty rates based on this measurement were highest in the Bicol Region, Central Luzon and Southern Tagalog.

The majority of the regions showed a decreasing trend in poverty caused by the additional income brought by remittances even after adjustments in lost income were done. However, the poverty reduction effects of remittances decreased when adjustments for lost income in a counterfactual scenario were taken into account. Among the highest decreases in poverty rate among all households, are households located in NCR and the Bicol Region, Southern Tagalog and Central Luzon. It is interesting to note a pattern common to these regions that benefited the most from the poverty reduction effects of remittances. Except for Bicol, these were the regions that have the most number of households whose total incomes increased after the income from remittances and adjustments for lost income in the counterfactual scenario were accounted for. These were also the regions that sent the most number of migrants. Yet, the shares of remittances to total household income among these regions were relatively lower than in other regions. This means that while the inflows of remittances are more concentrated in the higher income groups of the society, those households do not depend on this source of funds to survive and that remittances, do not only sufficiently compensated the lost income of the overseas workers but they even exceeded and provided extra income for the family budget. The initial situation of these households were characterized by high non-remittances income, large number of employed members, large number of economically active household members, highly educated household heads, middle-aged household head, female-headed household and small household size. These characteristics entail high potential for domestic earnings and at the same time, higher propensity to produce migrants who are more likely to get high paying jobs abroad.

The Bicol Region benefited from the increase in income from remittances despite its poor regional conditions. The region is among the poorest regions and did not send many migrants in 2003. However, it was observed that while the region is among the poorest regions, the migrants from these regions are not actually among the poor households. Most of the migrants from this region belong to the highest income quintile. Just like the other regions that benefited the most, these migrants have higher propensity to get high paying jobs abroad and high probability to have sources of income other than remittances.

There were cases when poverty rates – at a National Level- did not change. This means that the remittances were not able to compensate for the income lost after leaving the country. Acosta, Fajnzylber and Lopez (2007) gathered similar findings for Mexico where most of the migrants belong to the lowest income quintile. He also considered the possibility that this could be due to unobserved characteristics that could have reduced the household's income generation capacity and increased their propensity to migrate or possible under-reporting of remittances. The same could also be inferred as a possibility for the case of the Philippines. These results were observed in regions such as Western Mindanao, Northern Mindanao, Central Mindanao, and Caraga (poverty incidence only). These regions have the least number of households whose total incomes increased after the income from remittances and adjustments for income losses were included. Interestingly, these regions showed high dependence on the remittances income. This indicates that while they sent only few migrants, families highly depend on this income source. These households were characterized by low initial counterfactual income. Incomes from domestic sources (non-remittances) are typically low. There is a higher risk for these households to lose from the changes brought about by

migration. Migrants from these households are usually seen as the breadwinners; families seek “hope” from them to alleviate their situation from poverty. Hence, while migration requires high placement fees, transportation costs, etc., these are the families who were able to save some or borrow money and they decided to bet in favor of the migration strategy. Sawada and Estudillo (2006) explained that only very few poor families are actually benefiting from migration because due to their inability to secure cheap financial means to cover traveling expenses.

In the case of ARMM, the counterfactual scenario determines a small poverty reduction effect brought by remittances (See Table 5.6 in Annex ) and income losses for the poorest recipient families (1st and 2nd quintile in the distribution of losers – Table 5.6). Given the fact that the highest poverty incidence rates are registered in this region, it is understandable that migrants belonging to this area were not able to find higher paid jobs abroad. For instance, The SOF revealed that 70.45% of the migrants from ARMM worked as unskilled laborers abroad, which are more likely to be low paying jobs. Adams (1998) defined remittances as the difference of total income abroad minus the travel costs abroad, housing costs abroad and food costs abroad. These migrants were subjected to higher cost of living than they initially had in the Philippines. It should be understood that as well as working abroad can provide higher income, it also entails higher living costs.

The scope of the study, however, is limited to a single year analysis, i.e., 2003, hence, the factors such as possible transition periods of adjustments for the migrants which could be very difficult and costly, could not be fully taken into account. The existence of a period of adjustment for a new foreign worker can reduce his capacity to send remittances. These factors could offer additional explanations on the revealed impact of remittances to the income of recipient households.

