AN EMPIRICAL STUDY OF THE IMPACT OF REMITTANCE, EDUCATIONAL EXPENDITURE AND INVESTMENT ON GROWTH IN THE PHILIPPINES.

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Abstract

The study undertakes an econometric analysis of the contribution of remittance, education expenditure and investment to economic growth rates in the Philippines. Remittance is the most important source of finance for the Philippines. Hence, this paper is an attempt to provide insights into understanding the implications and verifying the hypothesis that remittance is the engine that drives growth and economic development in the Philippines. The ARDL model used enables the researchers to examine long-run as well as short-run relationship between the dependant variable and independent variables. The results show a positive relationship between the rate of economic growth and remittance as well as education expenditure. However, the findings show that there is no evidence of a long-run relationship between investment in the Philippines and the rate of economic growth. A deeper understanding of the OFWs and the economic activities in the Philippines enabled the researchers to draw the conclusions that direct as well as indirect effects of remittance including expenditure on education and consumption expenditure drives economic growth in the Philippines. The Philippines thus has 'a consumption led growth'.

Keywords: Education expenditure, economic growth, investment, migrant, Philippines, remittances

JEL Codes: O16, E21, J61

1.1. Introduction

Remittance has been analyzed by researchers from early 1970s mainly because of its importance as a source of international capital flows. The Philippines ranks third in Asia in terms of the remittance received. In 2012 total remittance to the Philippines was US$ 24.45 billion (IMF 2013). Thus the Philippines was only behind much larger countries like India with a remittance of US$69.35 billion and China with a remittance of US$60.24 billion in 2012 respectively. The three countries combined account for about 75 percent of all remittance to Asia (World Bank 2013; NEDA 2012). The Philippines has the highest amount of remittance among the Southeast Asian countries. International remittance has increased and is currently over 10 percent of the Philippines' Gross Domestic Product (Bayangos and Jansen 2009).

Remittance is an important source of finance into the Philippines. When remittance is compared to other sources such as Foreign Direct Investment (FDI), Private Capital Flows (PCF) and Official Development Assistance (ODA) it is significantly higher (Niimi and Ozden 2006; IMF 2013). The Figure 1 compares the remittance and Net Capital Inflows into the Philippines (IMF 2013). Remittances accounted, on average for 12.26% of the GDP, compared to PCF which constitutes 1.88% of the GDP and FDI

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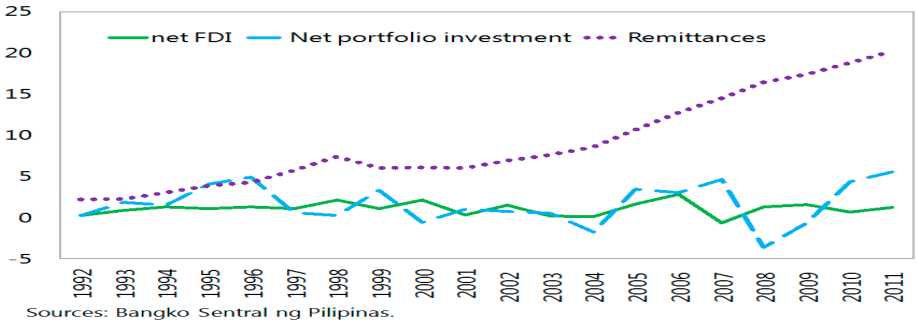
which makes up merely 0.99% of GDP (World Bank Indicators 2011; IMF 2013; OECD 2010).

Figure 1. Remittances and Net Capital Inflows

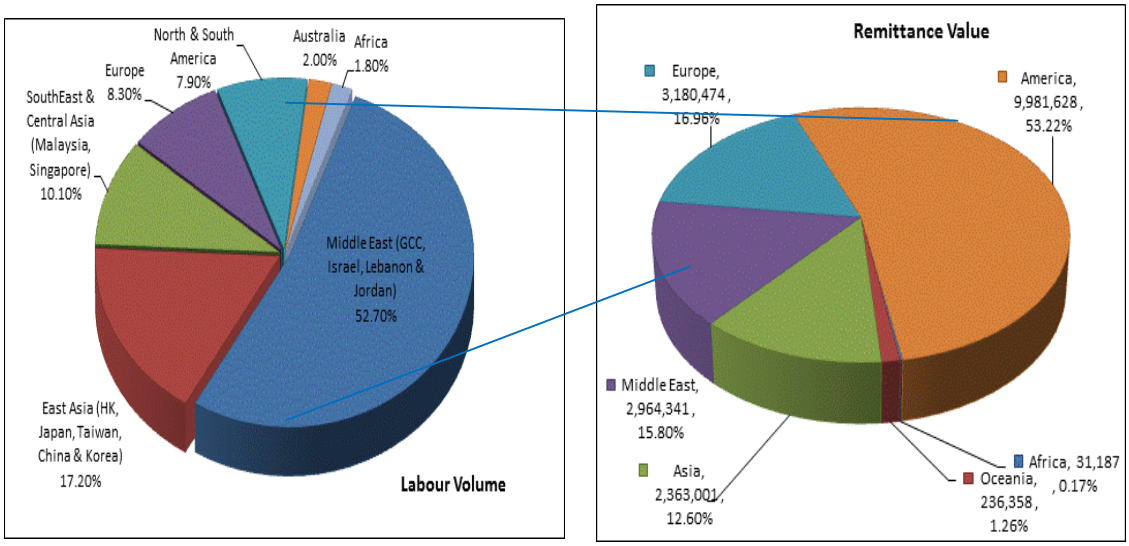


Sources: Bangko Sentral ng Pilipinas.

