

DETERMINANTS OF INTERNATIONAL MIGRATION OF THE PHILIPPINE LABOR FORCE: A PANEL DATA ANALYSIS

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The continuous outflow of the Philippine labor force contributes to brain drain or the loss of skilled workers. Concerning to this, past researches separately modelled international migration based from push and pull factors which can be attributed to modelling with omitted variable bias. Hence, in a converged model of push and pull factors this study examines the determinants of international migration. The study analyzed five regional migration models by dividing the eighty-two destination countries based on the world regional affiliation. The division includes twelve countries for North and South America; twenty countries in Asia and Oceania; twenty-two countries for Europe; fourteen countries in the Middle East and North Africa; and fourteen countries in the Sub-Saharan Africa. Thereafter all regional models were put together for the overall migration model. The study analyzed the panel datasets using the years spanning from 1998 to 2014. Results showed that significant push factors are foreign direct investment, inflation, unemployment rate, population growth, adult literacy rate, occurrence of natural and technological disasters, political stability, income inequality and real interest rate. Meanwhile, the significant pull factors or the conditions of the destination countries that draws OFWs to move outside the Philippines includes distance, unemployment rate, GDP per capita, cost of living, population growth, cross exchange rate, and fiscal freedom. Besides, the study found that English speaking and non-Christian countries are the major destination of OFWs.

Keywords: migration, overseas Filipino workers, panel data analysis

1. INTRODUCTION

Internal migration refers to a move from one area (a province, district or municipality) to another within one country while the international migration is a

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territorial relocation of people between nation states (International Organization for Migration [IOM], 2016). IOM stressed out migration as a movement of population that encompasses any kind of movement of people, whatever its length, composition and causes. Migration could be a movement of refugees, displaced persons, economic migrants, and persons with other purposes such as family reunification. UNESCO (2016) laid emphasis on the role of migration in the erosion of traditional boundaries between languages, cultures, ethnic groups, and nation states as those who do not migrate are even affected by the crossing of boundaries. As of 2015, there are about 244,000,000 people or 3.3% of the world population reported by the United Nations Population Fund to be living outside their country of origin. Part of these are the Philippine labor force or Overseas Filipino Workers (OFWs) that continually left the country and their families with hopes for a better life.

The number of Filipino migrants that are leaving the country annually has been distinctively increasing based from the Commission on Filipinos Overseas data. In 2015 the rate of increase had peaked to 15% higher than the annual rate of 2.57% from 1981-2015. The 2015 survey of Philippine Statistical Authority (PSA) accounted that the number of Filipino contract workers around the world had totaled to 2.4 million which predominantly consists of laborers (54%), service workers, shop and market sales workers (17.9%) and professionals (11.1%) (PSA, 2015). Along with the international mobility of Filipinos comes the remittances they send to the Philippines that propelled the economic growth of the country. World Bank (2015) ranked Philippines 3rd among the countries in the world with the highest remittances for receiving 2.9 billion dollars after India and China that received 6.8 and 4.4 billion dollars, respectively. Philippines from 1982 to 2015 had been receiving 9 billion dollars of remittance annually. However, along with the positive impacts of migration, the country has been pressed by the issue of brain drain or the loss of skilled workers (Institute of Chartered Accountants in England and Wales, 2015). It was indicated in the 2015 report of the Commission on Overseas Filipinos that there are about 500,000 or 27% Filipino migrants who are college graduates. In conditions of employed migrants, 10% or 231,000 Filipinos are working under professional and technical occupation category which includes engineers, scientists, attorneys, architects, etc. Other than the brain drain issue, migration process also implies complex challenges to the migrants. According to the International Organization for Migration (2016) migrants often face dangerous journeys, exploitation of criminal smuggling network, difficult working conditions, intolerance when they confront a foreign ground, and deficiency of basic and social services including health care. Filipinos abroad throughout the

years had faced these difficulties most particularly on the abuses of their employers. Migrant International (2015), an organization that actively defends the rights and welfare of OFWs had continue to handle cases of violence against women OFWs, ranging from physical assault, sexual molestation, attempted violation, rape, sex trafficking to verbal abuse and emotional torment.

The downside of migration process such as on brain drain had drawn the attention of researches to create a model that explains why a particular individual or a group of people leave a country for another. Such studies include Acupana & Agbula (2007) focusing on the push factors and Deluna & Artigo (2014) focusing on the pull factors under Philippine conditions. However, such models overlooked some variables relevant for international migration. For the push factors, the occurrence of disasters in the home country were ignored as well as presence of bilateral agreements between destination countries and Philippines. Hence, this study improves on the current literature by including additional determinants that might have been overlooked so far. Various findings on the determinants of international migration in the country are also observed to be contradictory to studies around the world. Such findings are distance and GDP per capita as pull factor and political condition as push factor. Hence, this study also sets to reevaluate the contradictory findings on the determinants of international migration while adding up the ignored variables. Moreover, the study will converge the push and pull factors of international migration into a single model. By doing so, the effects of the conditions of the home and destination country will be simultaneously analyzed minimizing the effect of omitted variable bias.

