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# **The Implications of Remittances to Filipino Households' Labor Participation, Welfare, and Inequality**

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# The Implications of Remittances to Filipino Households' Labor Participation, Welfare, and Inequality

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## **Abstract**

The implications of migration and remittances to households' welfare and income distribution are increasingly becoming important issues. This is especially true for developing economies, which account for the bulk of the migrants and receive most of the remittances. The Philippines is one of the largest labor-exporting countries in the world, and remittance receipts account for at least ten percent of the GDP. This study examines the implications of remittances to Filipino households. Specifically, it aims to: 1) describe the characteristics of Filipino migrants, 2) investigate the determinants of remittances, 3) evaluate the effect of remittances on household members' mode of labor force participation, 4) analyze the impact of remittances on household welfare, and 5) examine the effect of remittances on inequality. The study is expected to provide a sound and complete analysis of the issue and serve as a resource to scholars and policymakers.

## 1. Rationale

The implications of international migration and remittance receipts have raised important issues worldwide. World Bank reports that about 180 million people live outside of their country of birth, while workers' remittances have doubled in the previous decade. The divergence of incomes and living standards around the world has compelled developing-country citizens to work overseas to better themselves and their families. In 2004, total remittances reached 216 billion dollars, with about 152 billion dollars received by less developed countries. Remittances to developing economies, estimated at 72.3 billion dollars, exceeded total official flows and private non-FDI flows in 2001 (Ratha, 2003).

International migration certainly has significant impacts on developing economies, which account for the bulk of the migrants and receive most of the remittances. These funds could help raise the welfare of recipient households, and if managed properly, could even be a driver of growth. The areas of migration and remittances remain relatively unexplored. However, due to the growing concerns surrounding the issue, scholars and policymakers are interested in finding out the effects of these on growth, poverty, and inequality.

This study focuses on the Philippines, which is one of the largest labor-exporting countries in the world. The strong migration trend has led to an influx of remittances, which accounted for 10.5 percent of GDP in 2003. The number of overseas Filipino workers (OFWs) reached close to a million in 2004, as shown in Table 1, up from 982 thousand in 2003. Female workers slightly outnumbered male workers in 2004. A majority of these OFWs are from the National Capital Region (NCR) and Region IV-A (composed of six provinces in Southern Luzon). It appears that people in the metropolis or those in the nearby areas have more access to migration opportunities than those in the provinces.

**Table 1: Number of OFWs (in thousands)**

Region	2004			2003		
	Total	Male	Female	Total	Male	Female
Philippines	1063	524	529	982	508	475
NCR	194	121	73	182	116	66
CAR	24	6	18	20	7	13
Region 1	86	25	61	82	31	51
Region 2	57	12	45	63	13	50
Region 3	149	90	59	119	65	54
Region 4-A	191	110	80	170	113	57
Region 4-B	11	5	6	14	6	8
Region 5	32	16	16	32	18	14
Region 6	92	38	53	98	49	50
Region 7	49	33	16	52	29	23
Region 8	24	9	14	19	13	7
Region 9	22	6	17	18	6	11
Region 10	28	13	14	27	16	11
Region 11	34	10	25	32	9	23
Region 12	30	11	19	31	10	21
Region 13	10	3	6	10	5	6
ARMM	31	15	17	13	4	9

Note: Details may not add up to totals due to rounding.

Source: Survey of Overseas Filipinos (SOF)

The top six destinations of OFWs in 1998 and 1999, as indicated in Table 2, were Hong Kong, Japan, Singapore, Saudi Arabia, and Taiwan. During both years, Saudi Arabia hosted the largest number of workers from the country. Interestingly, five out of the six largest hosts are Asian countries. The migrant workers are found in almost every continent. In 2003 and 2004, most of the OFWs were in Asia, as reflected in Table 3. Numerous migrants also headed for Europe and the in North and South America during the same period.

**Table 2: Top Six Destinations of OFWs: 1998-1999 (in thousands)**

	1999		1998
Saudi Arabia	285	Saudi Arabia	253
Hong Kong	120	Hong Kong	109
Taiwan	110	Taiwan	80
Singapore	62	Japan	67
Japan	83	Singapore	65
USA	61	U.S.A.	42

Source: SOF

**Table 3: OFW Destination by Continent (in thousands)**

	2004			2003		
	Total	Male	Female	Total	Male	Female
Africa	11	11	1	8	6	1
Asia (Including Middle East)	663	305	358	616	295	321
Australia	17	12	5	18	12	6
Europe	88	58	30	77	52	25
North and South America	77	46	31	83	59	24
Other Countries	4	3	1	4	4	..
Country not reported	1	1	..	7	6	..

Notes: Details may not add up to total due to rounding.

.. Less than 500

The estimates cover overseas Filipinos whose departure occurred within the last five years and who are working or have worked abroad during the past six months (April to September) of the survey period.

Source: SOF

Poverty remains the top reason for seeking work opportunities overseas. Official estimates in Table 4 show that the incidence of poverty increased in 2000. An estimated 40 percent of the population lived below the poverty line in the said year, compared to 36.8 in 1997. On the other hand, 34.2 percent of families were considered poor in 2000, in contrast to 31.8 percent in 1997. For both years, the incidence of poverty in rural areas was higher than in urban areas. The scarcity of jobs also pushes Filipinos to seek work abroad. The Asian Development Bank (ADB) reports that unemployment increased to 11.8 percent in 2004 from 11.4 percent in 2003. The number of new entrants to the labor force was 1.29 million in 2004, while only 977,000 new jobs were created.