## CONCLUSIONS

The descriptive statistics on the characteristics of the migrants and migrant households gave solid bases on the assumption that remittances are less likely to be exogenous transfers; but are substitutes of the income the migrants would have had if they did not leave the country and occupied paying jobs. The actual data revealed that most migrants indeed occupied paying jobs prior to migration.

In general, the impact of remittances to total household income confirms the hypothesis that remittances increased the total income of the recipient households. The majority of the households (82%) experienced an increase in income after receiving remittances even when adjustments due to pre-migration income losses were considered.

After adjusting the no-migration scenario by the estimated income that migrants perceived before leaving the country, the poverty reduction impact of remittances decreased in varying degrees. While on average household income increased after receiving remittances, the descriptive statistics tells that most of the migrants, who are more likely to benefit from these increases, belong to households in the middle or high income categories. The participation of

the poor in international migration is minimal in the Philippines. Hence, this decreases the probability that the households that experienced increase in their income were poor.

Moreover, mere participation of the poor in migration does not guarantee poverty alleviation. This explains why though some poor regions have sent migrants abroad; they appeared to have not benefited from the poverty reducing effects of migration and remittances. The initial poverty level of the migrant households, their characteristics which define their ability to get high paying jobs abroad that could compensate for the lost pre-migration earnings and finance the high cost of settlement and living expenses abroad, the degree of dependence of the total household income on migration transfers and the availability of other sources of income other than remittances determine the poverty reducing effects of remittances.

The impact of remittances in each region varies depending on the characteristics of the migrants, the households and the region as a whole. The difference in regional characteristics can explain the variability in the per capita income of the households and thus, the impact of remittances and migration. While in general the remittances increases the total income of the remittance recipient households, these increases do not necessarily translate to alleviation of poverty in all cases. A closer analysis revealed that those who benefited the most after migration were among the poorest in the country.

The results presented in table 5.6 in Annex, complement the findings of Rodriguez (1998). He reported that, after adjusting for the lost in income prior to migration, total household income of the recipients increased. However, the level of inequality of income distribution also increased. The results of this study showed that those who are relatively well-off prior to migration have the higher probability to benefit from remittances while those who are relatively poor did not benefit as much. The rich became richer while the poor remained poor or even became poorer, which suggest a side effect of remittances: Income Inequality.

In 2003, the DOLE reported that there was an increase in deployment of higher-paid skilled and professional Filipino workers such as nurses, health workers, office and food service staff, and production related workers. The prioritization of jobs for highly skilled workers will further exclude the poorest segments of the population from benefiting from migration and remittances. On the other hand, these kinds of jobs are necessary so that the skilled migrants will be properly compensated for the income they will lose if they leave the country.

These conclusions give important contributions for policy directions. The MTPDP 2004-2010 (NEDA, 2004) listed among its main targets the alleviation of poverty; and among its strategies is job generation through OFW deployment. The findings of this study convey that the Philippine Government should carefully assess the poverty reduction strategies, in accordance with the characteristics of its regions/target beneficiaries. This sends a message that, in order to fully benefit from international migration and remittances, a general deployment program does not fit in if the different capacities of the potential migrants are not taken into account. While the Government is negotiating the entry of nurses (skilled workers) in one agreement, it shall also ensure, for instance, the entry of construction workers (unskilled workers) in another agreement. Specific studies and programs shall be conducted with an aim to increase the participation of the poor in international migration. Capacity building programs

and alike could be conducted not only to prepare the migrants prior to deployment in order to ensure them higher potential earnings abroad but should also continue even when they are already abroad in order to help them during the initial periods of adjustment. For it is only when the poor have actively participated in the process of international migration -- which does not only mean that more poor should be able to migrate, but more importantly, these poor migrants should be equipped and prepared for the conditions and costs brought about by migration--- will the poverty impacts of migration and remittances become truly meaningful.