The specific objectives of the study are the following: (1) identify the push factors or the conditions in the Philippines that motivates OFWs out of the country; (2) Identify the pull factors or the conditions of the destination countries that draws OFWs out of Philippines; (3) Provide insights for relevant policies vis-a-vis increased number of (OFWs) leaving the country. To address these objectives, this study employed panel data analysis to allow the convergence of the models. Eighty-two countries around the world were selected as destination countries. These countries were divided according to world regions it belongs which enables the study to create five panel datasets for five migration models plus an overall migration model. The world regions include North and South Americas, Asia and Oceania, Europe, Middle East and South Africa, and Sub-Saharan Africa as determined by POEA and World Bank. This division of countries according to world regions enabled the study to examine the consistency of the effects of push and pull factors of OFW migration.

2. METHODOLOGY

Data Collection

International migration was represented by the Overseas Employment Statistics recorded by POEA. Population growth, FDI, per capita GDP, adult literacy rate, consumer price index, interest rate, unemployment rate, political conditions represented by the political stability and absence of terrorism and violence index were taken from the World Bank website. The number of disaster both natural and technological changes were obtained from Emergency Events Database. Distances of Philippines to destination countries were obtained from the Time and Date website. The Cross exchange from US dollar to destination countries' currencies were from OANDA website. The language and religion data were taken from World Factbook via Central Intelligence Agency's website. The membership of destination countries to Organization for Economic Co-operation and Development (OECD) were based from the official listings of the OECD website. Fiscal freedom and freedom from corruption were obtained from The Heritage Foundation website. Finally, the bilateral agreements of Philippines to destination counties were obtained from POEA website.

Data Analysis

The study used panel data analysis to examine the determinants of international migration of Overseas Filipino Workers (OFW) by converging the push and pull factors in a single model. The study employed fixed effect (FE) and random effects (RE) estimator. To decide which specification of the models will be used between FE and RE estimates, Hausman test was conducted. To determine between RE and OLS estimator Breusch-Pagan Lagrange multiplier (LM) was further used. Thereafter, diagnostic tests for heteroskedasticity, autocorrelation and cross sectional dependence was conducted. Although there is no test for multicollinearity of panel model, this study applied OLS estimation to capture variance inflation factor.

Panel Data Analysis

Panel data which is also known as longitudinal or cross-sectional time-series data is a dataset in which the behavior of entities are observed across time (Torres, 2007). It is a dataset that has both cross-sectional and time series dimension. The combination of cross-sectional and time series data allows for richer econometric model specifications and more accurate conclusions (Kripfganz & Schwarz, 2015). Panel data allows to control for variables that cannot be

measured (e.g. cultural factor), variables that change over time but not across entities (e.g. bilateral agreements) and variables that changes across entities but not through time (e.g. distance between countries). With this, it allows the panel dataset to control for omitted variables bias.

Fixed Effects Model

Fixed effects estimation is used when analyzing the impact of variables that varies over time. It assumes that each entity or individual has its own characteristics that may influence the predictor variable. Fixed effects estimator also analyzes the relationship between the explanatory and outcome variables within an entity. Fixed effect estimation controls the assumed impact within individual that makes the predictor or outcome variable bias. The underlying principle in this assumption is the correlation between the explanatory variables and time invariant error term. So in order to control for the bias and assess the net effect of the explanatory variable on the outcome variables, the fixed effect estimation removes the time invariant characteristics. Time-invariant characteristic are assumed not to cause change because it is constant for each individual.

The equation of fixed effects model is as shown below:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it} \quad (1)$$

where:

Y_{it} = dependent variable where i = entity and t = time (1,2,...t)

β_1 = regression coefficient of independent variable X_{it}

X_{it} = represent the independent variable

α_i = time invariant characteristics

u_{it} = error term

Random Effects Model

Random effects model uses weighted average of between and within effect that explain where the variation comes. This is also known as Generalized Least Squares (GLS) estimator. Unlike fixed effect estimation, random effect assumes that the individual-specific effect is a random variable that is uncorrelated with the explanatory variables. This allows the inclusion of time-invariant variables in the regression model to play its role as explanatory variables. Random effect model is also used if time invariant error term is not correlated with the explanatory variables.

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The equation of random effects is as shown below:

$$Y_{it} = \beta_1 X_{it} + \alpha + u_{it} + \varepsilon_{it} \quad (2)$$

where:

Y_{it} = dependent variable

β_1 = regression coefficient of the independent variable X_{it}

X_{it} = independent variable

α_i ($i=1 \dots n$) = unknown intercept for each entity (n entity-specific intercepts)

ε_{it} = within-entity error

u_{it} = between-entity error

Hausman and Breusch-Pagan Langrange Multiplier Test

Hausman test helps in deciding which of fixed and random effects estimator will be used for the final model. It practically tests if the unique error term is correlated with a particular explanatory variable. On one hand, when the unique error term is correlated with the explanatory variables, the estimation has to be controlled to avoid bias using the fixed effect estimator. On the other hand, if there exists no correlation between the unique error term and the explanatory variables, random effects estimator can be used. Breusch-Pagan langrange multiplier or LM test decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across entities is zero. If the result is not significant, the null hypothesis will be rejected which means that variances across entities is not zero and there exist a panel effect. Due to this RE estimation should be used over OLS.

