Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.8, No.14, 2017

Outward FDI and Domestic Investment: Evidence from World's Largest Economies

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Abstact
This study provides empirical evidence of the impacts of FDI outflows on domestic investment in the world's largest economies using panel data analysis. Our estimates using system-Generalized Method of Moments (GMM) suggest that FDI outflows have positive effects on domestic investment. From 2002-2014, OFDI had significant long-term effects on domestic investment among the world's largest economies. Our system-GMM model results show that a one dollar increase in OFDI leads to an increase of 0.0894 dollars of domestic investment in the long term.
Keywords: Outward FDI; Domestic investment; Endogeneity; Panel Data
JEL Classification numbers: C23; F21; F22; F23

1. Introduction. Recent empirical and theoretical studies have mainly focused on the impact of foreign direct investment (FDI) inflows on economic growth (Lim, 2002; Hansen and Rand; 2006). Some studies (Zhang [2001], Liu *et al.* [2002], Chakraborty and Basu [2002]) have explored the direction of causality between economic growth and FDI inflows. Although there are numerous studies that find a relationship between FDI inflows and economic growth, the number of studies that find a relationship between outward FDI and economic growth is very limited. The macroeconomic relationship between OFDI and domestic investment is hardly researched except for a few studies (Herzer and Schrooten, 2008; Desai et al., 2005; Feldstein, 1994). Herzer and Schrooten (2008) explored the impact of OFDI on domestic investment in two industrialized economies using time series data but failed to take into consideration other important macroeconomic variables in the study. In fact, domestic investment and OFDI are not only correlated with each other but also influenced by other macroeconomic variables such as exchange rate, inflation, trade regime, foreign remittance, institutional characteristics, and consumption. Omission of important variables can result in biased estimates. Siliverstovs and Herzer (2006) report that statistical findings and Granger causality tests may not be valid if the econometric model suffers from omission of important macroeconomic variables. Thus, we tried to bridge this shortcoming by adding important control variables in the econometric model that help in defining the accurate relationship between OFDI and DI.

The question of whether (and how) the outward foreign direct investment (OFDI) affects domestic output or domestic investment is the subject of public debate in industrialized economies. There is ongoing debate on whether or not outward foreign direct investment reduces domestic investment. The macroeconomic relationship between OFDI and domestic investment is hardly researched. Feldstein (1994) and Desai et al(2005), using aggregate cross country data, conclude that one dollar increase in OFDI decreases domestic investment by one dollar. The main problem that arises with cross-country studies is that they assume similar economic conditions and structures across countries. However, institutions, economic policies, and technology differ across countries. Thus, these studies can suffer from endogeneity issues.

The main contribution of this study is that it is a first attempt at focusing on the world's largest economies and top OFDI supplier economies to determine the impact of FDI outflows on domestic investment using a panel data analysis. We want to bridge this shortcoming in the existing literature by exploring how OFDI affects domestic investment in the world's largest and top OFDI supplier countries by introducing new and interesting findings. We have used ordinary least squares (OLS) and system-GMM to cope with possible endogeneity of outward FDI over the time span of 2002-2014 annually. Our findings are as follows: (1) there is a positive long-term relationship between OFDI and domestic investment in top OFDI supplier economies; and (2) our system-GMM model results show that one dollar increase in OFDI leads to an increase of 0.0894 dollars in domestic investment in the long run.

The paper is organized as follows: **Section 2** describes Literature review, **Section 3**. Data and Sample Selection **Section 4.** Model **Section 5**. Estimation Methods **Section 6.** Empirical results and **Section 7.** Concludes the results

2. Empirical literature. Steven and Lipsey (1992), using firm-level data of seven U.S. multinationals over time span of 16 to 20 years, conclude that there is a positive relationship between foreign direct investment outflows and domestic investment. Stevens and Lipsey (1992) conclude that OFDI and domestic investment by U.S.

multinational firms are substitutes. Desai *et al.* (2005) argue that a higher OFDI is associated with higher levels of domestic investment. OFDI allows firms to import raw material from foreign affiliates at less expensive rates and generate exports of intermediate goods used by foreign affiliates. Industry combines home production with firms abroad to reduce the cost of production, and economies of scale thus increase their domestic output and domestic investment. However, given that these studies have analyzed the effect of large multinational firms, they do not show the comprehensive effect of OFDI on domestic investment when all (i.e., small, medium, and large) firms increase their OFDI. The overall effect of OFDI on domestic investment is inconclusive and has become an empirical issue. Hejazi and Pauly (2003), using industry level data for Canada for the time span 1984 to 1995, find that the impact of FDI outflows vary according to investment partner. For instance, Canada's FDI outflows to the United States stimulate Canadian domestic investment, while outward FDI to rest of the world lessens Canadian domestic investment, and FDI outflows to the United Kingdom has no effect.