**Table 4: Poverty Incidence (in percent)**

	2000			1997		
	Philippines	Urban	Rural	Philippines	Urban	Rural
Population	40	25	54.5	36.8	21.5	50.7
Families	34.2	20.5	47.4	31.8	17.9	44.4

Source: Family Income and Expenditures Survey (FIES)

As the number of Filipino overseas workers increase, so does the amount of remittance receipts. An analysis by the Organization for Economic Cooperation and Development (OECD) reports that remittances as a percentage of GDP grew from 3.3 percent in 1992 to 9.6 percent in 2002. The number of migrant workers that sent remittances jumped to 889 thousand in 2004 from 857 thousand in 2003 as indicated in Table 5. Households reported to have received over 64 billion pesos in total remittances in 2004, slightly lower than 70 billion the previous year. This is because cash brought home in 2004 was smaller than in 2003. However, cash sent increased to more than 50 billion pesos in 2004 from almost 49 billion pesos the previous year. Asia and North and South America, as reflected in Table 6, were the largest sources of remittances. The increasing migration trend is indeed generating an influx of remittances, which could potentially benefit the country.

**Table 5: Total Remittances in Cash and Kind**

	2004	Both Sexes	Male	Female
Number of OFWs (in 1000's)	889		450	439
Total Remittances (in P1000)	64,713,207		42,159,518	22,553,689
Cash Sent	50,395,028		32,327,489	18,067,539
Cash Brought Home	11,194,953		8,151,840	3,043,113
In Kind	3,123,226		1,680,189	1,443,037
	2003	Both Sexes	Male	Female
Number of OFWs (in 1000's)	857		456	402
Total Remittances (in P1000)	70,399,583		46,379,598	24,019,985
Cash Sent	48,890,324		32,992,410	15,897,914
Cash Brought Home	17,312,270		11,172,680	6,139,590
In Kind	4,196,989		2,214,508	1,982,481

Notes: Details may not add up to total due to rounding

The estimates cover overseas Filipinos whose departure occurred within the last five years and who are working or have worked abroad during the past six months (April to September) of the survey period.

Source: SOF

**Table 6: Cash Sent by Source Continent (in thousands)**

	2004	2003
World Total	50,395,028	48,890,324
Africa	1,182,775	845,409
Asia	33,935,869	32,531,752
Australia	1,042,778	1,464,984
Europe	7,373,578	6,114,725
North and South America	6,439,007	7,207,446
Other Countries	275,788	271,187
Country not reported	145,232	454,821

Notes: Details may not add up to total due to rounding

The estimates cover overseas Filipinos whose departure occurred within the last five years and who are working or have worked abroad during the past six months (April to September) of the survey period.

Source: SOF

Given these facts, it is definitely a worthy exercise to examine the impacts of remittances on households. On the one hand, these monies could increase the welfare of recipient households through higher consumption. At the same time, it can generate positive externalities if these funds are used for human capital investments and entrepreneurial

activities. On the other hand, it is possible that remittances could lead to less undesirable outcomes. Evidence from the Philippines reveals that remittance-receiving households tend to have lower labor force participation (Rodriguez and Tiongson, 2001). If this is proven correct, then the full benefits of remittances might not accrue to the recipients. In fact, it can result in an undesirable situation wherein household members become heavily dependent on these funds. The fact that remittances could bring both positive and negative effects makes it a more compelling research topic.

The main purpose of this study is to examine in depth the implications of remittances to Filipino households. More specifically, it aims to: 1) describe the characteristics of Filipino migrants, 2) investigate the determinants of remittances, 3) evaluate the effect of remittances on household members' labor force participation, 4) analyze the impact of remittances on household welfare, and 5) examine the effect of remittances on inequality. The study intends to answer the following research questions:

- (1) What are the socioeconomic characteristics of OFWs?
- (2) What factors determine remittances?
- (3) How do remittances affect the mode of participation of household members in the labor force?
- (4) What is the welfare effect of remittances, after accounting for the labor participation decision of household members?
- (5) How do remittances affect inequality?

At the end of the research project, we should be able to provide a solid analysis on the determinants and impacts of remittances.

## **2. Scientific Contribution of the Research and Knowledge Gaps**

The implications of migration and remittances remain relatively unexplored, most likely due to the scarcity of data on migration and remittance receipts. Multilateral institutions have taken initiatives to understand the topic at hand, beginning with improving data sets. Despite the limitations however, a number of studies have examined this phenomenon.

Adams (2003) constructed a new data set of 24 large labor-exporting countries to assess the pervasiveness of brain drain in the origin countries. His findings show that with respect to documented migration, most of the migrants to the United States and OECD countries have secondary and tertiary educations. Furthermore, international migration does cause brain drain in a handful of Latin American countries, but in 22 out of the 33 countries with educational attainment data, less than 10 percent of the population with tertiary education have migrated.

Adams and Page (2003) studied the impact of international migration on poverty in developing economies. Their results indicate the following: 1) international migration has a strong effect on decreasing poverty, 2) distance plays a major role in migration with developing countries nearest to the USA or OECD countries having the highest rates of migration, 3) developing countries with middle income per capita yield the most number of migrants, and 4) remittances have a strong influence on poverty reduction.