Moreover, as the findings suggested, dependence on remittances income alone is not always sufficient to alleviate a poor household from poverty. Hence, it is important that, while the Government encourages deployment of Filipino workers abroad, it should also develop programs for the household members that were left behind. The MTPDP 2004-2010 mentioned the importance of tapping remittances for useful investments. In this manner, remittances are not only used to fund personal consumption. This could be a potential way to maximize the benefits of remittances. While a family member abroad is financially supporting the ones that stayed home, major efforts should be made by the family members to invest those funds in entrepreneurial activities and/or education in order to ensure long-term sustainability and not only remittances dependency.

## BIBLIOGRAPHY

- Acosta, P.; Fajnzylber, P.; and Lopez, H. (2007), *The Impact of Remittances on Poverty and Human Capital: Evidence from Latin American Household Surveys*, World Bank Policy Research Working Paper 4247
- Adams, R. (1991), *The Effects of International Remittances on Poverty, Inequality and Development in Rural Egypt*, Research Report 86, International Food Policy Research Institute, Library of Congress Cataloging-in-Publication Data
- Adams, R. and Page, J. (2003), *International Migration, Remittances and Poverty in Developing Countries*, World Bank Policy Research Working Paper 3179, Poverty Reduction Group, World Bank, Washington, D.C.
- Adams, R. (2006), *Remittances and Poverty in Ghana*, World Bank Policy Research Working Paper 3838, Development Research Group, World Bank, Washington, D.C.
- Asian Development Bank (2007), *Database and Development Indicators*, <http://www.adb.org/Statistics/Poverty/A.asp> (Last consulted: December 2007)
- Asis M.B., Maruja. (2006). “*The Philippines’ Culture of Migration*”. Scalabrini Migration Center-Philippines. January 2006. In Country Profiles. Migration Information Source.
- Balisacan, A.; Hill, H. and Piza, S.F. (2006), *Regional Development Dynamics and Decentralization in the Philippines: Ten Lessons from a ‘Fast Starter*, University of the Philippines, Quezon City; and Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), Los Banos, Australian National University, Canberra, Asia Pacific Policy Center, Quezon City
- Barham, B. and Boucher, S. (1998), *Migration, remittances, and inequality: estimating the net effects of migration on income distribution*, Department of Agricultural and Applied Economics, University of Wisconsin- Madison, Madison,, USA
- Cororaton, C. and Corong, E. (2006), *Agriculture Sector Policies and Poverty in the Philippines: A Computable General Equilibrium (CGE) Analysis*, [http://www.pes.org.ph/events/annual\\_meeting/43rd/downloads/papers/parallel\\_2a\\_1.pdf](http://www.pes.org.ph/events/annual_meeting/43rd/downloads/papers/parallel_2a_1.pdf) (last consulted: October 2007)
- Department of Labor and Employment (2005), *OFW deployment surpasses 2003 figures*, Labor and Welfare, Gov.Ph News, <http://www.gov.ph/news/default.asp?i=7185> (last consulted: November 2007)
- Ericta, C., et. al. (2003), *Profile of Filipino Overseas Workers*, Paper presented to Statistical Research Center (SRTC) Annual Conference, October, 2003, Quezon City

