

THE EFFECT OF WORKER REMITTANCE INFLOWS ON ECONOMIC GROWTH AND LESSENING POVERTY: AN EMPIRICAL STUDY OF INDONESIA

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Abstract

In many developing countries, migrant workers' remittances had significant impact on people's income source, especially for the poor. This kind of study is rather rare in Indonesia; therefore it is expected to enrich study on Indonesian remittance. First, the study examines the causal link between the international worker remittances and economic growth. Second, the study analyzes the causal relationship between worker remittances and lessening the number of poor people in Indonesia, based on the Granger causality test and VECM Engle-Granger framework, and applied ordinary least square (OLS) estimation. Using time series data over 31 years from 1983 to 2014, we found that there is a positive relationship between Remittance and economic growth, but it's only one direction causality. Hence the economic growth doesn't cause remittance. Other result show that remittance and poverty have a statistical effect on lessening poverty, as well have certain bidirectional causality.

Key words: Worker's remittance, Economic Growth, Poverty, Granger Causality

INTRODUCTION

Worker remittances indicate a progressively more significant devise for the transfer of resources from developed to developing country, and are the second-largest source, behind foreign direct investment, of external funding for developing countries (Ratha, 2003 in Buch and Kukulenz, 2004). Workers' remittances have become an increasingly important source of income for the economic growth of developing countries. Remittances are more valuable for economic growth because of its stable nature as compare to other external capital inflows like foreign loans, aids as well as foreign direct investment (Jawaid *et al*, 2012).

In some developing countries the workers' remittances are more than their foreign direct investment. In year 2015, worldwide remittance flows are estimated to have surpassed \$601 billion. Of that amount, developing countries are estimated to receive about \$441 billion, nearly three times the amount of official development assistance. The true size of remittances, including unrecorded flows through formal and informal channels, is believed to be significantly larger (*Migration and Remittances Factbook 2016, World Bank*)

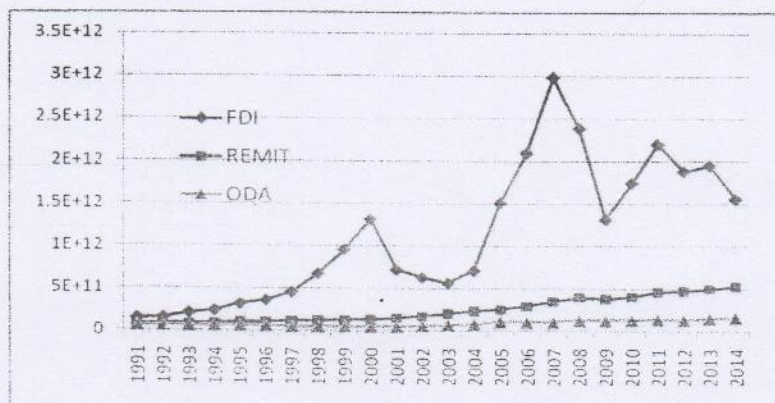


Fig.1: Source of World Foreign Funds (in current \$US)

Source: World Bank

For the last 24 years, the worker remittances have grown very high - about 41%, compare to FDI that has increased only 9% from period of 1990 to 2014. As an illustration of developing countries, such as Nepal and Sri Lanka, the value of remittances is greater than the value of their FDI. Sri Lanka's FDI in 2014 was \$ 944 million, whereas its remittance was only \$ 7 billion.

In 2015, the top migrant destination country is the United States, followed by Saudi Arabia, Germany, the Russian Federation, the United Arab Emirates, the United Kingdom, France, Canada, Spain, and Australia. The top five immigration countries, relative to population, are outside the high-income OECD countries: Qatar (91 %), United Arab Emirates (88 %), Kuwait (72 %), and Jordan (56 %).

Table.1 shows worker remittance inflows and its role to GDP of each country. Some interesting points can be highlighted. There are countries that have received worker remittances big enough, but its contribution to its GDP is relatively small, such as China. There is also a country that worker remittance relatively big, and its role on this country's GDP is significant great, such as Philippines and Bangladesh, and last a country that received worker remittance quite smaller amount, but its share to its GDP is relatively considerable, namely Nepal.