Chalamwong (2004) looked at, among others, the brain drain effect of migration in East Asia. His findings illustrate how the migration of Filipino nurses has exacerbated the poor situation in the health care sector. Some 12,300 Filipino nurses migrated between 1988 and 2000. The United States accounts for 83 percent of the total number of Filipino nurses overseas, followed by Australia and Canada. In the end, the author put forward a number of suggestions, including a *return option* program in East Asian countries to mitigate the brain drain.

Yang (2005) examined the Filipino households' responses to overseas members' economic shocks, specifically exchange rate shocks. His study used data from 1997-1998 when most overseas workers' currencies appreciated against the Philippine peso due to the Asian crisis. As a result, household remittances received from abroad increased. His findings reveal that positive migrant shocks result in greater child education, a reduction in the incidence of child labor, higher educational expenditures in the migrant's household, and increased participation in entrepreneurial activities. Yang and Choi (2005), on the other hand, found out that remittances serve as insurance to households during rainfall shocks. When aggregate shocks cause local-level risk-coping mechanisms to fail, transfers from family members abroad may be used more heavily for consumption smoothing.

Rodriguez (1996) analyzed the determinants of international migrants' remittances in the Philippines. Using the 1991 Survey of Overseas Workers (SOW), the author looked at the characteristics of migrants likely to send remittance back home. His results show that migrants who sent money, compared to non-remitters, are on the average older, slightly better educated, less likely to be employed in services, and more frequently the head or spouse of the head of households. Migrants in the Middle East have lower probability of sending remittances compared to migrants in other countries. The longer the migrant stays overseas, the lesser the likelihood of remitting money since ties at home weaken. Lastly, households in urban areas, those with higher incomes and more education, receive larger remittances indicating that international migration could increase inequality in the Philippines.

In another study, Rodriguez (1998) assessed the impacts of international migration on household income and its distribution in the Philippines. Using 1991 data, he explored the topic using counterfactuals (migration and no migration regimes) and decomposition analysis. Both methods show that emigration raises household per capita income, although the magnitude is larger in the first approach. However, the results also indicate that remittances worsen inequality.

Some studies have explored the relationship between international migration and the labor supply decisions of migrants' families. Amuedo-Dorantes and Pozo (2005) looked at the effects of international remittances on labor supply and work allocations of Mexican households. The authors used an instrumental variable-Tobit model to assess the labor supply decisions of male and female recipients in urban and rural areas. Their paper reveals that an increase in remittances received by 100 Mexican pesos reduces men's working hours in the formal sector, but increases these in the non-formal sector. The same is true for women workers. However, in the case of women workers in rural areas, a rise in remittances lead to greater time spent on non-paid work. Men who experience stable inflows spend

more time on self-employment, while those that experience variability in receipts tend to work more in the informal sector.

Rodriguez and Tiongson (2001) assessed the effects of temporary international migration on the labor supply of urban households using 1991 data from the Philippines. The paper illustrates that households with migrant workers tend to have lower labor participation and work hours. This is because migrant relatives substitute income for more leisure. Male labor participation goes down when the overseas worker is part of the nuclear family. The same is true for women, except that female labor participation goes up when the migrant is educated. Furthermore, the authors find that an increase in remittances lead both genders to decrease their working hours, although the effect is stronger in the case of males.

These efforts have definitely helped bring migration and remittances to the fore of academic discussion. The literature is far from exhaustive however. For instance, the economic papers that focus on remittances in the Philippines are few and far in between. The studies of Rodriguez (1996, 1998) and Rodriguez and Tiongson (2001) all used data from 1991. Labor migration has intensified and remittance inflows have increasingly played a greater role in the economy during the past decade. Thus, it is imperative that more recent data is analyzed. Recent anecdotal evidence shows that remittance-receiving households tend to have lower labor participation (Go, 2005). This has to be verified given the huge potential benefits of remittances. If this is true, these funds might just be substituting for what household members back home are supposed to be earning, and gains in welfare might be small or none at all. For remittances to result in positive outcomes, it is crucial that its impacts on Filipino households be thoroughly analyzed.

### **3. Policy Relevance**

Given the importance of international migration, the Philippine government constantly faces pressures to implement policies concerning OFWs and their families. The Migrant Workers and Overseas Filipinos Act or Republic Act 8042, Section 2 provides that: "...the State does not promote overseas employment as a means to sustain economic growth and achieve national development." Despite this, the overall tone of the government towards migration or overseas employment is positive, or even encouraging. In fact, President Gloria Macapagal – Arroyo announced in a press release in Singapore in 2001 that the Philippine economy would be heavily dependent on overseas workers' remittances for the foreseeable future.

Taking into account the irreversible trend in migration (at least in the next few years), this study can be a source of insights for concerned policymakers. The profile of migrants will reveal the characteristics of individuals likely to migrate. The determinants of remittances will identify who among the migrants are likely to send money to their home country, and the conditions that prove to be conducive to such activity. These findings can help officials recognize who among the population should be given the incentive to migrate and who should be encouraged to stay.

The results of this paper can assist the government in identifying the support programs needed by the migrants' families. If evidence suggests that remittance-receiving households tend to have lower labor force participation, the government must provide them with



incentives to participate in the labor market, or take up self-employment. Training programs can be provided to the families of overseas migrants who engage in entrepreneurial activities. The findings on the remittances' impact on consumption can also aid policymakers in crafting welfare programs.

Since the topic is relatively unexplored, the marginal contribution of the findings to the literature and to policy discussion will certainly be huge. The lack of information on migrants and remittances serves as a hindrance to sound policymaking. This paper has the potential to fill that gap.