1.2. Trends in International Migration

The number of Overseas Filipino Workers (OFW) has increased from 7 million in 1997 to 10.5 million in 2011 (IMF 2013; NSO2012). Labour exports are a prominent feature of the Philippines. OFWs make up approximately 10 percent of the total population or 25 percent of the labour force. There is a preference for Overseas Filipino Workers (OFWs) to work in the Middle East (52.7%) rather than in Asia (27.30%), Europe (8.3%), North and South America (7.9%), Australia (2%) and Africa (1.8%). An examination of the geographical sources of remittance shows that the Middle East contributes only 15.8% whereas the flow of remittance from the US is 53.2%. Figure 2 shows the projection of labour volume to remittance value by geographical region. Such contrast between labour volume and remittance value reflects the importance of the technical and professional education for Overseas Filipino Workers.

Figure 2. Projection of Labour Volume to Remittance Value by Geographical Region



Source: National Statistics Office (2010)and Bangko Sentral ng Pilipinas (2010)

Table 1 presents the statistics for major occupation of Overseas Filipino workers for 2005 and 2010. Agriculture, followed by administrative and managerial workers witness an increase on average by a factor of 4 whereas for service workers the increase is nearly about 15% but for professional, medical and technical workers there was a negative trend in the number of workers (-34.8%) contradicting the worldwide market demand for skilled workers (NSO 2012; ILO 2006; 2011). One of the aims of the paper is to be able to explain the importance of investment in education as an indirect effect of remittance.

Table 1. The Percentage Change of Major Occupation of OFW

Occupation	2005	2010	% Change
Professional, Medical, Technical and Related Works	63,941	41,835	-34.57
Administrative and Managerial Workers	490	1,439	193.67
Clerical Works	5,538	10,706	93.32
Sales Workers	4,261	7,242	69.96
Service Workers	133,907	154,535	15.40
Agricultural Workers	350	1,122	220.57
Production Workers	74,802	120,647	61.29
Others	996	2,753	176.41
Total	284,285	340,279	

Source: National Statistics Office (2010)

A number of studies have analyzed remittance from different points of view. In the recent years, there is a growing interest in remittance as an engine of growth particularly in developing countries in Asia. The focus has shifted to the impact of remittances on economic growth (Mim & Ali, 2012). A better understanding of the impact of remittances and expenditure on education on economic growth could help policy makers design strategic policies that could redirect remittances to areas in such a way as to maximize the positive impact of remittance flows for economic development of the country. Besides this, a number of researchers who study the relationship between remittance and economic growth utilize cross-country data and therefore there is a need to validate the findings further in a country specific environment. Our study attempts to fill this gap by using an econometric model which helps to analyze the impact of remittance, educational expenditure and investment on growth of GDP for a recipient country, in this case the Philippines. The paper is structured as follows: Section 2 covers literature review; Section 3 describes the recent data corresponding to the Philippine macroeconomic variables used in our research study; Section 4 details the econometric methodology and empirical results and Section 5 includes the conclusion and recommendations.

2. Literature Review

The impact of remittance on economic growth is an important area of research because of the remarkable increase in remittances during the past few decades (Adenutsi, 2011) for instance in the case of Philippines, in January 2012 alone, remittances from Overseas Filipino workers was 1.6 billion dollars (Abs-Cbn News, 2012).

2.1 Remittance and Growth

Interest in remittance has increased after the construction boom and the discovery of oil in the Middle East during the early 1970s. Research findings show a positive impact of

remittance on economic growth and development through a positive impact on consumption (Burgess & Haksar, 2005; Guliano and Ruiz-Arranz, 2006), savings or investment (Burgess & Haksar, 2005; Guliano and Ruiz-Arranz, 2006; Iqbal and Sattar, 2005, Catrinescu et al., 2006; Jongwanich, 2007, Ahortor and Adenutsi, 2009), poverty reduction (Jongwanich, 2007; Ducanes and Abella, 2008; Vargas-Silva, et al., 2009; Mundaca, 2009), education (Cox and Ureta, 2003; Yang, 2005; Acosta, 2006; Niimi & Ozden, 2006; Ahortor & Adenutsi, 2009, Adenutsi, 2011), and financial development (Aggarwal, et al., 2006; Mundaca, 2007; Bettin and Zazzaro, 2009). Jongwinich (2007) shows the impact of remittance on growth and also how remittance results in alleviation of poverty. He concluded that there are marginal positive effects on economic growth in Asia and Pacific countries. Berg and Krueger (2003) showed that remittance has a positive impact on poverty reduction and increased growth. Unlike these researchers Chami, et al., (2005) found a negative relationship of remittance with economic growth in their study of 113 countries. Similarly Burgess and Haksar (2005) found a negative correlation between the rate of growth of remittance and the rate of economic growth. The findings of IMF (2005) were similarly negative but significant when measuring the impact of remittance on growth.