Econometric Model

This study converged the push and pull determinants of international migration present across literatures. To examine the consistency of results five (5) migration models were created to represent the five (5) migration destination of Overseas Filipino Workers (OFWs. To establish consensus among conflicting results, an overall migration model was created. International migration models are postulated as:

$$\begin{aligned} INTMIG_{ijt} = & \beta_0 + \beta_1 FDI_{it} + \beta_2 INF_{it} + \beta_3 UNEMP_{it} + \beta_4 POP_{it} + \beta_5 ALR_{it} + \beta_6 GDP_{it} \\ & + \beta_7 DISAS_{it} + \beta_8 POLSTAB_{it} + \beta_9 INQ_{it} + \beta_{10} INTR_{it} + \beta_{11} DIST_{it} + \beta_{12} UNEMP_{jt} \\ & + \beta_{13} GDP_{jt} + \beta_{14} COL_{jt} + \beta_{15} POP_{jt} + \beta_{16} CER_{jt} + \beta_{17} FFCOR_{jt} + \beta_{18} FISC_{jt} + \beta_{19} ENG_{jt} \end{aligned}$$

$$+\beta_{20}CHRIS_{jt} + \beta_{21}BILAG_{jt} + \beta_{22}OECD_{jt} + a_{ij} + \mu_{ijt}$$

(3)

where:

INTMIG_{ijt} = migration from Philippines (i) to destination (j) at year t

β_0 = Constant

FDI_{it} = net foreign direct investment inflow towards Philippines

INF_{it} = inflation rate of Philippines

UNEMP_{it} = unemployment rate in the Philippines

POP_{it} = population growth in the Philippines

ALR_{it} = adult literacy rate of Philippines

GDP_{it} = per capita GDP in the Philippines

DISAS_{it} = number of natural and technological disasters in the Philippines

POLSTAB_{it} = political stability and absence of violence and terrorism index in the Philippines

INQ_{it} = income inequality in terms of Gini coefficient in the Philippines

INTR_{it} = lending interest rate in the Philippines

DIST_{jt} = distance from Philippines to destination countries

UNEMP_{jt} = unemployment rate of destination countries

GDP_{jt} = per capita GDP of destination countries

COL_{jt} = cost of living in terms of CPI of destination countries

POP_{jt} = population growth of destination countries

CER_{jt} = cross exchange rate of dollar to destination countries currency

FFCOR_{jt} = freedom from corruption in the destination countries

FISC_{jt} = fiscal freedom in the destination countries

ENG_{jt} = dummy variable; 1 if English is spoken by majority in destination country, 0 otherwise

CHRIS_{jt} = dummy variable; 1 if the destination is a Christian country, 0 otherwise

BILAG_{jt} = dummy variable; 1 for post-bilateral agreement period and 0 for pre-bilateral agreement period of destination country between Philippines

OECD_{jt} = dummy variable; 1 for post-membership period to OECD and 0 for pre

membership period to OECD of destination country

μ_{ijt} = time variant error term

a_{ij} = time invariant error term

3. RESULTS AND DISCUSSION

Table 1 presents the regression results of several specifications. Hausman test indicated that fixed effects (FE) estimation shall be used for the migration model towards the countries in North and South American, Europe, and Sub-Saharan Africa. Likewise, the test indicated that random effects (RE) estimation shall be used for the migration model towards the countries in Asia and Oceania, and Middle East and North Africa. After hausman test, the indicated RE migration models towards Asia and Oceania and Middle East and North Africa were tested using Breusch-Pagan Lagrange multiplier (LM) to decide between random effects regression and a simple OLS regression. Both results had rejected the null hypothesis in the LM test that variances across entities is zero. Therefore, there is panel effects and RE estimation is appropriate for the migration model towards Asia and Oceania and Middle East and North Africa. Diagnostic tests such as test for heteroskedasticity, autocorrelation, and cross sectional dependence were conducted. Results show that all the models are suffering from autocorrelation. Pesaran's test for FE models had indicated that both of FE models are not suffering from cross sectional dependence. Furthermore, Modified Wald statistic for group wise heteroskedasticity had indicated that all of the FE models are suffering from heteroskedasticity. Although there is no test for heteroskedasticity for RE models this study had used Breusch –Pagan/Cook-Weiberg test. The results suggest that the migration model towards countries in Asia and Oceania is heteroskedastic while for the migration model towards the countries in Middle East and North Africa is homoscedastic. With these findings, the estimation for the migration model towards the countries in North and South America, Asia and Oceania, Europe, and Sub-Saharan Africa had used cluster-robust regression to correct autocorrelation and heteroskedasticity. Moreover, since the migration model towards the countries in the Middle East and South Africa was homoscedastic it was only corrected for autocorrelation to produce robust standard error.