#### 4. Methodology

This study aims to address five research questions: (1) What are the socioeconomic characteristics of OFWs? (2) What factors determine remittances? (3) How do remittances affect the mode of participation of household members in the labor force? (4) What is the welfare effect of remittances, after accounting for the labor participation decision of household members? and (5) How do remittances affect inequality? The following discussion outlines the methodologies we intend to employ to address these research questions.

##### Profile of overseas workers and the determinants of remittances

To answer the first question, we intend to generate some descriptive statistics of OFW characteristics over different time periods to track changes (or lack thereof) in the profile of Filipino overseas workers. The statistics may include design-consistent sample means and standard deviations, minimum and maximum values, and kernel densities, when appropriate. Tests of differences in sample means as well as overlays of kernel densities will be carried out. The socioeconomic characteristics that will be explored include age, marital status, gender, occupation, highest educational attainment, relation to the household head (in the Philippines), months overseas, and geographic location.

To address the second question, we intend to estimate a reduced-form equation based on the following general specification

$$R = R(T, e, \omega, \Omega, K, H_a, H_o),$$

where  $R$  is the amount of remittances sent by the migrant worker over the year,  $T$  is the transaction cost of remittances,<sup>1</sup>  $e$  is the average real exchange rate over the year,  $\omega$  and  $\Omega$  are set observable characteristics of the overseas worker and the remittance-receiving household, respectively,  $K$  is some sense of the closeness of the kinship ties between the worker and the household,<sup>2</sup>  $H_a$  reflects the socioeconomic conditions in the country where

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<sup>1</sup> Operational variables for  $T$  include bank charges for sending and receiving money and either the size of the Filipino community in the city or country where the migrant resides or the number of arrivals to the Philippines from the country where the migrant resides, both variables of which may be presumed to be negatively correlated with transactions costs of sending money back to the Philippines.

<sup>2</sup> For instance, among Filipino families, the eldest children and single daughters are expected to fend for the welfare of the family more than their younger siblings or the single sons. In the case of the former, it may

the worker is located, and  $H_o$  is the set of socioeconomic conditions in the Philippines, which may be represented as a time-varying constant.

We intend to estimate the remittance equation using a sample of households from the merged public use files of the Family Income and Expenditure Survey (FIES) and the Survey of Overseas Filipinos (SOF) that are identified to have a migrant worker. We expect that for many sample households,  $R = 0$ . Instead of specifying a Tobit model as in Rodriguez (1996), however, we are more inclined to cast the problem as a two-equation model consisting of an indicator function and a latent variable,  $R^*$ , whose values are observed (i.e.,  $R = R^*$ ) only when an indicator function is set to one. Assuming that the error term of the indicator function has a standard normal distribution function, we can use Heckman's two-step estimator or the method of maximum likelihood to obtain consistent estimates of the parameters. Our argument for using this tack is as follows: The Tobit estimator may be regarded as degenerate form of Heckman's two-step estimator in which both the probability of observing the continuous portion of the dependent variable and its observed value are each explained by exactly the same sets of coefficient estimates and explanatory variables. If instrumental variables can be found to identify the first-stage probit equation anyway, then it is better to implement the Heckman's two-step estimator, since this is akin to carrying out an unrestricted regression (in which the coefficient estimates of the two equations are allowed to differ) at the cost of assuming that the indicator function has a unit variance. If having identical coefficient estimates in the two equations is of interest, then significance tests can be carried out with the Heckman's estimates which cannot be done with the Tobit.

The identifying instrumental variables we are considering for the probit equation are the fixed part of the transaction costs of remittances (e.g., fixed bank charges) and closeness of kinship ties (which may include years to retirement and gender and marital status of the overseas worker).

### Welfare and the distributional impact of remittances

Our underlying behavioral framework is that of a utility-maximizing model of a household with a full-income constraint, in which remittance receipts constitute part of the household's nonlabor income. We posit that the household preference function is defined over an aggregate consumption good,  $C$ , and the leisure hours,  $\ell_i$ , of all nonmigrant adult members of the household, where  $i = 1, 2, \dots, N$ . A simplifying assumption we adopt is that household size and composition are given and exogenous. We take this to imply, in particular, that the migrant worker's consumption and leisure choices do not enter the household's utility function and that the migrant worker's influence is mediated only through the remittances that he or she sends.

Households in our sample can be classified according to three categories: (a) those without a migrant worker, (b) those with a migrant worker but did not receive remittances within the reference period of the survey, and (c) those with a migrant worker and received

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be because they receive an inordinate share of family resources for education and job search in the expectation that they will provide the means for their younger siblings. In the case of the latter, it is because sons are expected to eventually form their own households.

remittances. We intend to report separate parameter estimates for each of the three groups, without accounting for possible endogenous selectivity in the three subsamples. One way to view our estimation strategy is to see it in the light of a study focused on households with a migrant worker, with those without a migrant worker acting as a control group.

*A. Consumption Expenditures and Labor Market Decisions (for Households without Remittances)*

The most important objective of our study is the third and fourth stated above, i.e., to make welfare comparisons between households that receive remittances and those that don't, in which the labor market decisions of working-age members of remittance-receiving households are accounted for. A problem, however, is that it is difficult to find a good labor market decision variable for individual household members that can be aggregated and on which the welfare equation can be conditioned. This problem is further compounded by the fact that in our data set the reference period of consumption expenditure (a whole year) is not consistent with the reference period of labor supply (the third quarter), which implies that both labor supply and remittances are jointly determined.