2.2 Education Expenditure on Growth

Education expenditure affects growth directly and is indirectly affected by remittance. Lucas (1988), in his study on the 'Mechanics of Economic Development', stressed the importance of Human Capital Formation on growth in the long-run. A number of studies established a relationship between public expenditure and long-run economic growth (Blankenau ,et al., (2007). A case study of Uganda undertaken by Musila and Belassi (2004) concluded that an increase in average education expenditure can increase long-run growth particularly in the rich countries. Dao (2012) studied 28 countries and concluded that there is a positive relationship between per capita growth and per capita growth of public spending in the case of developing countries. According to Bose et al., (2007) government expenditure has long-lasting effects on economic growth rate which in turn helps to boost the economic prosperity of a country. On the other hand researchers like Li and Lang (2010) compared the impact of investment in heath with investment in education and showed that the impact of investment in health has a stronger impact on economic growth than investment in education. Similar results were found by Knowles and Owen (1997). Investment in education is a key driver of future development. There is empirical evidence that education expenditure is positively associated with future economic growth (Sylwester, 2000).

2.3 Remittance on Human Capital Formation

The influence of human capital development has been of interest to researchers of economic growth. Some researchers have analyzed the positive and negative repercussions of remittance on human capital formation. Acosta (2006) studied the endogeneity of remittance and concluded that there was a positive effect of female education in that it resulted in reduction of the number of women in the manual workforce. Stressing the human development aspect of remittance Berg and Krueger (2003) and Jongwanich (2007) concluded on similar lines pointing out to the positive impact of remittance on human capital development. Comparatively Niimi and Ozden (2006) found that the inflow from remittance was determined largely by the educational level of migrant workers.

2.4 Investment and Growth

The neoclassical theory that explains how increase in expenditure by the government has a tendency to crowd out private investment because of its expansionary fiscal effects on price and money supply was explained in the findings of Buiter (1977). Huge deficit financing by the government would result in high taxes in the future to cover such debts thereby having an adverse impact on economic growth. Romero (2003) in his findings pointed out that public investment has a positive effect on GDP growth rates in the EU. However, he stressed the point that distortionary taxation affects growth in the medium term through its impact on accumulation of private capital. Comparatively the results of Afonso (2008) showed that public investment did not have a significant impact in explaining growth in either the EU or OECD countries. This is because of extremely low public investment which was merely 3 percent of the GDP and tends to limit long-term economic growth. In a study on Pakistan and Syria, Das (2012) established a positive relationship between remittances, investment and economic growth.

2.5 Remittance and Investment

There is a positive impact of remittance on economic growth according to Adenutsi (2011) in his study of India and Pakistan. Mundaca (2009) findings show that investment increased per capita growth rates. This happens when remittance positively affects consumption and investment.

A number of researchers have analysed the impact of remittance on economic growth rate with the help of macroeconomic variables like investment and human capital formation as well as physical capital formation (Burgess & Haksar, 2005; Chami,et al., 2005; Iqbal & Sattar, 2005; Yang, 2005; Cartrinescu,et al., 2006; Jongwanich, 2007; Ahortor & Adenutsi, 2009; Mundaca, 2009). Iqbal and Sattar (2005) establish a strongly positive relationship between investment and growth and conclude that a higher the rate of investment, higher would be the rate of growth.

In this study, we consider education expenditure as a proxy for human capital. We aim to contribute to the existing literature by examining the impact of remittances inflows, education expenditure and investment on growth. Most OFW in USA and Canada are professionals as compared to those who worked in the Middle East, therefore, education expenditure as a proxy of human capital, deserve more attention when a study is undertaken to assess the impact of remittance on economic growth.

3. Data sources

Data corresponding to the Philippine real GDP growth rate, remittance, investment and education expenditure were obtained from the International Monetary Fund Financial Statistics (IFS) and World Bank Indicators (WDI) for the period from 1984 to 2009. GDP growth rate is the dependent variable and the explanatory variables are remittance, investment and educational expenditure. The description of both the original data and the transformed data is contained in Table 2.

The remittances variable (current, US$) is constructed from the aggregate sum of the three variables: workers' remittances, compensation of employees, and migrants' transfers (IMF, 2010). Worker’s remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin. Compensation of employees is the income of migrants who have lived in the host country for less than a year. Migrants' transfers are defined as the net worth of migrants who are expected to remain in the host

country for more than one year that is transferred from one country to another at the time of migration.

- Investment variable is the gross fixed capital formation to GDP including land improvements (fences, ditches, drains, and so on); plant, machinery, equipment purchases; construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 System of National Accounts (SNA), net acquisitions of valuables are also considered as capital formation.
- Education Expenditure variable is the current operating expenditures in education to GDP including wages and salaries, and excluding investments in buildings and equipment.