The direction of causality between OFDI and domestic investment can be mixed or can vary from one country to another if countries are studied individually with time series data analysis because of the differences in their economic structures. Therefore, the nature of the relationship between variables can be country-specific, which may depend on economic stability, trade openness, and macroeconomic environment. This is very obvious when we look at the empirical literature on the direction of causality between Outward FDI and GDP per capita. Using time series data, Lee (2010) finds long-run positive unidirectional causality from OFDI to GDP per capita in the case of Japan. In the short run, there is no Granger causality relationship between outward FDI and GDP per capita. Herzer and Schrooten (2008) find using time series data that OFDI has positive long-run effects on domestic investment in the case of US, but in Germany, this complementary relationship only exists in the short run, where OFDI substitutes domestic investment in Germany in the long-run.

The impact of FDI outflows on domestic investment is a controversial issue that is still inconclusive. Some research studies conclude that outward foreign direct investment reduces domestic investment, while some studies find that FDI outflows are positively associated with domestic investment, and yet still others find no effect.

3. Data and sample selection. In this study, we have used net OFDI (% GDP), domestic investment (%GDP), trade (% GDP), Inflation (annual %) and GDP deflator (base year varies by country). OFDI, GDP per capita, real GDP, and GDP are measured in current US dollars. Gross capital formation is used proxy for domestic investment. Inflation, GDP Deflator (annual %) is used proxy for inflation to measure macroeconomic instability. DI is the domestic investment of country *i* in year *t*; OFDI is outward foreign direct investment of the country *i* in year *t*; and ε_{it} is the error term. The starting period of this data set is determined by the earliest available data. Data on the net FDI outflows as a percentage of the GDP is taken from the UNCTAD FDI database. GDP, trade (% GDP), GDP per capita US dollar, gross capital formation (% GDP), and the GDP deflator are taken from World Bank (World Development Indicators Database). The sample consists of the 41 world's largest economies over the time period of 2002-2014 annually. These countries are chosen because they are among the largest OFDI suppliers in the world, according to UNCTAD data. Countries included are the following: Algeria, Argentina, Australia, Austria, Belgium, Brazil, China, Columbia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, India, Italy, Ireland, Israel, Japan, KazaKhstan, Malaysia, Netherlands, Nigeria, Norway, Pakistan, Poland, Portugal, Philiphines, South Africa, Sweden, Switzerland, Spain, South Korea, Russia, Turkey, Thailand, UK, and USA. We were not able to include some countries in out sample due to missing data and the unavailability of data for some of the variables used in our study.

TABLE 1 **Summary statistics (2002-2014)**

Variables	No. of observations	Mean	Standard Deviation	Minimum	Maximum
DI	520	23.14	6.24	5.46	47.67
Lag of DI	480	23.19	6.19	5.46	47.67
OFDI	520	2.84	5.08	-5.16	49.05
GOV	520	0.00	1.00	-2	1.47
RGDP	520	22.15	1.42	17.37	25.81
GDPPC	520	9.55	1.3	6.12	11.54
INFLATION	520	4.61	7.12	-11.16	103.82
TRADE	520	82.51	63.72	21.16	455.27
Crises	520	0.1538	0.3611	0	1
Remittance	520	1.22	2.3	0.0197	13.32

Note; The variables are Domestic investment(DI), Outward FDI(OFDI), Governance proxy for institutional characteristics(Gov),RGDP(real gdp), Trade Openness(Trade),RGDP(real gdp),GDPPC(GDP per capita),Remittance(Foreign remittance inflows),Crises(Financial crises dummy) and Inflation.

The empirical analysis for this study uses a governance dataset compiled by Worldwide Governance

Indicators (WGI) over time span 2002-2014 annually for six dimensions of governance, i.e., Control of corruption, Government Effectiveness, Political Stability and Absence of Violence, Regulatory Quality, Rule of Law, and Voice and Accountability (Kaufmann, Kraay, and Mastruzzi, 2007).

