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Do International Remittances Encourage Participation in School and in the Labor Force?

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Abstract:
The study aims to analyze the Philippine human capital development in the light of phenomena of international migration and remittances through its effects on school participation and labor force participation rate. To be able to establish the impact of migration and remittances on human capital development, the paper utilized two methodologies namely the Propensity Score Matching (PSM) and the Multinomial Logistic Regression on the Annual Poverty Indicators Survey (APIS) for the years 2008, 2010, 2011 & 2013. Further examination was also done through the application of the PSM method on a merged data of the Family Income and Expenditure Survey (FIES) and Labor Force Survey (LFS) in 2013 to determine whether female migration has an effect on school participation rate or not. Findings of the PSM method showed households that receive remittances have a higher school participation rate, but a significantly lower labor force participation rate. We inferred that remittances may reduce a household's labor force participation, but it could be because household members shift from joining the labor force to being more active in pursuing higher levels of educational attainment. The Multinomial Logistic Regression results supported such inference as it reported a positive relationship between receiving remittances and being in school which suggested the possibility that individuals aged 15 to 24 shifted out of the labor force and into schooling when confronted with increased probabilities of receiving remittances. Lastly, the merged FIES-LFS dataset outcome only revealed parental migration leads to an overall increase in school participation rates. This meant female migration's disruptive effect on children's education is outweighed by the combined income and aspirational effects. Hence, the overall outcome of remittances points towards deeper human capital accumulation.

Key Words: migration, remittances, labor force participation, school participation , the Philippines

1. INTRODUCTION

Since 1975, temporary overseas labor migration has grown to become a largely noticeable part of the Philippine economy. In the past four decades, the number of Overseas Filipino Workers (OFWs) deployed grew from around 36,000 in 1975 to 1.8 million in 2014 (International Organization for Migration, 2013 and Philippine Overseas Employment Administration, 2015). Accompanying the rise of OFW deployments is the steadily increasing receipt of remittances from abroad, rising from USD 1 billion in 1989 to an estimated USD 25.3 billion in 2015 (Bangko Sentral ng Pilipinas, 2015a; 2015b). There is a broad agreement that remittances boost domestic demand (see for example The Economist, 2015) as it

serves its consumption-smoothening purpose with ease (Villegas, 2014).

At the household level, the effects of migration and remittances on education (apart from other dimensions such as health) are not always straightforward. Indeed, remittances increase household purchasing power, which may also expand spending on education. At the same time, households may also decide to increase investments in human capital with a view towards emulating family members who have gone abroad for employment. However, migration may also impose deleterious effects owing to family members being separated from each other. The net effect of migration and remittances is also not clear, necessitating further investigation of this issue. On a related vein, it would also be worthwhile to look at possible effects of migration and remittances on the labor market. Although overseas employment was originally intended to alleviate domestic unemployment, the receipt of remittances can alter the motivation of recipient household members to enter the labor force.

Given the issues thus raised, this paper aims to provide a richer understanding of the migration phenomenon by looking at the potential mixed effects that may ensue particularly on school and labor force participation. At the same time, this paper aims to find out the difference between the impact of maternal migration and paternal migration on school participation.

This study hopes to spur policy discussions regarding education in the Philippines as well as on using migration and remittances for development. It also aims to contribute to the heretofore-lacking literature on the determinants of educational attainment of children in the Philippines, in particular, and in developing Asia, in general.

2. METHODOLOGY

Sampling Design and Data Collection Method

The study will make use of the Annual Poverty Indicators Survey (APIS) in order to perform the analyses needed in answering the objectives of the study. The APIS is a household survey conducted by the Philippine Statistical Authority (PSA) which provides information on wealth, income and expenditure. It also provides demographic information such as age, educational level and employment status at the individual level. Data for the years 2008, 2010, 2011, and 2013 will be used since these are readily available. Note that there is no 2009 and 2012 for APIS since the PSA conducts the Family Income and Expenditure Survey (FIES) instead of the APIS. Furthermore, the "wide" household-level APIS 2013 was converted into a "long" individual-level dataset in order to run the multinomial logistic model on the effect of remittances on the human resource development (HRD) outcome of each household member. The study will also make use of the Merged Family Income and Expenditure Survey and Labor Force Survey of 2012 (Merged FIES-LFS) in order to perform the analysis for the gendered parental migration model.