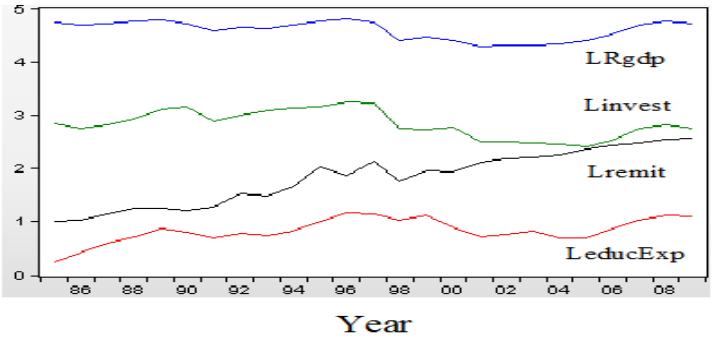
Table 2. Original and transformed data description

	Current		Real		Real in Log
Time Series of	**Denotation**	**Range**	**Denotation**	**Range**	**Denotation**
Current Gross Domestic Product	cGDP	33.09-173.60[a]	rgdp	72.25 to 121.35[a]	Lrgdp
Current Gross Domestic Product Per Capita	cgdpc	590-1918[b]	rgdpc	903 to 2106[b]	Lrgdpc
Growth rate in GDP			rgdpg	-33% to +17%	
Current Remittance	cremit	0.81-19.76[a]	remit	2.73 to 13.04[a]	Lremit
Current Investment	cinvest	4.79-24.51[a]	invest	11.22 to 25.65[a]	Linvest
Current Education expenditure	ceducExps	0.74-4.56[a]	educExps	1.27 to 3.18[a]	LeducExps
Population			Pop	54.7 to 92.2[c]	
Index deflator			Deflt	29.57 to 151.52[d]	

[a]units in billions ($), [b] units in ($), [c] units in millions, [d] base index =100 (1985).

The trend of these macroeconomic variables is shown by figure 3.

Figure 3. Trend of the macroeconomic variable in log



4. Econometric Methodology and Empirical results

The question whether remittance, education expenditure and investment contribute to growth is being examined through econometric analysis of the data described in the previous section. Auto Regressive Distributed Lag modelling (ARDL) promoted by Pesaran and Shin (1995, 1996) is adopted to establish the existence of a long-run relationship between GDP growth rate (*rgdpg*) with each of the variables, remittance (*remit*), investment(*invest*) and education expenditure(*educexp*). The newly bounding test procedure developed by Pesaran and Shin (1999) and Pesaran et al.(2001) presents several advantages over other alternatives such as Engle and Granger (1987):

- The method can be applied regardless of the stationarity level of the time series involved whether they are I(0) or I(1) or mixed.
- It can be used to establish both short-run and long-run relationships between the dependent and the independent variables.
- The results are still valid when applied to small samples.
- It avoids concerns whether the right side variables are endogenous or exogenous.

Though ARDL method avoids unit root pre-testing of the variables, unit roots test is conducted to find stationarity properties of the data and make sure that none of the variables is I(2). Augmented Dickey Fuller (ADF) is used to determine integration levels of the variables. The results of the properties of the time series involved in our analysis are reported in Table 3 and indicate that none of the variables are I(2). As reported by Table 3, with the exception of rgdpg which is I(0), unit root testing reveals that all the other macroeconomic variables have unit roots and are stationary in differences

Table 3. Augmented Dickey-Fuller (ADF) and Phillips & Perron (P & P) for unit root test

		Levels				Difference				
		ADF H_0: existence of unit root		P & P: H_0: existence of unit root		ADF H_0: existence of unit root		P&P H_0: existence of unit root		Decision
	Variable	Intercept	Intercept +time trend	Intercept	Intercept +time trend	Intercept	Intercept +time	Intercept	Intercept +time trend	
Original time Series	rgdp	-1.54	-1.19	-1.68	-1.41	-3.89**	-3.84*	-3.9**	-3.85*	I(1)
	rgdpc	-1.62	-1.25	-1.62	-1.45	-4.06**	-4.04*	-4.07**	-4.02*	I(1)
	remit	0.79	-3.53	0.35	-3.57*	-8.99**	-9.17**	-8.82**	-9.17**	I(1)
	invest	-1.51	-1.97	-1.60	-1.60	-4.33**	-4.26*	-4.31**	-4.23*	I(1)
	educExps	-2.49	-2.60	-2.16	-2.1	-3.60*	-3.53	-3.48*	-3.44*	I(1)
	rgdpg	-3.56	-3.7	-3.63	-3.7					I(0)
Time series in log	Lrgdp	-1.48	-1.11	-1.60	-1.29	-3.99**	-3.95*	-3.97**	-3.95*	I(1)
	Lrgdpc	-1.45	-1.1	-1.47	-1.29	-3.99**	-3.98*	-3.99**	-3.99*	I(1)
	Lremit	-0.78	-3.77*	-0.76	-3.84*	-8.53**	-8.37**	-8.53**	-8.37**	I(1)
	Linvest	-1.42	-1.84	-1.50	-1.93	-4.32**	-4.23*	-4.30**	-4.23*	I(1)
	LeducExps	-2.64	-2.73	-2.54	-2.79	-3.50*	-3.43	-3.39*	-3.26*	I(1)
τ_critical 1% and 5%		-3.73 -2.99	-4.39 -3.61	-3.73 -2.99	-4.39 -3.61	-3.75 -2.99	-4.41 -3.62	-3.75 -2.99	-4.41 -3.62	

* denotes Null hypothesis of non stationarity is rejected at 5% , ** denotes Null hypothesis is rejected at 1%In brackets are lag lengths.

. The log transformations of the variables have similar properties of the unit root tests as reported in the Table.