- Imson, M. (2004), quoted in Growth in OFW deployment brightens employment picture, Bureau of Working Conditions, <http://www.bwc.dole.gov.ph/news/default.asp?id=N000000760> (last consulted: November 2007)
- International Monetary Fund (2007), *Philippines: 2006 Article IV Consultation—Staff Report*; Public Information Notice on the Executive Board Discussion; and Statements by the Authorities of the Philippines, IMF Country Report No07/62, International Monetary Fund Publication Services, Washington, D.C.
- Massey, D.; Arango, J.; Hugo, G.; Kouaouci, A.; Pellegrino, A.; and Taylor, E. (1993) *Theories of International Migration: A Review and Appraisal*, Population and Development Review, Vol. 19, No. 3. (Sep., 1993), pp. 431-466
- McCulloch, N.; Winters, A.; and Cirera, X. (2000) *Trade Liberalization and Poverty: A Handbook*, Centre for Economic Policy Research, British Library Cataloging in Publication Data, London, UK
- National Economic and Development Authority (2004), *Medium-Term Philippine Development Plan 2004-2010*, National Economic and Development Authority, Manila, Philippines
- National Economic and Development Authority (2006), *Labor Force Participation Rate Employment Status Urban and Rural*, Economic Indicators Online, [http://localweb.neda.gov.ph/~ioneda/cgi-bin/st2.cgi?eds/db/national/labor/labor\\_force\\_rate\\_a.sc](http://localweb.neda.gov.ph/~ioneda/cgi-bin/st2.cgi?eds/db/national/labor/labor_force_rate_a.sc) (Last consulted: January 2008)
- National Statistical Coordination Board (1997-2003), *Poverty Statistics*, <http://www.nscb.gov.ph/poverty/default.asp> (Last consulted: January 2008)
- National Statistics Office (n.d.), *Technical Notes Index*, Retrieved on August 2007 from <http://census.gov.ph/data/technotes/index.html>
- National Statistics Office (1997 – 2003), *Survey of Overseas Filipinos 1997 – 2003*, NSO Publications, Manila, Philippines
- National Statistics Office (1997 – 2003), *Family Income and Expenditure Survey 1997 – 2003*, NSO Publications, Manila, Philippines
- National Statistics Office (1997 – 2006), *Index of Overseas Filipino Workers Statistics*, <http://www.census.gov.ph/data/sectordata/datasof.html>
- National Statistics Office (2003), *Philippine Labor Force Survey*, <http://census.gov.ph/data/pressrelease/2003/lf0301tx.html> (last consulted: January 2008)
- National Statistics Office (2007), *Press Release Statistics on Overseas Filipino Workers in June 2007*, <http://www.census.gov.ph/data/pressrelease/2007/of06tx.html>

(last consulted: January 2008)

O'Neil Kevin,(2004). "*Labor Export as Government Policy:The case of the Philippines*".

Migration Policy Institute. January 2004. Available in Migration Information Source. <http://www.migrationinformation.org/Feature/display.cfm?ID=191> Last consulted February 2008.

Orbeta, A. Jr. (2005), *Poverty, Fertility Preferences and Family Planning Practice in the Philippines*, Discussion Paper Series No. 2005-22, Philippine Institute for Development Studies, Makati City, Philippines

Raya, R. (2001), *Addressing Education Needs of Mindanao's Poorest, Action for Economic Reforms*,  
[http://www.aer.ph/index.php?option=com\\_content&task=view&id=131&Itemid=50](http://www.aer.ph/index.php?option=com_content&task=view&id=131&Itemid=50)

Rodriguez, E. (1998), *International Migration and Income Distribution in the Philippines*, Economic Development and Cultural Change, Vol. 46, No. 2. (Jan., 1998)

Sawada, Y. and Estudillo, J. (2006), *Trade, Migration, and Poverty Reduction in the Globalizing Economy The Case of the Philippines*, United Nations University, World Institute for Development Economics Research, Helsinki, Finland

Schelzig, K. (2005), *Poverty in the Philippines: Income, Assets, and Access*, Southeast Asia Department, Asian Development Bank  
(last consulted: November 2007)

Smits, J. (2003), *Estimating the Heckman two-step procedure to control for selection bias with SPSS*, [home.planet.nl/~smits.jeroen/selbias/Heckman-SPSS.doc](http://home.planet.nl/~smits.jeroen/selbias/Heckman-SPSS.doc)  
(last consulted: October 2007)

Yang, D. and Martinez, C. (2005), *Remittances and Poverty in Migrants' Home Areas: Evidence from the Philippines*, University of Michigan, Ann, Arbor



## Annex 1

**Table 5.4 Poverty Headcount rates by Region under Actual and no –remittances Scenarios.**

Panel A: Observed Poverty Incidence (based on Actual Per Capita Income)		
Region	All HH	Recipient HH
Region I - Ilocos Region	0.222	0.042
Region II - Carayan Valley	0.190	0.025
Region II - Central Luzon	0.136	0.012
Region IV - Southern Tagalog	0.216	0.016
Region V - Bicol Region	<b>0.408</b>	0.011
Region VI - Western Visayas	0.298	0.019
Region VII - Central Visayas	0.216	0.029
Region VIII - Eastern Visayas	0.344	0.018
Region IX - Western Mindanao	<b>0.444</b>	<b>0.098</b>
Region X - Northern Mindanao	<b>0.367</b>	0.049
Region XI - Southern Mindanao	0.280	<b>0.060</b>
Region XII - Central Mindanao	0.319	<b>0.121</b>
NCR	0.049	0.016
CAR	0.270	<b>0.063</b>
ARMM	<b>0.491</b>	<b>0.426</b>
CARAGA	<b>0.442</b>	0.050
<i>Total</i>	<i>0.267</i>	<i>0.038</i>