Propensity Score Matching

A primary tool to be used for the analysis of the models in the study is Propensity Score Matching (PSM). The output that is generated is the average treatment effect on the treated (ATT), which is the average difference in outcomes between the treatment and control groups. The aim of the study is to evaluate whether households with remittances (the treatment group) have improved school participation and labor force participation as compared to those who do not receive remittances (control group). PSM estimates the effect of the treatment (i.e. remittances) on the outcome variable (i.e. school participation and labor force participation rates) by determining how a set

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of controlled characteristics influence their probability of participating in the treatment (Khandker, Koolwal & Samad, 2010). The comparison, or matching, between treatment and control groups is determined using a model for program selection, which is a model elaborating the probability to receive remittances of both remittance-receiving and non-remittance receiving households. the ATT is calculated as

$$ATT = [E(Y(1)|T = 1) - E(Y(0)|T = 1]]$$
$$ATT = [Y(1) - Y(0)|T = 1] \quad \text{(Eq.1)}$$

Where $Y(T)$ represents school and labor force participation, and T represents the receipt of remittances. This is interpreted as the difference in school and labor force participation receiving remittances as compared to not receiving remittances for a household randomly drawn from a treated sample. This is then the average difference in outcomes between treatment observations and control observations:

$$ATT = \frac{1}{N_T}\left(\sum_{1}^{N_T}(Y_T - Y_C)\right) \quad \text{(Eq.2)}$$

Such that Y_T is the outcome of the treated household matched to the corresponding Y_C which is the outcome of the matched control household. N_T is the matched sample. Standard errors are generated with the use of bootstrap (Khandker, Koolwal, & Samad, 2010).

Multinomial Logistic Regression

The question being discussed in this study regarding the effect of remittances on an individual's outcome of being in work, school, or being idle is one that is fit to answer with a multinomial logistic regression (multinomial logit). The multinomial logit's main contribution to the study is that it shows us all at once the relative changes brought about by remittances on individuals' choices by demonstrating the changes in relative likelihoods of a person choosing to engage in the labor force or going to school compared to the base outcome – being in neither (which implies idleness). The model would take on the simple form:

$$f(i,j) = log\frac{\mu_{ij}}{\mu_{iJ}} = x_j \times \beta_i \quad \text{(Eq.3)}$$

Where μ_{ij} is the probability of the ith individual being in the jth category, while μ_{iJ} is the probability of the ith individual being in the baseline category J. β_i is a set of regression coefficients, while x_j is a set of independent variables associated with observation j, for $j = 1, 2, \dots, J-1$.

Using individual level variation in the APIS, the dependent variable for this model in the study will have four possible outcomes: (1) school, (2) work, (3) neither (implicitly idle), or (4) both (implicitly working and studying part-time). The model is presented as follows:

$$HRDOutcome_{ij} = f(Remittances_j) \quad \text{(Eq.4)}$$

Such that

$$HRDOutcome = \begin{cases} 1 \text{ if } i\text{th member of the } j\text{th household is in school and not working} \\ 2 \text{ if } i\text{th member of the } j\text{th household is working and not in school} \\ 3 \text{ if the } i\text{th member of the } j\text{th household is neither working nor in school} \\ 4 \text{ if the } i\text{th member of the } j\text{th household is both working and in school} \end{cases}$$

In accounting for endogeneity of the remittance variable, a "first-stage regression" will be provided to control for the wealth and domestic wage income and demographic characteristics of the household head of the household that the individual belongs to. A logit model will be used to predict the probability of receiving remittances given the observable characteristics mentioned previously. So $Remittances_{ij}$ represents the probability that the jth household will receive remittances.

3. RESULTS AND DISCUSSION

Table 1. Results of PSM on the Impact of Remittances on School Participation

2008	WI	0.019** (-0.006) 2.987
	HHDC	0.066** (-0.006) 11.214

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	S&W	0.061** (-0.006) 10.221
2010	WI	0.064** (-0.008) 8.018
	HHDC	0.084** (-0.007) 11.356
	S&W	0.078** (-0.007) 10.954
2011	WI	0.033** (-0.006) 5.729
	HHDC	0.06** (-0.005) 11.052
	S&W	0.044** (-0.005) 8.393
2013	WI	0.029** (-0.011) 2.725
	HHDC	0.058** (-0.01) 5.988
	S&W	0.038** (-0.01) 3.914

Data in each cell are ATT, standard errors in parentheses, t-values, respectively.
*** indicates significance at the 0.05 level*
Source: Authors' computations from APIS datasets

Table 1 summarizes the ATT of remittances on school participation given the three models for program selection namely wealth index (WI), educational attainment of a working age member (HHDC), domestic wage earnings of the household (S&W). There appears to be a consensus across all models and time periods with regard to the impact of remittances on school participation rates at the national level. It may be seen that households that receive remittances have a 1.9 to 8.4% higher school participation rate as compared to households that do not receive remittances. This reinforces the results of many studies (Mara et al, 2012; Rossi 2008; Acosta, 2006; Yang, 2006; Cox and Ureta, 2003). This reinforces the work of Theoharides (2014a) which finds that migration is positively associated with secondary school enrollment decisions. All national-level ATTs are statistically significant and may be verified in the appendices.