The first stage of ARDL cointegration method is the investigation of the presence of a long-run relationship between GDP growth rate and each of the variables (*remit, invest, educexp*). The ARDL representation is formulated by the following unrestricted model using the difference operator (Δ):

$$\Delta rgdpg_t = c_1 + \sum_{k=1}^{p1} \alpha_{1,k} \Delta rgdpg_{t-k} + \sum_{k=0}^{q1} \beta_{1,k} \Delta remit_{t-k} + \lambda_1 rgdpg_{t-1} + \gamma_1 remit_{t-1} + \varepsilon_{1,t} \quad (2.a)$$

$$\Delta rgdpg_t = c_2 + \sum_{k=1}^{p1} \alpha_{2,k} \Delta rgdpg_{t-k} + \sum_{k=0}^{q1} \beta_{2,k} \Delta invest_{t-k} + \lambda_2 rgdpg_{t-1} + \gamma_2 invest_{t-1} + \varepsilon_{2,t} \quad (2.b)$$

$$\Delta rgdpg_t = c_3 + \sum_{k=1}^{p1} \alpha_{3,k} \Delta rgdpg_{t-k} + \sum_{k=0}^{q1} \beta_{3,k} \Delta\ edu\ \exp_{t-k} + \lambda_3 rgdpg_{t-1} + \gamma_3 educ\ \exp_{t-1} + \varepsilon_{3,t} \quad (2.c)$$

The test of cointegration is based on the F Wald Statistics calculated from the restricted-unrestricted models: A joint significance of the null hypothesis test of no cointegration,

$$H_{0,i} : \lambda_i = \gamma_i = 0 \qquad (i = 1,2,3) \quad (2.d)$$

is performed for each model described by equations (2), against the alternative that at least one coefficient is equal to zero. The test used does not follow the standard F distribution but uses Pesaran computed of two sets of critical values for a given significance level. If the variables are mix of I(0) and I(1), then only if the F-statistics exceeds the upper level then the null hypothesis is rejected implying existence of cointegration. The calculated F values of each model are presented in Table 4.

Table 4: Co-integration F-statistics

Model	**F Statistics Using p_i=q_i=2 lags**	**F Statistics Using p_i=q_i=3 lags**
rgdpg =f(remit)	5.95**	9.96***
rgdpg =f(invest)	2.977	2.39
rgdpg =f(educexp)	5.5258**	11.57***

Pesaran F Critical value bonds $F_{I(0),\ 90\%}$=4.09, $F_{I(1),90\%}$=4.78, $F_{I(0),95\%}$=4.93, $F_{I(1),95\%}$=5.76, $F_{I(0),99\%}$=7.06, $F_{I(1),99\%}$=7.81; * denotes Null hypothesis of no-cointegration is rejected at 10%, ** Null hypothesis is rejected at 5%, *** Null hypothesis is rejected at 1%

As shown in Table 4, the null hypothesis specified by (2.b) is rejected at the p_{value}=0.01 which leads to the conclusion that real GDP growth rate (rgdpg) has indeed a long-run relationship with both remittance and education expenditure. However there is no support of a long-run relationship between real GDP growth rate and investments.

In the next stage, given that long-run relationships exits, a further two-step procedure is conducted for remittance and education expenditure to determine the estimate the long-run and short-run coefficients estimations. First, the estimates of the long-run coefficients are obtained from conducting the following regression models:

$$Lrgdpg_t = c'_1 + \sum_{k=1}^{m_1} \alpha'_{1,k} Lrgdpg_{t-k} + \sum_{k=0}^{n_1} \beta'_{1,k} Lremit_{t-k} + \varepsilon'_{1,t} \quad (3.a)$$

$$Lrgdpg_t = c''_2 + \sum_{k=1}^{m_2} \alpha''_{3,k} Lrgdpg_{t-k} + \sum_{k=0}^{n_2} \beta''_{3,k} Leduc\ \exp + \varepsilon''_{3,t} \quad (3.b)$$

Again, the orders of the lags (m_i =2, n_i=0) in (3.a) and (3.b) are determined according to both Akaike (AIC) and Schwarz Bayesian (SBC) information criteria where both criteria select ARDL(2,0) for both models. The empirical findings as summarised by Table 5 showing that both remittance and education expenditure have both a significant positive

long-run relationship with Philippine GDP growth rate. However while remittance elasticity is only 0.35%, the education expenditure elasticity is much higher (2.28%).

Table 5: Estimates of the long-run coefficients with rgdpg based on ARDL(2,0)

Long-Run Coefficients	**Model (3.a) (remittance)**	**Model (3.b) (education)**
$remit_t$	.35**(2.2)	
$eduexp_t$		2.285**(2.53)
Intercept	.36(0.27)	-2.74 (-1.2)

** denotes significance at 95%. In parenthesis are t-values.

The regressions diagnostic tests of the error underlying ARDL equations (3.a) and (3.b) are given in Table 6. Except for the reset test, all the other three statistics are insignificant implying the validity of the two models. In particular, the CUSUM and the CUSUM squares of the residuals are within the critical bands indicating stability in the parameters.