Table.1 Remittance Inflow by 10 Countries, 2015

No	Country	US\$ million	% to GDP
1	India	72,178	3.4%
2	China	63,938	0.6%
3	Philippines	29,665	10.0%
4	Mexico	25,689	1.9%
5	Nigeria	20,865	3.7%
6	Egypt	20,391	6.8%
7	Pakistan	20,100	6.9%
8	Bangladesh	15,760	8.6%
9	Vietnam	12,252	6.4%
10	Indonesia	10,487	1.0%

Source: World Bank

Derived from the World Bank's Migration and Remittances Factbook 2016, India would be the top recipient of remittances which are remarked to hit more than \$72 billion, followed by China with \$64 billion and \$30 billion for the Philippines. Trailing behind, Mexico (\$26 billion), Nigeria (\$21 billion), Egypt (\$20 billion), Pakistan (\$20 billion), Bangladesh (\$16), Vietnam (\$12 billion), and Indonesia (\$10.5 billion). (*Migration and Remittances Factbook 2016, World Bank*)

For Indonesia, data from World Bank revealed that total remittance in 2015 was US\$10.487 billion with around 6.5 million migrant workers in 2015. Compared to \$61 million was in 1985, and this represents a growth of over a 19 percent in thirty years. In addition remittance is only about one percent of Indonesia's GDP in 2015. It is prior that required the need to take into account the effect of remittance on Indonesia economic growth as well as its

effect on lessening the number of poor. Previous papers also show that the studies on remittances that are related to Indonesian remittances at moment are rarely found. Therefore, this paper tries to fill the lack of studies on remittances of Indonesia. Some of the issues to be discussed in this paper are, whether remittances affect the growth and change the number of poor in Indonesia.

Most of empirical studies have argued on positive relationship between workers' remittances and economic growth and the number of poor people. Conversely, some empirical studies also argued the negative relationship between workers' remittances and economic growth. The following part discusses previous studies more deeply.

LITERATURE REVIEWS

Abundant research studies have already revealed the relationship between worker's remittances and economic growth as well as lessening poverty. Remittances by migrants increased over time in Indonesia economy to the growing external demand for its workforce. According to International Monetary Fund, remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective apart of their immigration status, to recipients in their country of origin (IMF 1993).

A large amount of empirical studies have argued on positive relationship between workers' remittances and economic growth, lessening number of poor people as well as lift up the developing country. On the contrary, some previous studies also argued the negative relationship between workers' remittances and economic growth, because remittances are mainly used for consumption not for investment (Adams & Cuecuecha, 2010). Workers' remittances are found to be main source of increasing investment and consumption in recipient countries. The increase in consumption and investment is the main indicator of economic growth. Workers' remittances have been also proved to be a source of alleviating poverty in developing countries. Let's take a look the various studies found.

The result study of Rahman, Zia Ur, (2014), revealed that there is long run connection between the worker's remittances and economic development in Pakistan. Moreover study applied VECM, shown that in short run economic development is in imbalance position. Study of Kiio, et al, (2014), applying OLS (Ordinary Least Squares) method, revealed that there is positive and highly significant relationship between workers' remittances and real GDP per capita, indicating that higher economic growth is related with higher remittances. In addition they find a positive impact of gross capital formation and change of exchange rate regime from fixed to floating on economic growth. Rahim, and Alam, (2012), found that Remittances have been playing a very significant role for the overall economic development of Bangladesh.