Table 2 summarizes the ATT of remittances on the labor force participation rate given the three models for program selection. There also appears to be a consensus across all models and time periods at the national level that households that receive remittances have 9.3 to 16.3% lower labor force participation rates as compared to non-remittance receiving households. With regard to the debate on the impact of remittances on labor force participation, our results seem to reinforce the findings of Tullao, Cortez, and See (2007) and Rodriguez and Tiongson (2001). It is counter-intuitive to the findings of Cabegin (2006) and Yang (2006) which postulate that though recipients have less hours in employment, they spend more time in self-employment, because the labor indicator used to compute for the labor force participation rate takes into consideration both employment and self-employment. Theoharides (2014b) finds that the increase in the share of performing artists overseas coupled with regulations on migration, has no impact on total unemployment, but increases female unemployment. Migration tends to encourage child labor, short-term employment, and looking for additional work, but tends to discourage those that are looking for primary employment.

Table 2. Results of PSM on the Impact of Remittances on Labor Participation

2008	WI	-0.15** (-0.005) -31.023
	HHDC	-0.111** (-0.005) -24.304
	S&W	-0.163** (-0.005) -35.55
2010	WI	-0.151** (-0.007) 21.622
	HHDC	-0.111** (-0.007) -16.908
	S&W	-0.157** (-0.007) -23.806
2011	WI	-0.154** (-0.005)

		-29.967
	HHDC	-0.104** (-0.005) -21.407
	S&W	-0.162** (-0.005) -33.049
	WI	-0.129** (-0.009) -13.707
2013	HHDC	-0.093** (-0.009) -10.752
	S&W	-0.123** (-0.009) -13.669

Data in each cell are ATT, standard errors in parentheses, t-values, respectively.
*** indicates significance at the 0.05 level*
Source: Authors' computations from APIS datasets

Table 3 summarizes the marginal effects of the multinomial logit model. The resulting estimation shows that the remittances variable is shown to be statistically significant. The estimated marginal effects suggest that there is indeed a positive relationship between receiving remittances and being in school. In particular, we see that the marginal effect of the probability of receiving remittances on the probability of being in school is 1.02. On the other hand, the marginal effect on the probability of being in the labor force is estimated to be -1.33. Similarly, the probability of being in both school and labor decreases by a small yet significant 0.033.These results are suggestive of the possibility that individuals aged 15 to 24 shift out of the labor force and into schooling when confronted with increased probabilities of receiving remittances.

Table 3. Marginal effects of the impact of remittances on the human resource development outcomes using APIS 2013

School	Labor	Idle	School and Labor
1.02***	-1.33***	0.34***	-0.033***
(0.03)	(-0.04)	(-0.03)	(-0.02)

Data in each cell represent marginal effects. Standard errors in parentheses.
*** represent 1% level of significance, respectively.
P-values based on multinomial logit regression rather than marginal effects.

Source: Authors' computation from APIS 2013 dataset

Table 4 summarizes the results of the parental migration model computed using the 2012 Merged FIES-LFS dataset. Looking across models of program selection for both mother migrant and father migrant indicators, we find that ATTs are generally positive (with the exception of the ATT of the mother migrant indicator for the second model for program selection) implying that given comparable levels of wealth, highest grade completed of migrants, and domestic wage earnings, households with parent migrants have slightly higher school participation rates relative to those that do not. For the case of the second model of program selection of the mother migrant ATT however, it may be seen that the ATT has a negative sign. At first glance this may imply that when controlling for migrant demographic characteristics, households with mother migrants have a 0.1% lower school participation rate. Looking at the standard error, however, reveals that the ATT estimate may not be statistically significant because it is larger than the ATT.

Table 4. ATT of mother-migrants and father-migrants on school participation rates controlling for the household's wealth index, highest grade completed of migrant, and annual domestic wage earnings

	Mother	Father
Wealth Index	0.014 (-0.008)	0.007 (-0.008)
Highest Grade	-0.001 (-0.016)	0.048 (-0.006)
Domestic Wage	0.012 (-0.009)	0.007 (-0.008)

Source: Authors' computation using 2012 Merged FIES-LFS dataset, Note: Standard Errors in parentheses.

4. CONCLUSION

Contrary to many studies concluding that remittances cause dependency or complacency among recipients, the evidence may not be sufficient to conclude such despite the negative ATT for labor force participation. It may be inferred that remittances in fact lower the opportunity cost for education. Controlling for the

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domestic wages, we find that the negative ATT is largest for labor force participation, and is higher than the wealth index-controlled positive ATT for school participation. This supports the findings of Theoharides (2014a and 2014b) that remittances have a liquidity effect and relative wage effect. The liquidity effect may be seen directly in the larger school participation, but the relative wage effect may be seen in the domestic wage-controlled ATT where labor force participation is reduced, because the relative wage of a person with higher levels of educational attainment is higher. And with higher relative wage, a person would more likely study than work given the persisting level of domestic wage at the time. We may infer that remittances may reduce a household's labor force participation, but it could be because household members shift from joining the labor force, to being more active in pursuing higher levels of educational attainment due to higher relative wages in the future. Hence, the overall outcome of remittances points towards deeper human capital accumulation.

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