Table 6: Diagnostics of the ARDL Models

Diagnostic test	**Model 3.a remittance**	**Model 3.b Education**
Serial correlation	.46[.49]	.6[.44]
Normality	3.3[.17]	3.24[.20]
Reset (functional form)	5.6*[.02]	5.9*[.02]
Heteroskedascity	1.11[.29]	0.01[.92]

between square brackets are probability values,* denotes significance at 5%.

The second step of this stage concerns conducting error correctional models:

$$\Delta rgdpg_t = c'_1 + \sum_{k=1}^{p1} \alpha_{1,k}\, \Delta rgdpg_{t-k} + \sum_{k=0}^{q1} \beta_{1,k}\, \Delta remit_{t-k} + \xi_1\, ECM_{remit,t-1} + \varepsilon'_{1,t}$$

$$\Delta rgdpg_t = c'_3 + \sum_{k=1}^{p1} \alpha_{3,k}\, \Delta rgdpg_{t-k} + \sum_{k=0}^{q1} \beta_{3,k}\, \Delta edu\exp_{t-k} + \xi_2\, ECM_{edu\exp,t-1} + \varepsilon''_{3,t}$$

Where ECM's are the error correctional terms and the ξ_i are speeds of adjustment to equilibrium after a shock corresponding to the explanatory variables, namely *remit* and *educexp*. The results of Error correctional models as reported in Table 7, show that the coefficients ξ_i corresponding to the error correction terms (ecm) are both statistically highly significant with p values (=0.00) and the have the correct negative signs. The magnitudes of these coefficients imply a very high speed of adjustment of GDP growth rate to equilibrium after a shock.

Table 7: Error Correction Representation for the selected ARDL(2,0)

	Model 3(a)(remittance)		**Model 3(b)(education)**	
Regressor	*Coefficient*	*t-ratio(prob)*	*Coefficient*	*t-ratio(prob)*
$\Delta rgdpg_{t-1}$	0.476**	2.56(.02)	0.48**	2.65(.01)
$\Delta remit_t$	0.311*	1.97(.06)	Not included	----------
$\Delta educexp_t$	Not included	----------	2.06**	2.25(.03)
ξ (Ecm_{t-1})	-.886***	-4.32(.00)	-0.904***	-4.52(.00)

** denotes significance at 95% and *** denotes significance at 99%. In parenthesis are p-values.

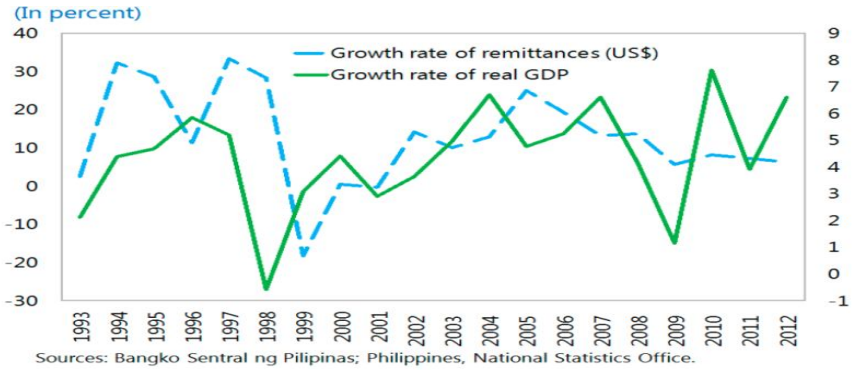
5. Conclusions and Recommendations

The paper uses the econometric model, ARDL model to determine the relationship between remittance, education expenditure and investment on economic growth in the Philippines. The study contributes to the body of literature by analysing the impact of each of the variables viz., remittance, education expenditure and investment separately to show its impact on GDP growth rate. Our analysis shows the following:

1. There is a positive relationship between GDP growth rate and remittance. This is due to :
   - The indirect effect of remittance in the Philippines. A large percentage of the remittance is used for private consumption and this has a positive impact on GDP growth rate. Our findings are similar to those of Burgess and Haksar (2005) and Guilianio and Ruiz-Arraz (2005). It is important to note that consumption expenditure made up 77.85% of the GDP in the Philippines in 2011(IMF 2012).
   - The indirect effect of expenditure on education is positive and has a higher elasticity (2.28%) than remittance (0.35%) because of the multiplier effect. Higher expenditure on education results in higher inflow of remittance and therefore leads to economic growth rates. Our findings are in line with those of Cox and Ureta (2003), Yang (2005), Ahortor and Adenutsi (2009) and Adenutsi (2011).

     The positive impact of remittance on growth is also due to the fact that the Philippines ranks 3rd among the Asian countries and 1st among the Southeast Asian countries in terms of receipt of remittance from OFW. Remittance is channelized towards Human Resources Development this trend has been mentioned by Jongwanich(2007) in his study on 'Workers Remittances, Economic Growth and Poverty in Developing Asia and Pacific Countries. Our conclusion therefore is that the Philippines thus has a 'consumption led growth'.
2. Our findings show that the elasticity for remittance (0.35%) is positive and significant. This helps us to conclude that as a source of foreign exchange remittance is the least sensitive to economic shocks Our conclusion is similar to that of the IMF (2012) and Chami et al(2009); NSO (2012). (Figure 4 below shows the relationship between GDP and Remittance).