Dilanchiev, and Sekretert, (2016), examined the effects of remittances inflow on economic growth in Georgian Republic. The Unit Root Test, Johansen Co-integration and VAR Granger Causality/Block Exogeneity Wald Tests are applied. The results show there is a nexus between remittance and GDP and it is concluded that remittance leads to increase in GDP growth. The result of causality test studied by Akinpelu, YA, et al, (2013), also revealed that there are long run equilibrium relationship among GDP to Remittance Inflows, Capital Formation to Remittances, and Remittance Inflows to Openness. Qayyum *et al.* (2008) apply the ARDL approach to find out the relationship between workers' remittances with economic growth and poverty in Pakistan. Annual time series data is used from 1973 to 2007. Results suggest that workers' remittance has positive and significant contribution in economic growth and poverty reduction

Aboulezz, Nahla, (2015), studied the effect of international remittances on economic growth in Kenya. The study applied the Granger Causality between international remittances and economic growth. Other results confirm that the international remittances indicators are significant factors influencing the economic growth in Kenya. Jawaid *et al* (2012) investigate the relationship between workers' remittances and economic growth of developed and developing country, by employing panel data, denote the positive and significant relationship between workers' remittances and economic growth. This is similar to the study of Goschin, Zizi, (2014), using panel data and result shows positive effect of remittance on GDP growth. Utilizing time series data, for period of 1991-2012, Bin Dilshad, (2013), proved there is a considerable positive nexus between workers' remittances and Pakistan's economic growth. Some studies found somewhat different result, as Karagoz, K. (2009), find remittance flow to Turkey have statistically meaningful but negative impact on growth. On the other hand, exports and domestic investments positively affect the economic growth, while FDI has no meaningful affect. Imai *et al* (2011) examined the effect of remittances and its volatility on economic growth by using the panel data of 24 Asian and Pacific countries from the period of 1980 to 2009. They find a positive relationship between remittances and economic growth, but the instability of remittances was found harmful for economic growth. However they acquired a significant negative relationship of workers' remittances with poverty. Adams and Cuecuecha (2010), analyze the impact of international remittances on poverty and household consumption and investment using panel data (2000 and 2007) of Indonesian Family Life Survey. There are three key findings. *First*, using an instrumental variables approach to control for selection and endogeneity, it finds that international remittances have a large statistical effect on reducing poverty in Indonesia. *Second*, households receiving remittances in 2007 spent more at the margin on one key consumption good—food—compared to what they would have spent on this good without the receipt of remittances. *Third*, households receiving remittances in 2007 spent less at the margin on one important investment good—housing—compared with what they would have spent on this good without the receipt of remittances. Households receiving international remittances in Indonesia are poorer than other types of households, and thus they tend to spend their remittances at the margin on consumption rather than investment goods.

METHODOLOGY

This study made an attempt to analyze empirically the relationship between workers' remittances and economic growth and poverty in Indonesia. The analysis technique used are Granger Causality and regression. The influence of independent variables - remittances and foreign direct investment, on economic growth and poverty, are reviewed through regression in long and short term.

Long-term regression coefficients based on the estimated annual data (1983-2014) based on the data level. Whereas short-term regression coefficients in terms of changes in the data (first difference level). The model chosen is the best model simulation results using level data and simulations that require *Error Correction Model* (ECM). Model ECM applied based on Engle-Granger model. The use of ECM models required all variables stationary at the same level at the first difference, and it cointegrated in the long term, and the error is also stationary at the data level and cointegration in the long term.

1. A Granger Causality Model

Techniques to analyze patterns of relationship between Remittances and Foreign Direct Investment (FDI) on economic growth and poverty in Indonesia refer to Model Granger (Awokuse, 2003). The general form of Granger - Causality models as follows;

$$X_t = \beta_0 + \beta_n X_{t-n} + e_t \dots\dots\dots (1)$$

X_t is the vector elements of (Remittances , FDI, GDP, and Poverty), β_0 is a constant vector $n \times 1$. β_n is the coefficient of X_t and n is a time lag, whereas e_t is the vector of each variable shock. Granger causality model is known as the concept of true causality, where the past time can affect the present or future. Granger Causality from (1) can be expressed as follows

$$IDXGDP_t = \sum_{j=1}^m a_{1j} IDXREMIT_{t-j} + \sum_{j=1}^n b_{1j} IDXGDP_{t-j} + e_{1t} \dots\dots\dots (1a)$$