The Push Factors of International Migration of OFWs

Foreign direct investment (FDI) inflow is only significant on the migration model towards countries in Europe. Nonetheless, the result had rendered the expected negative relationship between FDI inflows towards the Philippines and international migration. The result suggests that at a percentage increase in the FDI net inflow in the country results to 0.249 percent decrease in migration flow. This happens because FDI creates economic opportunities for the Filipinos such as employment which allows them to stay in the Philippines. On the previous study

of Acupan & Agbola (2007) this was not seen as a significant factor of OFW migration.

Inflation rate is only significant on the migration model towards Asia and Oceania suggesting the expected positive sign. The result implies that a unit increase in the change of inflation rate results to 0.107 per cent increase change in the number of OFWs going to countries in Asia and Oceania. In contrary to this, Acupan & Agbola (2007) suggested a negative relationship between international migration and inflation in the Philippines. They argued that increasing prices of commodities including plane tickets reduces the will of the migrants to travel. However, a positive relationship is hypothesized by this study as pressed by Ahmad et al (2008) in Pakistan suggesting that when inflation increases people can no longer afford to buy all their needs therefore they look for job that would renders higher income and searching to another country is an option to have.

Unemployment rate is significant on the migration model towards the European countries. The expected negative relationship between unemployment rate and international migration depicted on the model coheres to the findings of Acupan & Agbola (2007) and Darkwah & Verter (2013). The result implies that a unit increase change in unemployment rate results to 0.116 per cent increase change in the number of OFWs going out of the country. When Filipinos are unemployed in the country they are forced to work abroad.

Population growth of the Philippines was significant on the migration model towards the countries in Asia and Oceania, Europe and Sub-Saharan Africa with the expected positive sign. Although not instantaneous, higher population suggests tighter labor market competition hence, more Filipinos are forced to move outside the country.

Adult literacy rate is significant on the migration model towards the countries in Asia and Oceania, Europe, and Sub-Saharan Africa with the expected positive relationship. The result contradicts to the findings of Acupan and Agbola (2007) which suggests a negative relationship. This is expected since Acupan and Agbola (2007) only considers push factors in their model which can be attributed with the omitted variable bias. The result of this study strongly supports the issue on brain drain or the loss of skilled workers. This study suggests that as Filipinos becomes more skilled, the chance of being forced to leave the country increases. This happens when the country fails to create and offer opportunities for the highly skilled workers.

GDP per capita is only significant on the migration model towards European countries with the expected positive sign. The result suggests that a percentage increase change in the GDP per capita of the Philippines results to a

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2.78 percent decrease in the migration of OFWs. At an increasing GDP per capita suggests the country's economy is growing and developing implying the creation of jobs, higher income and better standards of living among Filipinos. When the economic opportunities are available in the Philippines, lesser Filipinos desires to work outside the country. The result disproves the findings of Jennissen (2003) suggesting a positive relationship between GDP and migration. Furthermore, the model of Acupan and Agbola (2007) the GDP per capita was not a significant factor for migration.

The European Commission (2015) had pressed that due to climate change, migration is expected to increase particularly in the world's poorest countries. In the analysis, occurrence of both natural and technological disasters is significant on the migration model towards European countries with the expected positive sign. The result suggests that a unit increase change in the occurrence of both natural and technological disasters results to a 0.010 percent increase change in the migration of OFWs. The result coheres to the findings of Drabo and Mbaye (2011) for developing countries stating that the damages brought by disasters are forcing the labors force to leave their home countries.

The study of Acupan & Agbola (2007) suggested that as the Philippines becomes politically unstable, less Filipinos move outside the country under the assumption that Filipinos tend to become more patriotic during its tumultuous time. However, in this study, political stability is viewed to have a positive relationship with migration in line with the findings of Williams & Pradhan (2009) in Nepal and Alonso (2011). Political stability is significant on the migration model towards countries in Asia and Oceania and Europe with the expected negative sign. This proves that if a country's political arena gets stable and lesser terrorism is present, lesser people are expected to go out of the country.

Another significant push factor is the income inequality measured by the Gini index. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Income inequality is only significant in the migration model towards the Americas, Asia and Oceania and Europe. However, only the migration model towards the countries in Europe presented the expected positive sign. This suggests that a unit increase change in the income inequality in the Philippines results to a 0.31 per cent increase change in the number of OFWs going out of the country. This happens because an increasing inequality indicates an increase in the number of people that has low income. Those low income earners tend to migrate outside the country in order to increase their level of income. The result on the migration model towards the countries in North and South America and Asia and Oceania are contradictory to the previous result suggesting that an

increase in the income gap of Philippines results to lesser Filipinos going abroad. However, the result is not entirely wrong and is still possible under a special case when the widening of the gap is due to a simultaneous increase in the income of high income earners and decrease in the income of low income earners. If the income of high income earners will continuously increase, they become satisfied with their income and will lack the incentive to work abroad. Meanwhile, if the income of low earners will continually decrease they can no longer afford to travel abroad given the expenses for paper preparations, plane tickets and the actual travel. Result coheres to the study of Acupan & Agbola (2007).