Consequently, we take the following tack, which is first discussed for the subsample of households that have no migrant workers. We define a trichotomous variable,  $E$ , which equals 0 if none of the working-age household members work, 1 if some working-age members work, and 2 if all working-age members work. Underlying  $E$  is a latent variable,  $E^* = \alpha'x + \varepsilon$ , such that

$$E = \begin{cases} 0 & \text{if } \alpha'x + \varepsilon \leq 0 \\ 1 & \text{if } 0 < \alpha'x + \varepsilon \leq \mu \\ 2 & \text{if } \mu < \alpha'x + \varepsilon, \end{cases}$$

where  $x$  is a set of household characteristics,  $\alpha'$  and  $\mu$  are parameters to be estimated, and  $\varepsilon$  is a standard normal random variable. In other words, for the subsample of households without a migrant worker, the model to be estimated is nothing more than an ordered probit model.

For households without a migrant worker, the per capita consumption expenditures equation can then be conditioned on the household level employment variable. That is, we can specify

$$c = \begin{cases} \beta_0'x + u & \text{if } E = 0 \\ \beta_1'x + u & \text{if } E = 1 \\ \beta_2'x + u & \text{if } E = 2, \end{cases}$$

where  $c$  is household per capita consumption expenditures,  $x$  is a vector of household characteristics,  $\beta$  is a vector of parameters to be estimated, and  $u$  is an unobserved random variable, which shares a bivariate normal density function with  $\varepsilon$  with a zero mean vector and variance matrix

$$\Sigma = \begin{bmatrix} \sigma_u^2 & \sigma_{u\varepsilon} \\ \sigma_{u\varepsilon} & 1 \end{bmatrix}.$$

Consistent estimates of  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  can be obtained by single-equation estimation procedures similar to Heckman's two-step estimator. To illustrate, since

$$\begin{aligned} E(c|E=1) &= \beta_1' \mathbf{x} + E(u | -\alpha' \mathbf{x} < \varepsilon \leq \mu - \alpha' \mathbf{x}) \\ &= \beta_1' \mathbf{x} + \sigma_{u\varepsilon} \frac{\phi(\mu - \alpha' \mathbf{x}) - \phi(\alpha' \mathbf{x})}{\Phi(\mu - \alpha' \mathbf{x}) - \Phi(\alpha' \mathbf{x})}, \end{aligned}$$

where  $\varphi(\cdot)$  and  $\Phi(\cdot)$  are the standard normal density and distribution functions, respectively, the inverse Mills' ratio-like expression can be derived by getting the required parameter estimates from the ordered probit model and regressing  $c$  on both  $\mathbf{x}$  and the expression involving the ratio of differences of the standard normal density and distribution functions.

For households with a migrant worker but no remittances, the estimation problem is more difficult as the expectation of  $c$  has to be conditioned on both  $E$  and  $R = 0$ , where

$$R = \begin{cases} 1 & \text{if } \alpha' \mathbf{y} + v > 0 \\ 0 & \text{if } \alpha' \mathbf{y} + v \leq 0 \end{cases},$$

with the error term,  $v$ , sharing a joint normal distribution with  $u$  and  $\varepsilon$ . The three possibilities for these households are

$$c = \begin{cases} \beta_{00}' \mathbf{x} + u & \text{if } E = 0 \text{ and } R = 0 \\ \beta_{10}' \mathbf{x} + u & \text{if } E = 1 \text{ and } R = 0 \\ \beta_{20}' \mathbf{x} + u & \text{if } E = 2 \text{ and } R = 0 \end{cases}.$$

We will need to work out the conditional expectations. Otherwise, we will have to estimate the parameters using the method of maximum likelihood.

*B. Consumption Expenditures, Remittances, and Labor Market Decisions (for Households with Remittances)*

The last cases, those for households that receive remittances, are the most complicated. The equations to be estimated are as follows:

$$\begin{aligned}
& \left. \begin{aligned} c &= \beta_{01}' \mathbf{x} + \tau_0 R^* + u_{01} \\ R^* &= \theta_0' \mathbf{z} + \xi_0 \end{aligned} \right\} \text{if } E = 0 \text{ and } R = 1 \\
& \left. \begin{aligned} c &= \beta_{11}' \mathbf{x} + \tau_1 R^* + u_{11} \\ R^* &= \theta_1' \mathbf{z} + \xi_1 \end{aligned} \right\} \text{if } E = 1 \text{ and } R = 1 \\
& \left. \begin{aligned} c &= \beta_{21}' \mathbf{x} + \tau_2 R^* + u_{21} \\ R^* &= \theta_2' \mathbf{z} + \xi_2 \end{aligned} \right\} \text{if } E = 2 \text{ and } R = 1.
\end{aligned}$$

In each case, the second equation may be substituted into the first and the mean and variance of the resulting error term derived. Again, we will attempt to find a way to estimate each case by single-equation methods. Otherwise, we will have to use maximum likelihood.

### C. Counterfactual Simulations

The typical technique of assessing the counterfactual impact of transfers (remittances in this case) on welfare outcome, ( $c$ ), subtracts the value of consumption with the amount of transfers. This method overlooks the behavioral response of households in the absence of transfers. Certainly, transfers can affect household decisions on savings, credit, schooling, and employment. Similarly, post-transfer welfare, given by the consumption expenditure less the amount of transfer plus the replacement income received by the household had they not participated in the intervention, is also problematic.