Panel B: Observed Poverty Incidence (based on a no-remittances scenario)		
Region	All HH	Recipient HH
Region I - Ilocos Region	0.237	<b>0.194</b>
Region II - Carayan Valley	0.200	0.128
Region II - Central Luzon	0.146	0.141
Region IV - Southern Tagalog	0.223	0.109
Region V - Bicol Region	<b>0.411</b>	0.103
Region VI - Western Visayas	0.303	0.097
Region VII - Central Visayas	0.222	0.146
Region VIII - Eastern Visayas	0.347	0.127
Region IX - Western Mindanao	<b>0.445</b>	0.148
Region X - Northern Mindanao	<b>0.370</b>	0.134
Region XI - Southern Mindanao	0.283	0.157
Region XII - Central Mindanao	0.324	<b>0.231</b>
NCR	0.055	0.086
CAR	0.281	<b>0.205</b>
ARMM	<b>0.494</b>	<b>0.553</b>
CARAGA	<b>0.445</b>	<b>0.175</b>
<i>Total</i>	<i>0.273</i>	<i>0.141</i>

Panel C: Observed Poverty Incidence (based on a counterfactual* scenario)		
Region	All HH	Recipient HH
Region I - Ilocos Region	0.230	<b>0.127</b>
Region II - Carayan Valley	0.195	0.079
Region II - Central Luzon	0.141	0.070
Region IV - Southern Tagalog	0.219	0.056
Region V - Bicol Region	<b>0.409</b>	0.057
Region VI - Western Visayas	0.300	0.058
Region VII - Central Visayas	0.218	0.066
Region VIII - Eastern Visayas	0.347	0.127
Region IX - Western Mindanao	<b>0.445</b>	<b>0.148</b>
Region X - Northern Mindanao	<b>0.368</b>	0.085
Region XI - Southern Mindanao	0.281	0.084
Region XII - Central Mindanao	0.323	<b>0.198</b>
NCR	0.050	0.029
CAR	0.277	<b>0.157</b>
ARMM	<b>0.493</b>	<b>0.532</b>
CARAGA	<b>0.444</b>	0.125
<i>Total</i>	<i>0.270</i>	<i>0.088</i>

\* The counterfactual scenario consider the non-remittances income , plus the estimated income that migrants would have earned prior to migration

Source: Authors. Data: FIES-SOF 2003

**Table 5.5 Changes in Poverty under No –Remittances and Counterfactual Scenarios**

Panel A: Impact of Remittances on Poverty <sup>1</sup> (Remittances as exogenous transfers)		
Region	All HH	Recipient HH
Region I - Ilocos Region	-0.06	-0.78
Region II - Carayan Valley	-0.05	-0.81
Region II - Central Luzon	-0.07	-0.92
Region IV - Southern Tagalog	-0.03	-0.86
Region V - Bicol Region	-0.01	-0.89
Region VI - Western Visayas	-0.02	-0.80
Region VII - Central Visayas	-0.02	-0.80
Region VIII - Eastern Visayas	-0.01	-0.86
Region IX - Western Mindanao	<b>0.00</b>	-0.33
Region X - Northern Mindanao	-0.01	-0.64
Region XI - Southern Mindanao	-0.01	-0.62
Region XII - Central Mindanao	-0.01	-0.48
NCR	-0.12	-0.82
CAR	-0.04	-0.69
ARMM	-0.01	-0.23
CARAGA	-0.01	-0.71
<i>Total</i>	<i>-0.02</i>	<i>-0.73</i>