The real interest rate is significant in the migration model towards Asia and Oceania with the expected positive sign. The result suggests that a unit increase change in the real interest rate results to 0.17 percent increase change in the migration of OFWs. Although it was not seen as a factor for international migration by Acupan and Agbola (2007) the findings in this study suggests that if the lending interest rate increases, the number of Filipinos going out of the country will also increase. Since real interest rate is the cost of borrowing, it will also affect the cost of capital. As the real interest rate increases, the cost of capital will also increase. At an increasing cost of capital, investment will be discouraged. When investment is discouraged, the employment opportunities will also decrease. Hence, due to lack of employment opportunities in the country, more Filipinos will seek employment abroad.

The Pull Factors of International Migration of OFWs

Table 1 also show the determinants that pull Filipino workers and discourage them work abroad. Distance represents the cost of travel. Farther distance implies higher cost of travel. Distance in this study is only significant on the migration model towards Asia and Oceania with the expected negative sign. Moreover, it is only in the RE estimates that distance is found significant because the rest of the migration models indicated FE estimates that cancels out fixed values. Though distance was observed to have no relationship in the study Deluna and Artigo (2014) the result of this study is consistent to the examination of European Commission (2000) and Head (2003) that the longer distances of destination countries, lesser migration is anticipated because it is an indication of higher cost of travel. Likewise, the shorter the distance towards the destination countries, more migration is expected because of a relatively lower cost of travel.

The result on unemployment rate satisfies the expected negative relationship with the migration of OFWs. Unemployment is significant on the migration model towards the countries in the North and South America. The

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negative relationship suggests that a unit increase change in the unemployment rate of North and South American countries results to 0.098 percent decrease change on the migration of OFWs towards this region. This happens because at high unemployment rate in the destination countries there could be either absence or lesser job openings in the country that could be available for migrants. Because of this employment of migrants is not encouraged much in the region. Hence, lesser movement of Filipinos towards the destination countries is expected. Although unemployment was not observed as a significant factor in the migration model of Deluna and Artigo (2014), the authors asserted the expected negative relationship of unemployment rate and international migration of Filipinos. The result of this study therefore strengthened the assumptions of the aforementioned authors.

Table 1. Estimates of five migration models with international migration as dependent variable

VARIABLES	WORLD REGIONS				
	North & South America	Asia & Oceania	Europe	Middle East & North Africa	Sub Saharan Africa
	FE	RE	FE	RE	FE
	logIntMig				
Push Factors					
log of FDI	-0.0102 (0.254)	0.0299 (0.0471)	-0.249*** (0.0663)	-0.0491 (0.149)	-0.199 (0.201)
Inflation	-0.0197 (0.172)	0.107** (0.0488)	0.0499 (0.0729)	-0.111 (0.113)	0.00848 (0.128)
Unemployment	-0.0908 (0.109)	0.0188 (0.0277)	0.116*** (0.0386)	-0.0239 (0.0752)	-0.0326 (0.0586)
Population Growth	4.867 (3.119)	2.545*** (0.851)	4.954** (1.901)	1.659 (2.056)	2.885* (1.606)
Adult Literacy Rate	0.918 (1.263)	0.520* (0.291)	1.775*** (0.498)	1.192 (0.769)	1.707** (0.725)
GDP per capita	-1.042 (3.845)	0.0798 (0.949)	-2.783** (1.183)	-3.638 (2.236)	-2.078 (1.846)
Disasters	0.0196 (0.0115)	0.000716 (0.00330)	0.0102* (0.00500)	-0.00495 (0.00765)	0.00755 (0.00770)
Political Stability	-0.261 (0.768)	-0.394** (0.168)	-0.731* (0.353)	0.409 (0.421)	-0.478 (0.510)
Income Inequality	-0.715* (0.331)	-0.225* (0.129)	0.316** (0.134)	0.00555 (0.204)	0.138 (0.242)
Real Interest Rate	0.00749 (0.192)	0.168*** (0.0629)	0.118 (0.0871)	-0.0879 (0.148)	0.0130 (0.149)