Van de Walle (2003, 2002) resolves this limitation by estimating the marginal propensity to consume out of the transfer. For households receiving remittances, we will estimate a first difference model of consumption net value of remittance. First differencing estimation corrects for omitted variable bias and other endogeneity issues. The estimated coefficient of the remittance ( $\tau$ ) will then be multiplied with the value of R; the product of which is then subtracted to the consumption expenditure. This will give us the net consumption expenditure.

The consumption expenditure without transfer of remittance-receiving households will be compared with the reported consumption expenditure of non-remittance receiving households (i.e. households with no migrants and households with migrants but did not received remittances). This will show the marginal incidence of the consumption increase among the remittance-receiving households and non-remittance receiving households.

A counterfactual joint distribution without transfers will also be constructed using the estimated consumption expenditure net of remittances to show the relative welfare status of the receiving households in the absence of remittance transfer.

### Household inequality

We can also compute for the Gini coefficients for each of the sub-sample household categories,  $k$  using the form:

$$G_k = \frac{N+1}{N-1} - \frac{2}{N(N-1)\mu} \sum_{i=1}^N \rho_i c_i$$

where  $N$  is the number of people in the household,  $\rho_i$  is the rank of household  $i$  in the distribution of net consumption expenditure ( $C$ ), and  $\mu$  is the mean of net consumption expenditure.

## 5. Data Requirements and Sources:

This study will make use of several household survey data sets to fulfill its objectives. These include the FIES, the Labor Force Survey (LFS), and the SOF. The National Statistics Office (NSO) of the Philippines conducts all three surveys. Our model requires information from the merged file of the three data sets.

FIES is a nationwide survey undertaken every three years as a rider to the LFS. It gathers information on family income and living expenditures. According to the FIES technical notes released by the NSO, data collected in the survey include sources of income (including assistance received abroad) in cash and in kind and the level of consumption by item of expenditure. Information such as family size, number of family members employed for pay or profit (wage/salary or own-account worker), employment status, occupation, age and educational attainment of household head, and housing characteristics are also part of the survey. It provides estimates on income distribution, levels of living and spending patterns, degree of inequality among families, and poverty threshold and incidence for the country. Households in the sample undergo two rounds of interview: one in January and another one in July. The reference period for income is the six months preceding the interview, while for food items the reference period is the average weekly consumption. On the other hand, the reference period for expenditures on fuel, light, and water, transportation, and communication, and household operations and personal care and effects is the past month (in some cases average for the month).

The LFS gathers employment status on a quarterly basis, using the past week as the reference period. The employment status of each family member in the FIES is based on the status reflected in the LFS. LFS covers statistics on levels and trends of employment, unemployment and underemployment for the country, as a whole, and for each of the administrative regions, including provinces and key cities. The reference period for this survey is the past week.

The SOF is a rider survey to the October round of the LFS. It is conducted annually. The survey is a rich source of information on overseas workers. SOF obtains their overseas locations, their length of stay overseas, and provides estimates on the amount of cash and in kind transfers received by the families and the mode of remittance from a probability sample of about 41,000 households. The survey covers information on OFWs who left the country during the period of April 1 to September 30. At the same time, data on remittances are culled only for the immediate six months prior to the survey.

## 6. Dissemination Strategy

This research project is a potentially rich source of information and insights on the implications of remittances to Filipino households. Thus, it is important that the results are disseminated to the concerned sectors. The research exercise is expected to produce three types of output: 1) an academic paper which would pass the standards of a refereed journal, 2) policy notes targeted to policy makers and concerned practitioners, and 3) newspaper columns summarizing the findings for the general public.

The research output will be presented in seminars or paper presentations in the following institutions: 1) universities and colleges (e.g. the University of the Philippines -School of Economics Friday Seminar Series and the Lounge Lecture Series of the Economics Department of De La Salle University), 2) research organizations (e.g. Legislators Forum Series and Senate Staff Economic Forum Series of the Philippine Institute for Development Studies), and 3) annual meetings and conferences of economists (e.g. annual meetings of the Philippine Economic Society).

On the other hand, the policy notes which can be published under the Center for Business and Economics Research and Development of De La Salle University Manila, will be circulated among government agencies such as the 1) Department of Labor and Employment, 2) Department of Foreign Affairs, 3) Philippine Overseas Employment Agency, 4) National Economic Development Authority, 4) Anti-Poverty Commission, 5) Overseas Workers' Welfare Administration and the 6) National Statistics Coordinating Body among others. The policy notes will also be circulated to relevant non-government agencies such as 1) Migrant Watch, 2) *Kanlungan* Center, and the 3) Gabriela Commission on Overseas Filipinas among others. Lastly, the findings will be summarized for publication in the Business Focus column of the *Manila Bulletin* and the Yellow Pad column of *Business World*.

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## **8. Team Members' Work Experience and Prior Training**

Ms. Maricar Paz M. Garde is a graduate of the M.A. Economics program of the School of Economics at the University of the Philippines in Diliman. She is currently an Assistant Professorial Lecturer at the Economics Department of De La Salle University Manila. Her research interests include regional integration, foreign direct investment (FDI), trade, and poverty. She has written two papers, *What Drives Strong Opinions on the President: The Case of Gloria Macapagal-Arroyo* and *Inflation, Unemployment and the Poor: Evidence from the Philippines*, which dealt with survey data and utilized limited dependent variable analysis. She has recently completed a paper with Michael M. Alba entitled *A New Look at the Host Determinants of FDI Inflows* funded by the International Development Research Center through the Angelo King Institute. As the team leader, Ms. Garde's responsibilities include: 1) managing the research process from inception to completion, 2) doing the empirical analysis, and 3) drafting the research paper, policy notes, and newspaper columns.