Panel B: Impact of Remittances on Poverty <sup>2</sup> (Counterfactual scenario prior migration)		
Region	All HH	Recipient HH
Region I - Ilocos Region	-0.04	-0.67
Region II - Carayan Valley	-0.03	-0.69
Region II - Central Luzon	-0.03	-0.83
Region IV - Southern Tagalog	-0.01	-0.72
Region V - Bicol Region	<b>0.00</b>	-0.80
Region VI - Western Visayas	-0.01	-0.67
Region VII - Central Visayas	-0.01	-0.56
Region VIII - Eastern Visayas	-0.01	-0.86
Region IX - Western Mindanao	<b>0.00</b>	-0.33
Region X - Northern Mindanao	<b>0.00</b>	-0.43
Region XI - Southern Mindanao	<b>0.00</b>	-0.29
Region XII - Central Mindanao	-0.01	-0.39
NCR	-0.03	-0.45
CAR	-0.03	-0.60
ARMM	<b>-0.01</b>	-0.20
CARAGA	<b>0.00</b>	-0.60
<i>Total</i>	<i>-0.01</i>	<i>-0.57</i>

1. Percentual reduction of poverty between two different income scenarios: Actual Income vs Non-remittances income

2. Percentual reduction of poverty between two different income scenarios: Actual Income vs Counterfactual income (no remittances but adjustment in income)

Source: Authors. Data: FIES-SOF 2003

**Table 5.6 Losers and Winners among Recipient Households after Migration - Counterfactual Scenario**

Region	Losers - Percentage of Households				
	Income Quintiles				
	1	2	3	4	5
Region I - Ilocos Region	8%	32%	46%	14%	0%
Region II - Carayan Valley	24%	19%	33%	24%	0%
Region II - Central Luzon	0%	9%	36%	55%	0%
Region IV - Southern Tagalog	11%	18%	29%	39%	3%
Region V - Bicol Region	29%	57%	14%	0%	0%
Region VI - Western Visayas	29%	29%	43%	0%	0%
Region VII - Central Visayas	29%	36%	36%	0%	0%
Region VIII - Eastern Visayas	0%	0%	100%	0%	0%
Region IX - Western Mindanao	43%	43%	14%	0%	0%
Region X - Northern Mindanao	33%	50%	17%	0%	0%
Region XI - Southern Mindanao	50%	50%	0%	0%	0%
Region XII - Central Mindanao	36%	14%	50%	0%	0%
NCR	1%	3%	19%	45%	31%
CAR	20%	13%	33%	27%	7%
ARMM	100%	0%	0%	0%	0%
CARAGA	33%	67%	0%	0%	0%
<b>Total</b>	<b>16%</b>	<b>19%</b>	<b>30%</b>	<b>26%</b>	<b>8%</b>

Region	Winners - Percentage of Households				
	Income Quintiles				
	1	2	3	4	5
Region I - Ilocos Region	15%	11%	19%	27%	30%
Region II - Carayan Valley	12%	12%	21%	25%	31%
Region II - Central Luzon	10%	7%	11%	31%	41%
Region IV - Southern Tagalog	6%	6%	8%	26%	54%
Region V - Bicol Region	9%	8%	15%	24%	45%
Region VI - Western Visayas	7%	10%	17%	28%	38%
Region VII - Central Visayas	14%	5%	16%	26%	39%
Region VIII - Eastern Visayas	11%	9%	19%	13%	47%
Region IX - Western Mindanao	22%	15%	19%	17%	28%
Region X - Northern Mindanao	9%	9%	17%	24%	41%
Region XI - Southern Mindanao	14%	10%	20%	30%	25%
Region XII - Central Mindanao	22%	18%	16%	21%	23%
NCR	5%	3%	5%	23%	64%
CAR	14%	6%	12%	26%	42%
ARMM	30%	25%	30%	15%	0%
CARAGA	14%	24%	22%	16%	24%
<b>Total</b>	<b>11%</b>	<b>8%</b>	<b>14%</b>	<b>25%</b>	<b>42%</b>

\*Percentage of Households whose income decreased or increased after migration and adjustments for income losses.

Source: Authors. Data: FIES-SOF 2003