Figure 4. GDP and Remittance



3. The stabilizing effect is due to the fact that:
   (a) Inflow of foreign exchange through remittance in the Philippines is used to cover the deficit in the balance of payments (currently remittance makes up 30% of the export earnings in the Philippines) and
   (b) Remittance is used to increase investment expenditure on education.

It is also important to note that the boost given to economic growth when remittance increases is not as high as the adverse effect of a fall in remittance. This is because the impact of a decline in remittance affects economic growth directly as well as indirectly by affecting education expenditure. This conclusion has also been elaborated by Glytsos(2005) .

4. According to conventional wisdom investment is the engine of growth. However, the public sector in the Philippines is constrained by fiscal pressure in the form of insufficient tax revenue to meet its expenditure. The Philippines is also plagued with huge accumulation of debt services. Our finding that there is no support for a long-run relationship between real GDP growth rate and investment is not surprising. Our findings show that there is no long-run relationship between real GDP growth rate and investment and are similar to that of Afonso (2008) who did not find that public investment has a significant impact in explaining the EU and OECD economic growth rate.

Given the favourable effect of remittance inflows and education expenditures on economic growth, the following policy can be recommended:

- Government and private financial institutions (bank and non-banking institutions) should expand to areas where OFW can remit their earnings without much difficulty.
- The supply of skills must be sensitive to the demand. The government should enforce quality education and conduct subsidized training to meet foreign job requirements.
- A stronger industrial base is vital for increasing employment and will help to make growth inclusive and sustainable Asian Development Bank (2013). To achieve this the Philippines must increase fiscal spending on infrastructure and induce entrepreneurship through reforms and prudent macroeconomic policy.

6. References

Abs-Cbn News. (2012). Remittances hit $1.56B in January, Available online http://www.abs-cbn news.com

Acosta, P. (2006). Labor Supply, School Attendance, and Remittances from International Migration: The Case of El Salvador: World Bank Policy Research Working Paper 3903. World Bank.

Adenutsi, D. E. (2011).Financial Development, International Migrant Remittances and Endogenous Growth in Ghana.*Studies in Economics and Finance, 28*(1), 68-89.

Afonso, A. and Furceri, D (2008) Government Size Composition Volatility and Economic growth, ECB Working Paper No. 849, Frankfurt, European Central Bank.

Aggarwal, R., Demirguc-Kunt, A., and Maartinez, P. M. (2006).*Do Workers' Remittances Promote Financial Development?*Mimeo. Washington D.C.: World Bank.

Ahortor, C. R. K., and Adenutsi, D. E. (2009).The Impact of Remittances on Economic Growth in Small-Open Developing Countries. *Journal of Applied Science, 9*(18), pp.3275-3286.

Bangko Sentral ng Pilipinas. (Various years) Overseas Filipino's Remittances. http://www.bsp.gov.ph.

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., and Montiel, P. (2009).Do Workers' Remittances Promote Economic Growth?: IMF Working Paper 09/153. Washington D.C.: International Monetary Fund

Bayangos, V., and Jansen, K. (2009). The Macroeconomics of Remittances In the Philippines: ISS Working Paper 470. Hague, Netherlands: Institute of Social Science.

Berg, A., and Krueger, A. (2003). Trade, Growth, and Poverty: A Selective Survey: IMF Working Paper 03/30. International Monetary Fund.

Bettin, G., and Zazzaro, A. (2009). Remittances and Financial Development: Substitutes or Complements in Economic Growth? : MOFIR Working Paper 28. Money & Finance Research Group. .

Blankenau, W. F., Simpson, N. B., and Tomljanovich, M. (2007). Public Education Expenditures, Taxation, and Growth: Linking Data to Theory. *The American Economic Review, 97*(2), 393-397.

Bose N., Hague M. E., and Osborn D.R.,(2006) Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Countries. *The Manchester School* 75(5) September 2007 (1463-6786) pp.533-556.

Buiter, W. H. (1977). Crowding Out and the Effectiveness of Fiscal Policy. *Journal of Public Economics* Vol. 7 pp.309-328.

Burgess, R., and Haksar, V. (2005). Migration and Foreign Remittances in the Philippines: IMF WP/05/111. International Monetary Fund.

Catrinescu, N., Leon-Ledesma, M., and Quillin, B. (2006). Remittances, Institutions and Economic Growth: IZA Discussion Paper 2139. Bonn, Germany: Institute for the Study of Labor.

Chami, R., Fullenkamp, C., and Jahjah, S. (2005). Are Immigrant Remittance Flows a Source of Capital for Development? International Staff Papers: Vol. 52, pp. 55-81).

Cox Edwards, A., and Ureta, M. (2003). International Migration, Remittances, and Schooling: Evidence from El Salvador. *Journal of Development Economics, Vol.72*, pp429-461.

Dao, M. Q. (2012). Government Expenditure and Growth in Developing Countries. *Progress in Development Studies,* 12(1), pp.77-82.

Das, A. (2012). Remittance Behavior of Migrants and its Macroeconomic Effects in Four Developing Countries.*International Journal of Applied Behavioral Economics,* 1(1), pp. 41-59.

Organisationfor Economic Co-operation and Development.(OECD)(2011). Official Development Assistance (ODA). Available online: http://www.oecd.org.