Dr. Michael M. Alba earned his Ph.D. in Applied Economics from Stanford University. He is currently an Associate Professor of Economics at the Economics Department of De La Salle University Manila. His research interests include growth economics, microeconometrics, and human resource economics. Dr. Alba has published papers on household vulnerability to employment shocks, consumption patterns of urban poor households, and the effects of schooling on wages among others. As a team member, his responsibilities include: 1) providing technical advice on the data sets and empirical analysis, and 2) assisting in drafting the research paper and newspaper columns.

Ms. Jessaine Soraya C. Sugui graduated with a degree in M.A. Economics from the School of Economics at the University of the Philippines in Diliman. She is presently a project development specialist at the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). She has done extensive work on agriculture, the rural sector, and other development topics. Her responsibilities include: 1) constructing and analyzing the data sets, 2) doing the empirical analysis, and 3) assisting in drafting the research paper and policy notes.

## **9. Expected Capacity Building**

The research team will benefit from the learning experience inherent in the project. The two members below thirty years old are expected to gain proficiency in handling micro-level data sets and techniques of empirical analysis, which will be useful for future research work such as the Ph.D. dissertation. The researchers will be gaining expertise on the topic of remittances, which is increasingly playing an important role in household welfare and income distribution. The researchers' expertise will be beneficial to their respective institutions, concerned government agencies, and non-government organizations.

## **10. Ethical, Social, Gender, and Environmental Issues and Risks**

The primary aim of the research is to analyze the implications of remittances on Filipino households' employment decisions, welfare, and inequality. However, the findings are expected to touch on some gender and social issues. For instance, the profile of overseas

workers will reveal the number and characteristics of women who migrate. The employment decisions of remittance-receiving households will give insights on what type of support programs the government should extend to the families of overseas workers. Should the government implement programs that teach these families to save and invest? Or should the government extend entrepreneurial training to these households? At present, these are the foreseeable gender and social insights which can be gleaned from the study.

## **11. Team Members' Past, Current, and Pending Projects in Related Areas<sup>3</sup>**

### **11.1 Maricar Paz M. Garde**

#### Present Work Experience

**Institution:** Economics Department, De La Salle University Manila

**Designation:** Assistant Professorial Lecturer

**Duration:** 2002-present

#### Past Projects

**Project Title:** Liberalization of Cross-Border Capital Flows and Effectiveness of Institutions Against Crisis in East Asia

**Duration:** October 1, 2005 – March 31, 2006

**Funding Agency:** Association of Southeast Asian Nations (ASEAN)

**Designation:** Consultant

**Project Title:** A New Look at Host Determinants of FDI under the Production Networks, Industrial Adjustment, Institutions, Policies, and Regional Cooperation Project

**Duration:** January – September 2005

**Funding Agency:** International Development Research Center

**Designation:** Researcher

**Project Title:** Philippine Automotive Industry Survey on the Impact of AFTA and JPEPA

**Duration:** November 2004 and January 2005

**Funding Agency:** Japan International Cooperation Agency

**Designation:** Researcher

**Project Title:** PhilTIPS Private Provider Study on Tuberculosis Directly Observed Treatment Short-course (TB-DOTS)

**Duration:** June 2004 – Nov. 2004

**Funding Agency:** Philippines TB Initiatives in the Private Sector (PhilTIPS)

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<sup>3</sup> Team members' projects within the last two years. Please refer to researchers' vitas for detailed work description.

**Designation:** Data Editor

### 11.2 Michael M. Alba

#### Present Work Experience

**Institution:** Economics Department, De La Salle University Manila

**Designation:** Associate Professor

**Duration:** 1998-present

#### Past Projects

**Project Title:** A New Look at Host Determinants of FDI under the Production Networks, Industrial Adjustment, Institutions, Policies, and Regional Cooperation Project

**Duration:** January – September 2005

**Funding Agency:** International Development Research Center

**Designation:** Researcher

**Project Title:** Revisiting the World Distribution of Living Standards and their Growth Rates and Locating the Philippines' Position

**Duration:** 2004-2005

**Funding Agency:** Center for Business and Economics Research and Development of De La Salle University Manila for the *Conference of Business and Economics*

**Designation:** Researcher

### 11.3 Jessaine Soraya C. Sugui

#### Present Work Experience

**Institution:** Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)

**Designation:** Project Development Specialist/Technical Assistant to the Director

**Duration:** June 2005 – present

#### Past Projects

**Project Title:** Farm and Non-farm Employment, Household Income, and Human Capital Accumulation

**Duration:** June 16, 2004 – March 31, 2005

**Funding Agency:** International Rice Research Institute (IRRI) and Foundation for Advanced Studies on International Development (FASID)

**Designation:** Senior Research Assistant

**Project Title:** Assessment of the Information Systems and Information and Communications Technology (ICT) Resources of Regional and Local Planning Agencies/Bodies in the Visayas