$$IDXREMIT_t = \sum_{j=1}^m c_{1j} IDXGDP_{t-j} + \sum_{j=1}^n d_{1j} IDXREMIT_{t-j} + e_{2t} \dots\dots\dots (1b)$$

$$IDXGDP_t = \sum_{j=1}^m a_{2j} IDXFDI_{t-j} + \sum_{j=1}^n b_{2j} IDXGDP_{t-j} + e_{3t} \dots\dots\dots (2a)$$

$$IDXFDI_t = \sum_{j=1}^m c_{2j} IDXGDP_{t-j} + \sum_{j=1}^n d_{2j} IDXFDI_{t-j} + e_{3t} \dots\dots\dots (2b)$$

$$IDXPOOR_t = \sum_{j=1}^m a_{3j} IDXFDI_{t-j} + \sum_{j=1}^n b_{3j} IDXPOOR_{t-j} + e_{4t} \dots\dots\dots (3a)$$

$$IDXFDI_t = \sum_{j=1}^m c_{3j} IDXPOOR_{t-j} + \sum_{j=1}^n d_{3j} IDXFDI_{t-j} + e_{4t} \dots\dots\dots (3b)$$

$$IDXREMIT_t = \sum_{j=1}^m a_{4j} IDXFDI_{t-j} + \sum_{j=1}^n b_{4j} IDXREMIT_{t-j} + e_{5t} \dots\dots\dots (4a)$$

$$IDXPOOR_t = \sum_{j=1}^m c_{4j} IDXGDP_{t-j} + \sum_{j=1}^n d_{4j} IDXPOOR_{t-j} + e_{4t} \dots\dots\dots (4b)$$

Where:

- IDXGDP_t = Index value of GDP on periode t
- IDXREMIT_t = Index value of Remittances for Indonesia on periode t
- IDXFDI_t = Index value of FDI on periode t
- IDXPOOR_t = Index value of poverty on periode t
- T = Time periode
- e_t = Error terms assumed no correlation each other
- t-j = time lag

2. Error Correction Model (ECM)

In the short term there may be an imbalance (or disequilibrium), in order get rid of these ECM can be applied. ECM models was introduced by Sargan, then developed by Hendry, and popularized by Engle and Granger (Widarjono, 2009).

Model Specification;

Equation I-A:

$$IDXGDP_t = \alpha_0 + \alpha_1 IDXREMIT_t + \alpha_2 IDXFDI_t + \alpha_3 RESID01_{t-1} \dots\dots\dots (5)$$

$(\alpha_1 > 0, \alpha_2 > 0, \alpha_3 > 0)$

Equation II-A:

$$IDXPOOR_t = \beta_0 + \beta_1 IDXREMIT_t + \beta_2 IDXFDI_t + \beta_3 RESID01_{t-1} \dots\dots\dots (6)$$

($\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$)

Where;

- IDXGDP_t = Index value of GDP on periode t
- IDXREMI = Index value of Remittances for Indonesia on periode t
- T_t
- IDXFDI_t = Index value of FDI on periode t
- IDXPOOR = Index value of poverty on periode t
- t
- T = Time periode

Findings and Discussion

A. Granger Causality Model Estimation

Table.2 Pairwise Granger Causality Tests; Lags: 1

Null Hypothesis	Obs	F-Sta	Prob
IDXFDI does not Granger Cause IDXGDP	31	4.7549	0.0378
IDXGDP does not Granger Cause IDXFDI		9.9E-05	0.9921
IDXREMIT does not Granger Cause IDXGDP	31	3.04316	0.0920
IDXGDP does not Granger Cause IDXREMIT		0.31713	0.5778
IDXPOOR does not Granger Cause IDXGDP	31	0.1220	0.7294
IDXGDP does not Granger Cause IDXPOOR		0.0005	0.9814
IDXREMIT does not Granger Cause IDXFDI	31	18.1182	0.0002
IDXFDI does not Granger Cause IDXREMIT		0.00745	0.9318
IDXPOOR does not Granger Cause IDXFDI	31	5.31835	0.0287
IDXFDI does not Granger Cause IDXPOOR		2.52972	0.1229
IDXPOOR does not Granger Cause IDXREMIT	31	11.1639	0.0287
IDXREMIT does not Granger Cause IDXPOOR		37.1098	1.E-06