Table 1. *Continuation...*

Pull Factors					
log of Distance	-	-1.279*** (0.416)	-	-2.553 (2.212)	-
Unemployment	-0.0977* (0.0492)	-0.0876 (0.0839)	-0.000759 (0.0188)	0.00137 (0.0325)	-0.0416 (0.0494)
log of GDP per capita	0.876* (0.471)	1.168*** (0.220)	1.976*** (0.452)	1.189*** (0.313)	-0.754 (0.724)
Cost of Living	-0.0113 (0.0115)	-0.00894 (0.00848)	-0.00131 (0.00741)	-0.0230*** (0.00588)	0.0101 (0.0113)
Population Growth	1.354*** (0.314)	0.175 (0.178)	0.140 (0.164)	0.108** (0.0454)	-0.992* (0.502)
Cross Exchange Rate	0.00145*** (0.000226)	3.39e-05 (3.24e-05)	-6.67e-06 (0.000182)	0.000112** (5.52e-05)	0.000136*** (3.91e-05)
Freedom from Corruption	0.0103 (0.00940)	0.0109 (0.0150)	-0.0180 (0.0139)	-0.00238 (0.00846)	-0.00219 (0.0135)
Fiscal Freedom	-0.0112 (0.0110)	0.0218** (0.00865)	0.0271 (0.0162)	0.0145 (0.0108)	0.00965 (0.0187)
English	-	-5.323*** (1.824)	-	-	-
Christian	-	3.007* (1.766)	-	-0.00603 (1.377)	-
Bilateral Agreements	-0.221 (0.436)	-0.524 (0.421)	0.0947 (0.212)	0.321 (0.404)	-
OECD Membership	0.0365 (0.355)	-0.138 (0.627)	-	-	-
Constant	-59.53 (103.2)	-39.54 (26.19)	-182.4*** (51.75)	-65.47 (69.30)	-142.9* (66.91)
Observations	204	340	374	238	238
Number of Countries	12	20	22	14	14
R-squared	0.470	0.8052	0.449	0.6154	0.580

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

GDP per capita as a pull factor determines the standard of living and the economic development of destination countries. Upon estimation GDP per capita is significant across all of the models except towards Sub-Saharan Africa. The results consistently showed the expected positive sign. However, in the migration model of Acupan and Deluna (2014) the GDP per capita was observed to have no relationship with migration of Filipinos. Nonetheless, the result of this study is consistent in the study of Dinbabo et al (2015) in South Africa. The result implies that economic development of destination countries are attractive forces in determining the migration of OFWs. This happens because at increasing GDP per

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capita also implies more jobs, more economic opportunities, and higher levels of income that are attractive to migrant workers.

If the cost of living in destination countries is expensive, Filipinos find no incentive moving to countries with increasing cost of living because at the beginning they leave the country to match Philippines increasing cost of living. Result coheres to the findings of Dinbabo et al (2014) in South Africa and Acupan & Agbola in the Philippines.

Population growth of destination countries is expected to have a negative relationship with international migration of OFWs. An increasing population entails a growing competition of labor force in the destination countries providing lesser economic and employment opportunities for the migrants. However, expected negative relationship is only satisfied in the migration model towards Sub-Saharan Africa. The migration model towards the countries in the North and South America and Middle East and North Africa had shown a positive sign. A positive relationship still coheres with the findings of Lewer and Berg (2008) and Deluna and Acupan (2014) suggesting that countries with higher population offers higher labor market for migrants because more people had the chance of creating employment compared to countries with lower ones. Contrary to the migration model towards the countries in Sub-Saharan Africa a negative sign is evident because an increase in population cannot translate into creation of economic opportunities. Because such countries in the Sub-Saharan Africa are poorer than in the other world regions as marked by the lowest GDP per capita at \$1,662 based from World Bank data from 1998-2014. Instead of job creation and turning into a migrant destination, population increase tightens the labor market competition.

Cross exchange rate refers to the value of US dollar into destination countries currency. Across estimation it is significant on the migration models towards the countries in the North and South America, Middle East and North Africa and Sub-Saharan Africa with the expected positive sign. The positive sign implies that as US dollars gets stronger than the destination country's currency, more Filipinos goes out of the country. Assuming OFWs has to be paid in terms of US dollars, higher values of destination countries' currency is needed to at least complete one dollar. In this case, higher value of destination countries' currency is received by OFWs. On the model of Deluna and Acupan (2014) under Philippine condition the cross exchange rate was not a significant factor for migration.

Fiscal freedom represents the freedom from tax burdens of the destination countries. The higher the values suggest higher fiscal freedom or lesser tax collection. In the model, tax burden is significant in the migration towards the countries in Asia and Oceania with the expected positive sign. The result implies

that a unit increase change in the fiscal freedom of the countries in Asia and Oceania results to a 0.022 percent increase change in of the OFWs going to this region. This is because higher fiscal freedom means lesser tax collection therefore higher disposable income. When this happens, higher share of income can be sent back to Philippines as remittance.

In terms of English language, the result of the estimation is only significant on the migration model towards countries in Asia and Oceania with a negative sign. Though it is not as expected, the result suggests that the number of OFWs going to English speaking countries in Asia and Oceania is 5.32 percent lower than those who speaks in English. In contrary Deluna & Acupan (2014) suggested that Filipinos tend to migrate to countries that predominantly speaks English.