**Duration:** November 27, 2003 – April 15, 2004

**Funding Agency:** German Technical Cooperation

**Designation:** Research Associate

## 12. Appendix 1: Proposed Research Timeline<sup>4</sup>

Activities	Month*															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Review of Literature	■															
Survey of available data	■															
Cleaning and creation of analysis files for the data on Survey of Overseas Filipinos (SOF)		■														
Cleaning and creation of analysis files for the data on Family Income and Expenditure Survey (FIES) and Labor Force Survey (LFS)			■													
Processing and analysis of SOF data				■												
Processing and analysis of merged FIES-LFS data					■											
Draft preliminary report						■	■									
Submission of interim report								■								
Local presentation of preliminary results to academe, government, and other stakeholders								■								
Completion of first policy brief									■							
Draft final report									■	■	■	■				
Local presentation of final results to academe, government, and other stakeholders												■				
Completion of second policy brief													■			
Submission of draft final report														■		
Final revisions and terminal report															■	■

\*The PEP Grants Manual adopts a 16-month research cycle.

<sup>4</sup> Tentative and subject to funding organization's requirements

## Appendix 2: Revisions as of February 22, 2006

In this section, we respond to the comments that require action. We show how we incorporate the guidelines given us in the proposal.

- 1) **Comment:** “To address how the determinants of Filipino migrants affect the incidence of sending remittances as well as the amount of remittances, the authors plan to update work of Rodriguez (1996) by including latest data and running separate regression for each time period to examine the changes in the behavior of remitters. On the one hand, the authors should clarify what leads them to believe that the behavior of remitters is not stable over time (otherwise, there is no need to update the work of Rodriguez). On the other hand, is it possible to suggest policy recommendations if this study validates this assumption?”

**Action taken:** We respond to this comment by including a regression model in our methodology that tests for the impact of macroeconomic conditions in the home and host countries on remittances. On page four, we argue that if the macroeconomic environment in either the Philippines or in the host countries affect remittance-sending, it is likely that attributes of remitters (or at the very least the coefficients of the attributes) change over time too. However, even if individual characteristic-determinants vary over the years, it does not mean that policy making in this area is ineffective. On page five, we explain that suppose booms in the host country cause migrants to send more money back home, then the government (through its overseas employment arm) can implement policies that encourage migration to high growth countries. On page six, we describe a model that tests for the relationship between remittances and macroeconomic indicators. In the event that macroeconomic variables in both the home and host countries do not determine remittances, we will not pursue the individual-characteristic regression. This is because there is no reason to believe that the attributes of remitters change over time.

- 2) **Comment:** “... I think that studying by how much the net income gain from remittances is less than the amount of remittances is very important. Indeed, as implicitly argued by the authors, remittance receiving may change their labor behavior such that the net income gain is less than the amount of remittances. It is then policy relevant that the authors estimate how households would have been without them (the benchmark situation, see for instances Van de Walle (2003) on this]. Afterwards, they can compute “exactly” the impact of remittances on equality and (if needed be) on poverty.

The effectiveness of remittances could be assessed by computing the change in a social welfare function (or poverty index if needed be) that they induce. In reality, such a change can come from the following three effects. 1) Remittances should affect the average income. 2) Remittances should alter the distribution of income between the households of initially unequal welfare status. This will lead to more or less vertical inequality according to whether remittances benefit more the well-off or the less well-off. 3) Remittances should fail to treat alike those households of initially similar welfare status, that is, those with the same income in the benchmark

situation. This automatically leads to horizontal inequality [On this, see for instances Duclos and Lambert (2000)].”

**Action Taken:** We incorporate these guidelines in our proposal by heavily revising our methodology. On pages seven to ten, we show how we intend to analyze the impacts of remittances on labor participation, consumption, and inequality. First, we will adopt a labor-leisure choice model as our framework for analyzing labor force participation decisions. We will regress households’ labor force participation against their characteristics and remittances received from members abroad. Second, we will estimate the households’ consumption expenditure following van de Walle’s (2003, 2002) approach. Our analysis will look at the impacts of remittances on the social welfare of remittance-receiving and non-receiving households in 1997, 2003, and the average of both years. This exercise will illustrate the effects of remittances on poverty, and reveal some implications of these transfers on inequality. We will also compute for Gini coefficients to further analyze inequality effects. Finally, we will estimate a baseline joint distribution and counterfactual joint distribution to study the dynamic effect of remittances given households’ employment decisions.

Furthermore, we slightly modified our research questions and the sections on knowledge gaps, policy relevance, and data sources. The minor revisions were made to be consistent with our methodology. We also included additional papers relevant to our topic in the references section.

### Appendix 3: Revisions as of May 15, 2006

In this section, we outline the changes made in this version of the proposal.

- Our team made slight revisions on parts one to three.
- We reviewed the following references:

Amuedo-Dorantes, Catalina and Susan Pozo. 2005. *International Remittances and Their Employment Implications in Receiving Areas*. Preliminary Draft (Unpublished).

Rodriguez, Edgar R. 1998. "International Migration and Income Distribution in the Philippines." *Economic Development and Cultural Change*, 46(2):329-350.

Rodriguez, Edgar R. and Erwin Tiongson. 2001. "Temporary Migration Overseas and Household Labor Supply: Evidence from Urban Philippines." *The International Migration Review*, 35(3):709-725.

- We proposed a new methodology to examine the determinants of remittances. We provided a brief explanation on why we cannot completely follow the papers of Rodriguez (1998).
- We heavily revised our methodology to reflect how we intend to estimate the link between remittances, labor participation, and consumption.