Pairwise Granger Causality test shows that;

First, the results of the Granger causality apparently depict that the hypothesis of FDI does not any cause on economic growth (GDP) has rejected, since probability of Granger test ($0.03 < \alpha = 0.05$). It is further concluded that the hypothesis of GDP does not Granger cause or impact FDI has not rejected. The analysis recommended by the Granger causality there is an existence of a unidirectional causality only from GDP growth to FDI.

Second, Granger causality test noticeably express that the hypothesis of worker's remittances does not any cause or impact on economic growth has rejected, since probability of Granger test ($0.09 < \alpha = 0.10$). It is further concluded that the hypothesis of GDP does not Granger impact on worker's remittances has not rejected. The analysis suggested by the Granger causality there is an existence of a unidirectional causality only from GDP growth to worker's remittances.

Third, Granger causality test obviously clarify that the hypothesis of Poverty does not any cause on Remittances has rejected. As probability of Granger test ($0.02 < \alpha = 0.05$). The analysis suggested that between Poverty and Remittance interconnected, meaning that the two variables have bidirectional causality, where poverty affects remittance, otherwise Remittance affect Poverty.

B. Economic Growth Model Analysis: The Effect of Remittance on Economic Growth

Before regression is estimated (on Table 3), the initial data, lead to violations classical assumption of autoregression. After the equation is reformulated, the estimated regression provides a better and it is no longer violating the classical assumption.

Table.3 AR Model for Economic Growth
Dependent Variable: IDXGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-93.37215	272.3380	-0.342854	0.7344
IDXREMITT	0.066547	0.016250	4.095286	0.0003
IDXFDDI	0.009371	0.003092	3.031018	0.0053
AR(1)	1.049308	0.045204	23.21276	0.0000

R = 0.9513; F-stat = 175.7930; DW-test = 1.7111

Regression estimation shows that worker Remittances and FDI are positively and significantly affect Economic Growth of Indonesia. Model has not violate autocorrelation assumptions, because the value of predicted DW (1.7) is bigger than the value of DW table (1.5), and probability Breusch-Godfrey Serial Correlation LM Test = 0.07 > 0.05 (not significant). Estimated regression is free from heterokedasticity problem, because the probability of ARCH (Autoregressive Conditional Heterokedasticiy) is = 0.82 is bigger than 0.05 (not significant and reject Ho). The estimated regression is also free from problem of multicollinearity, because Variance Inflation Factors smaller than 10 (VIF < 10).

B.1 Short-Term Balance Adjustment Models (ECM Model)

The results of ECM estimation have found that in the short-term changes of remittances would reduce GDP change, while changes in investment will increase changes the direction of the GDP. But these models having problems autocorrelation, short-term balance adjustments have real influence at one year. Therefore, the model ECM was repaired using long-term adjustment based on the two optimal lag VAR test, as shown on Table 4 below;

Tabel 4. VAR Lag Order Sel
Endogenous variables: IDXGDP IDXREMITT IDXFDDI

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-612.1131	NA	7.11e+16	47.31639	47.46156	47.35819
1	-547.8821	108.6986	1.02e+15	43.06785	43.64851	43.23506
2	-509.6615	55.86091*	1.12e+14	40.82011	41.83627*	41.11273
3	-498.0319	14.31327	9.93e+13*	40.61784	42.06949	41.03586
4	-496.0629	1.969046	2.02e+14	41.15868	43.04583	41.70211
5	-487.5920	6.516044	2.89e+14	41.19939	43.52203	41.86822
6	-465.4633	11.91549	1.89e+14	40.18948*	42.94762	40.98373*

$$\begin{aligned}
 D(\text{IDXGDP}(-2)) = & -1.7139 - 0.00159 D(\text{IDXREMITT}(-2)) + 0.03373 D(\text{IDXFDDI}(-2)) \\
 & (-0.14536) \quad (-1.27304) \quad (0.0004)^{***} \\
 & + 0.096426 (\text{IDXGDP}(-2)) + 0.091679 (\text{ECT}) \\
 & (3.084971)^{***} \quad (0.84804)
 \end{aligned}$$