Religion focuses on Christianity since majority of Filipinos are Christian. The result is significant on the migration model towards the countries in Asia and Oceania with the expected positive sign. The result suggests that OFWs on Christian countries in Asia and Oceania is 3.007 percent higher than those who are non-Christian. This is as expected because majority of Filipinos are Christians.

REGRESSION ESTIMATES OF THE OVER-ALL MIGRATION MODEL

Table 2 presents the regression estimates of the overall migration model. In the model, dummy variables were included to represent the regions which the countries belong. Middle East and North African countries were used as the point of comparison because it holds the highest annual number of deployed OFWs at 26,481 from 1998 to 2014. This inclusion of regional dummy variable allowed the study to confirm if Middle East and North African countries has higher number of OFW deployment compared to other world regions from 1998 until 2014. Additionally, the final RE estimates on Table 2 was presented as suggested by Hausman and Breusch-Pagan Lagrangian Multiplier test. The final RE estimation was only corrected for autocorrelation as it is attested to be already homoscedastic. The result on the overall model conforms to the findings of the world region estimates. However, some explanatory variables are no longer significant. For the push factors or the Philippines' macroeconomic indicators the FDI, inflation, unemployment rate, GDP per capita, disasters, political stability, income inequality and real interest rate are no longer significant. However, population growth, adult literacy rate and GDP per capita are still significant with the expected sign.

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Table 2. Estimates of the overall migration model with international migration as dependent variable

VARIABLES	RE	FE	RE#
Push Factors		logIntMig	
log of FDI	-0.0843 (0.0714)	-0.0852 (0.0711)	-0.0563 (0.0547)
Inflation	-0.00583 (0.0566)	-0.0114 (0.0564)	-0.0279 (0.0410)
Unemployment	0.0119 (0.0406)	0.0102 (0.0405)	-0.00386 (0.0265)
Population Growth	2.587*** (0.907)	2.535*** (0.907)	1.763** (0.803)
Adult Literacy Rate	1.027*** (0.350)	1.037*** (0.349)	0.816*** (0.287)
log of GDP per capita	-1.868* (1.083)	-1.891* (1.079)	-1.780** (0.807)
Disasters	0.00509 (0.00384)	0.00492 (0.00383)	0.00190 (0.00278)
Political Stability	-0.241 (0.209)	-0.225 (0.208)	-0.0741 (0.154)
Income Inequality	-0.0803 (0.0974)	-0.0887 (0.0971)	-0.0782 (0.0759)
Real Interest Rate	0.0283 (0.0757)	0.0209 (0.0755)	-0.00586 (0.0532)
Pull Factors			
log of Distance	-2.743*** (0.605)		-2.840*** (0.557)
Unemployment	-0.0379*** (0.0107)	-0.0440*** (0.0115)	-0.0274*** (0.0132)
log of GDP per capita	0.865*** (0.105)	0.790*** (0.131)	0.812*** (0.119)
Cost of Living	-0.00234 (0.00204)	-0.00280 (0.00213)	-0.00178 (0.00280)
Population Growth	0.116*** (0.0284)	0.112*** (0.0286)	0.115*** (0.0388)
Cross Exchange Rate	8.06e-05*** (2.27e-05)	0.000110*** (2.57e-05)	2.35e-05 (2.70e-05)
Freedom from Corruption	-0.00417 (0.00371)	-0.00325 (0.00396)	-0.00117 (0.00432)
Fiscal Freedom	0.00369 (0.00401)	0.000427 (0.00417)	0.00849* (0.00487)
English	1.982*** (0.635)		1.969*** (0.588)
Christian	-1.299** (0.539)		-1.287*** (0.494)

Table 2. *Continuation...*

Bilateral Agreements	-0.136 (0.145)	-0.225 (0.150)	0.0886 (0.187)
OECD Membership	0.688* (0.358)	0.746* (0.450)	0.461 (0.405)
Sub-Saharan Africa	-0.182 (0.673)		-0.0272 (0.624)
Europe	-1.998*** (0.706)		-1.701** (0.666)
Asia and Oceania	-2.567*** (0.821)		-2.486*** (0.761)
North and South America	-1.156 (0.788)		-1.025 (0.720)
Constant	-58.19* (29.99)	-84.21*** (29.34)	-36.79 (25.39)
Observations	1,394	1,394	1,394
R-squared		0.379	
Number of Countries	82	82	82

Note: Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Consistent with the result of the per-regional migration models, the overall model suggested that population growth of the Philippine increases the migration flow because of its influence to increase the competition in the Philippine labor market. The positive sign of adult literacy rate still explains that as it increases the migration of OFWs because of the lack of opportunities for highly skilled workers resulting to brain drain or the loss of skilled workers. Decreasing GDP per capita that reflects the decrease in the Philippine standard of living suggests an increase in the outflow of OFWs.