Ducanes, G., and Abella, M. (2008). Overseas Filipino Worker and their Impact on Household Poverty: ILO Asian Regional Programme on Governance of Labor Migration Working Paper 5. Thailand: International Labor Organization.

Eckstein Z., and Zilcha I. (1994) The Effects of Compulsory Schooling on Growth, Income Distribution and Welfare. *Journal of Public Economics* No.54, pp. 339-359.

Engle, R. F., and Granger, C. W. J. (1987).Cointegration and Error Correction: Representation, Estimation, and Testing. *Econometrica, 50*, 251-276.

Giuliano, P., and Ruiz-Arranz, M. (2006). Remittances, Financial Development, and Growth: IZA Discussion Paper 2160. Bonn, Germany: Institute for the Study of Labor.

Glomm G. and Ravikumar, (1992) Public versus Private Investment in Human Capital Endogenous Growth and Income Inequality. *Journal of Political Economy*. 100 (4) pp. 813-834

Glytsos N.P. (2005) The contribution of remittances to Growth: A Dynamic Approach and Empirical Analysis. *Journal of Economic Studies* 32(6) pp.468-496.

International Monetary Fund Financial Statistics (2005; 2010).Balance of Payments. Available online: http://www.imf.org.

International Monetary fund (2013) Philippines: Selected Issues. IMF Country Report No.13/103 Available online: http://www.imf.org/external/pubs/ft/scr/2013/cr13103.pdf

Iqbal, Z., and Sattar, A. (2005). The Contribution of Worker's Remittances to Economic Growth in Pakistan: PIDE Research Report 187. Islamabad, Pakistan: Pakistan Institute of Development Economics.

Jha, S., Sugiyarto, G., and Vargas-Silva, C. (2009). The Global Crisis and the Impact on Remittances to Developing Asia: ADB Economics Working Paper Series 185. Philippines: Asian Development Bank.

Jongwanich, J. (2007). Worker's Remittances, Economic Growth and Poverty in Developing Asia and Pacific Countries: UNESCAP Working Paper 07/01. Bangkok, Thailand: Economic and Social Commission for Asia and Pacific.

Knowles, S. and Owen, D. (1997) Education and Health in an Effective Labour empirical Growth model. *Economic Record,* 73(3) pp. 14-28.

Li H. and Liang H.(2010) Health, Education and Economic Growth in East Asia. *Journal of Chinese Economic and Foreign Trade Studies* 3(2), 2010.

Lucas, R. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics, 22*(1), 3-42.

Mim, S. B., and Ali, M. S. B. (2012). Through Which Channels Can Remittances spur Economic Growth in MENA Countries? *The Open-Access, Open-Assessment E-Journal, 8*.

Mundaca, B. G. (2007). Can Remittances Enhance Economic Growth? The Role of Financial Markets Development. Ragnar Frisch Centre for Economic Research. Oslo, Norway.

Mundaca, B. G. (2009). Remittances, Financial Market Development, and Economic Growth: The Case of Latin America and the Caribbean. *Review of Development Economics, 13*(2), 288-303.

Musila, J. W., and Belassi, W. (2004). The Impact of Education Expenditure on Economic Growth in Uganda: Evidence from Time Series Data. *The Journal of Developing Areas, 38*(1), 123-133.

National Economic and Development Authority(NEDA) (2012) Philippinr Development Plan. Available online: http://devplan.neda.gov.ph/

National Statistics Office.(NSO)(2010). 2009 and 2010 Survey on Overseas Filipinos. Available online at http://www.census.gov.ph.

Niimi, Y., and Ozden, C. (2006). Migration and Remittances: Causes and Linkages: World Bank Policy Research Working Paper 4087. World Bank.

Romero de Avila and Strauch, R.(2003) Public finances and long-term growth in Europe-Evidence from a panel data analysis. ECB Working Paper No. 246, Frankfurt, European Central Bank.

Sylwester k., (200) Income inequality, Education Expenditure and Growth. *Journal of Development Economics*, 63 (2) pp.379-398.

Turnovsky, S.J. (2004) Transitional Dynamics of Fiscal Policy: Long-run Capital Accumulation and Growth, *Journal of Money, Credit and Banking*, 36(5) pp. 883-910.

World Bank (2013) Migration and Development Brief April 2013. Available online: http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1288990760745/MigrationDevelopmentBrief10.pdf

World Bank (2013) Philippine Economic Update Available online: http://www.worldbank.org/content/dam/worldbank/document/EAP/Philippines/Ph

World Bank Organization (2011).World Bank Indicators. Available online: http://data.worldbank.org.

Persaran M. H. Shin Y. and Smith R.P (1997) Pooled Mean Group Estimation of Dynamic Heterogeneous Panels . DAE Working Paper Amalgamated series No:9721 University of Cambridge.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bound Testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, Vol.16*, pp. 289-326.

Vargas-Silva, C., Jha, S., and Sugiyarto, G. (2009). Remittances in Asia: Implications for the Fight against Poverty and the Pursuit of Economic Growth: ADB Economic Working Paper Series 182. Philippines: Asian Development Bank.

Yang, D. (2005). International Migration, Human Capital, and Entrepreneurship: Evidence from Philippine Migrant's Exchange Rate Shocks: World Bank Policy Research Woking Paper 3578. World Bank.