R² = 0.68578; F-stat = 13.09511; DW-test = 1.774745

ECM model Regression estimation shows that short run changes worker remittances lag-2 and FDI are positively and significantly affect economic growth of Indonesia. Model has not violate autocorrelation assumption, because the value of predicted DW-test (=1.7) is bigger than the value of DW table (=1.5), and probability Breusch-Godfrey Serial Correlation LM Test = 0.07 > 0.05 (not significant). Estimated regression is also free from heterokedastisity problem, because the probability of ARCH (Autoregressive Conditional Heterokedasticity) is = 0.93 bigger than 0.05 (not significant and reject Ho). The estimated regression is also free from problem of multicollinearity, since Variance Inflation Factors smaller than 10 (VIF < 10).

C. Poverty Model: Effect of remittances on Poverty Change

Regression estimation shows that worker Remittances and FDI is negatively affecting the Poverty changes, but only worker Remittances significantly affects Poverty reduction in Indonesia. Estimated regression has not violate autocorrelation assumption, because the value of predicted DW-test (1.57) is bigger than the value of DW-table (1.5), and probability Breusch-Godfrey Serial Correlation LM Test = 0.08 > 0.05 (not significant).

$$\begin{aligned} \text{IDXPOOR} = & -5.6218 - 0.000159 \text{IDXREMITT}(-1) - 0.00013 \text{IDXFDI}(-1) \\ & (-0.3880) \quad (-1.0781) \quad \quad \quad (-0.0671) \\ & + 1.03861 \text{IDXPOOR}(-1) + 1.926449 \text{IDXFDI}(-1)/\text{IDXGDP}(-1) \\ & (6.64938)^{***} \quad \quad \quad (2.255892)^{**} \end{aligned}$$

$$R = 0.6911; \quad F\text{-stat} = 14.5399; \quad \text{DW-test} = 1.5731$$

Estimated regression is free from heterokedastisity problem, because the probability of Heterokedasticity test by Harvey is = 0.37 bigger than 0.05 (not significant and reject Ho). The estimated regression is also free from problem of multicollinearity (VIF < 10).

C.1 Short-Term Balance Adjustment Models (ECM Model)

ECM model Regression estimation shows that short run changes worker remittances and FDI are positively and significantly affect Poverty reduction in Indonesia.

Table.5 Short-Term Balance Adjustment Models (ECM Model)
Dependent Variable: D(IDXPOOR)

Variable	Coefficie			
	nt	Std. Error	t-Statistic	Prob.
C	-2.028319	1.690072	-1.200137	0.2409
D(IDXREMITT)	0.000491	0.000269	1.825439	0.0794
D(IDXFDI)	0.001383	0.002356	0.586975	0.5623
D(IDXFDI)/IDXG				
DP	-2.898087	0.663386	-4.368629	0.0002
ECT (-1)	-0.438174	0.127298	-3.442102	0.0020

$$R = 0.5379; \quad F\text{-stat} = 7.5666; \quad \text{DW-test} = 1.86661$$

Estimated regression has not violate autocorrelation assumption, because the value of predicted value of DW-test ($=1.9$) is bigger than the value of DW table ($=1.5$), and probability Breusch-Godfrey Serial Correlation LM Test $= 0.9 > 0.05$ (not significant). Estimated regression is free from heterokedasticity problem, because the probability heterokedasticity by Harvey Test is $= 0.37$, is bigger than 0.05 (not significant and reject H_0). The estimated regression is also free from problem of multicollinearity.