On the side of the pull factors, the explanatory variables that are no longer significant on the final estimation of the overall model includes cost of living, and cross exchange rate. Pull factors that are significant includes distance, unemployment rate, GDP per capita, population growth, fiscal freedom, English language and Christian religion. Distance which represents the travel cost still shows a negative sign on the overall model. This implies that OFWs opt for nearer countries to Philippines as it implies lower cost of travel. Unemployment rate of destination countries still shows the expected negative sign. This implies that Filipinos tend to stay in the Philippines if unemployment in the destination countries are relatively high. GDP per capita representing standard of living still shows that it is an attractive force in determining the migration of OFWs. Although the population growth of destination countries are expected to have

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negative sign, a positive relationship as shown in the overall models proves that that countries with higher population offers higher labor market for migrants because more people had the chance of creating employment compared to countries with lower population.

The positive sign of fiscal freedom of destination countries implies that it is an attractive force for the migration of OFWs because higher fiscal freedom means lower tax collection hence more disposable income is left for consumption. English language on the regional analysis suggested a negative sign. However, the over-all model set consensus suggesting that Filipinos opt for English speaking countries. Christianity was observed to have the expected positive sign on the migration model towards Asia and Oceania. Focusing on the regional dummy variable that uses Middle East and North Africa as control variable the result suggested that lesser Filipinos are going to Europe by 2 percent and Asia and Oceania by 1.7 percent when compared to Middle East and North African countries. Also despite being insignificant, the migration of OFWs towards the countries in Sub-Saharan Africa and North and North and South America is lower compared to towards Middle East and North Africa. The results imply that more OFWs goes to Middles East and North Africa compared to the rest of the world regions. Statistically, it is the top destination of overseas Filipinos workers.

4. CONCLUSIONS

This study investigated the determinants of international migration of Overseas Filipino Workers (OFWs) through the convergence of the push and pull factors in a single model. On one hand, the push factors include the macroeconomic indicators of the Philippines that urge OFWs to work abroad. On the other hand, the pull factors include the macroeconomic indicators found in eighty-two selected destination countries that attracts OFWs. Furthermore, the study makes use of five migration models plus an overall model to examine the consistency of the effects of push and pull factors.

The significant push factors include foreign direct investments, inflation rate, unemployment rate, population growth, adult literacy, GDP per capita, occurrence of disasters, political stability, income inequality and real interest rate. Conversely, the significant pull factors include distance, unemployment rate, GDP per capita, cost of living, population growth, cross exchange rate, fiscal freedom, language and religion. In contrast to previous study by Acupan and Agbola (2007) for push factors, results suggest that FDI, cost of living, adult literacy rate, GDP per capita, and real interest in the Philippines are significant in this study. Political

stability is found in the study to positively affect migration of OFWs in contrast to the findings of Acupan and Agbola (2007) that holds a negative relationship. Adult literacy rate had statistically proven the existence of brain drain and had proven positive relationship with migration compared to the study of Acupan and Agbola (2007) proving a negative relationship. The added variable representing the occurrence of disasters was found in the study to positively affect migration of OFWs. Furthermore, in contrast study of Deluna and Acupan (2014) for pull factors the distance, unemployment rate, GDP per capita, cross exchange rate and fiscal freedom, of the destination countries were now proven to affect the migration. Based from the over-all model, more OFWs are inclined to go to English speaking and non-Christian countries. Statistically, countries in the Middle East and North African countries are the top destination of OFWs.

5. POLICY IMPLICATIONS AND RECOMMENDATIONS

While the continuous outflow of labor force in the Philippines suggests more remittances leveraging the Philippine economy and enriching the lives of Filipinos, labor outflow also suggests brain drain issue and stakes of human rights violations to Filipinos from foreign grounds. In view of that, this study provides policy recommendations that the Philippine government may possibly consider.

GDP per capita which reflects the standard of living is an attractive force for migration. Hence, the government could work on sound fiscal policies such as by decreasing the taxes it is collecting from Filipinos to increase disposable income and to raise the standard of living in the country.

Increasing unemployment rate insinuates lesser economic opportunities both in the destination and home country. Philippine government should increase its effort on decreasing the unemployment rate of the country. One way is by focusing on foreign direct investment (FDI) inflow in the country because of its capacity to create employment opportunities. To better ensure the continuous inflow of FDI political instability and terrorism should be resolved in the country. Along with these a sound fiscal and monetary policies should be considered to reduce inflation that shall decrease the cost of living in the country.

Disasters was seen to increase the flow of Filipinos going out of the country considering that it destroys livelihood and properties. Hence, the government should insurance and introduce protective cropping to ensure Filipinos will recover from the loss and the impact of calamities such as drought or typhoons will be minimized.

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In addition, for future researches the variance inflation factor had suggested that multicollinearity exists in all panel model. In order to correct this, the correlated explanatory variables had to be removed. However, this study did not attempt to remove any of the correlated variables since the models will commit omitted variable bias. Thus, this study recommends for future studies to change some variables or to increase the period covered for the study to increase the variation across the models. If variation is increased chances of multicollinearity can be decreased.

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