Conclusion and Remarks

The study primarily focused on the importance of workers' remittances inflow and its effect on economic growth and poverty reduction. By using the Granger causality test and VECM Engle-Granger framework, and applied ordinary least square (OLS) estimation, we analyze the impact of remittances inflow on economic growth and poverty. It is found that remittances effect economic growth positively and significantly. Findings emerge from this study that remittances have a strong and statistically significant impact on poverty reduction and economic growth of Indonesia. The results of this study are in line with the results of the prior study of Rahman, Zia Ur, (2014), Akinpelu, YA, et al, (2013), Dilanchiev, and Sekretert, (2016), and Qayyum *et al.* (2008).

Given the importance of remittances as a source inflowing domestic income, this flow could potentially become an important tool for economic development, especially if they can be channeled into productive investment (Ratha 2013). From a macro-economic perspective, it is increasingly accepted that remittances can generate output growth either by increasing consumption or by increasing investment. In this study, the positive effects of remittances may well promote growth for Indonesia, as, for instance, when remittances are used to purchase domestically produced goods and services of domestic industries.

The finding of this study suggests that international migration of labor has substantial potential benefits for poor people in Indonesia (28 million poor people in year 2014). In the long run the remittance inflow can leads to sustainable growth and welfare improvement of poor households as the impact of remittance broaden and enlarge over the time. So the government should formulate the policy that enhances the amount of remittances by reducing the transaction cost and procedures of transferring the remittances through formal channel.

Not just a matter of sending remittances home, there still exist the problems of first recruitment worker migrant until they coming back home. It begins from the initial departure of migrant workers to arrive home, still have a problem that has not been solved properly. They are always called as "*Foreign Exchange Heroes, but they have not been treated as Heroes appropriately*", and all must keep in mind, foreign currencies worker migrants transfer home is about one third of Indonesia debts plus interest paid annually.

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Appendix-1

Dependent Variable: IDXGDP
 Method: Least Squares
 Date: 06/25/16 Time: 14:44
 Sample (adjusted): 1984 2014
 Included observations: 31 after adjustments
 Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-93.37215	272.3380	-0.342854	0.7344
IDXREMITT	0.066547	0.016250	4.095286	0.0003

INDEXFDI	0.009371	0.003092	3.031018	0.0053
AR(1)	1.049308	0.045204	23.21276	0.0000
		Mean dependent	226.857	
R-squared	0.951297	var	7	
Adjusted R-squared			150.061	
	0.945885	S.D. dependent var	7	
		Akaike info	10.0632	
S.E. of regression	34.90818	criterion	3	
			10.2482	
Sum squared resid	32901.68	Schwarz criterion	6	
		Hannan-Quinn	10.1235	
Log likelihood	-151.9801	criter.	5	
			1.71111	
F-statistic	175.7930	Durbin-Watson stat	9	
Prob(F-statistic)	0.000000			

Appendix-2

Dependent Variable: IDXPOOR

Method: Least Squares

Date: 06/26/16 Time: 22:54

Sample (adjusted): 1984 2014

Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.621814	14.49090	-0.387955	0.7012
IDXREMITT(-1)	-0.000150	0.000139	-1.078110	0.2909
INDEXFDI(-1)	-0.000128	0.001914	-0.067056	0.9470
IDXPOOR(-1)	1.038611	0.156197	6.649379	0.0000
INDEXFDI(-1)/IDXGDP(-1)	1.926449	0.853963	2.255892	0.0327
		Mean dependent	88.9354	
R-squared	0.691064	var	8	
			17.4144	
Adjusted R-squared	0.643536	S.D. dependent var	3	
		Akaike info	7.66764	
S.E. of regression	10.39722	criterion	4	
			7.89893	
Sum squared resid	2810.656	Schwarz criterion	2	
		Hannan-Quinn	7.74303	
Log likelihood	-113.8485	criter.	8	



F-statistic	14.53999	Durbin-Watson stat	1.57311
Prob(F-statistic)	0.000002		0