TABLE 2 **Correlation matrix: Governance indicators (Institutional Charateristics)**

	Control of Corruption	Government Effectiveness	Political Stability	Regulatory Quality	Rule of law	Voice and Accountability
Control of Corruption	1.0000					
Government Effectiveness	0.9616	1.0000				
Political Stability	0.7963	0.8126	1.0000			
Regulatory Quality	0.9358	0.9498	0.7967	1.0000		
Rule of law	0.9643	0.9694	0.8258	0.9567	1.0000	
Voice and Accountability	0.866	0.8526	0.764	0.8616	0.8814	1.0000

Globerman and Shapiro (2002) have argued that these indices are highly correlated with each other; therefore, it is very difficult to use all in single regression model. The correlation matrix for governance indicators are shown in Table 2. From an econometric point of view, the high correlation between the variables can cause multicollinearity and might reduce the extent to which the relevance of each individual governance indicator can be measured. As a result, we follow Globerman and Shapiro (2002) by extracting the first principal component of six indicators of governance by employing factor analysis. We refer to this aggregated measure as 'governance' to capture institutional characteristics. We use the proxy 'governance' for institutional characteristics. As displayed in Table 1, the governance indicator used in our econometric model ranges from -2 to 1.48. The observed mean value of 0 and standard deviation is 1.0 is quite similar with Globerman and Shapiro (2002) estimates of 0.01 and 0.96, respectively. All independent variables are drawn from the World Development Indicators (WDI) database.

4. Model. In this section, we formulate the empirical model and explain it in detail. Following Al-Sadig (2013) and previous research studies, we construct an econometric model where we assume that level of domestic investment depends upon the level of domestic investment in the previous year, on outward FDI, and a list of control variables that captures economic conditions in the world's largest economies. We have added this list of control variables, namely, real GDP (RGDP), Governance (GOV), GDP per capita (GDPPC), Inflation, Trade, Financial Crises, and Remittance, with results shown in Table 3 and 4 in models 1-7. It is very important to mention that, given the vital and varied role of governance (i.e., institutional characteristics) at the macroeconomic level. Therefore, we include governance as an important determinant of domestic investment.

$$DI_{i,t} = \alpha_0 + \alpha_1 DI_{i,t-1} + \alpha_2 OFDI_{i,t} + \alpha_3 GOV_{i,t} + \alpha_4 X'_{i,t}\beta + \varepsilon_{1it} \quad (1)$$

$$\varepsilon_{i,t} = \eta_i + \upsilon_{i,t}$$

where i = 1,2,3,...,N; t = 1,2,3,…T, i is the home country, t is the time, α_s and β are unknown parameters to be estimated, η is the unobserved country-specific effects, and ε is the random disturbance term. The dependent variable DI is the domestic investment measured by domestic investment as a share of GDP. The primary interest of our analysis is the sign and magnitude of the estimated coefficient of FDI outflows (OFDI). The control variables are selected based on existing research literature. The past values of domestic investment is expected to have positive effects on current domestic investment because it may be a sign of favorable and good investment environment (Al-Sadiq, 2013). The level of economic activity is measured by the growth rate of real GDP, and it is expected to have a positive impact on domestic investment (Wai and Wong, 1982; Blejer and Khan, 1984: Greene and Villanueva, 1991). Each country's economic stability plays a pivotal role in economic development. Macroeconomic instability causes uncertainty, and it is considered to have negative effects on domestic investment. Macroeconomic instability is captured by inflation rate and is expected to have a negative coefficient (Greene and Villanueva, 1991; Serven and Solimano, 1993; Oshikoya, 1994; Ndikumana, 2000). Previous research studies have also highlighted the impact of trade openness on domestic investment. Trade openness may positively affect domestic investment through technology and knowledge spill-overs. It may have a negative impact on domestic investment if consumers prefer imported products (Ndikumana, 2000). Along with these variables, we have included a dummy variable, namely, the financial crisis, to measure the unobservable temporal effect of the financial crisis that hit hardest in 2008 and 2009. Furthermore, a country's ability to attract and benefit from FDI is interrelated with institutional characteristics (Bevan, Estrin & Meyer 2004; Phelps 2009) and as a result boost domestic investment. Roe & Siegel (2011) suggests that institutions that do not control corruption, do not secure property rights, and do not support government interventions decrease investment. Several studies show that countries characterized by weak institutions reduce domestic investment

(Acemoglu, Johnson & Robinson 2005). We have included a governance variable to capture institutional characteristics effects of our panel of sample countries as a control variable to more accurately measure the impact of outward FDI on domestic investment. Osili (2007) finds approximately 40 % of remittance inflows are for investment. In a survey of the global evidence, Adams (2006) finds that remittance-receiving households spend more on investment goods and invest more on entrepreneurial activities than other households. There is increasing evidence in previous research studies that remittance inflows increase capacity of domestic banks to extend credit to the private sector and thus stimulate domestic investment. From previous studies, GDP per capita is expected to have positive effects on domestic investment; thus, it is generally assumed that GDP per capita is positively associated with domestic investment.

5. Estimation method. We use the system-Generalized Method of Moments (GMM) two-step estimator developed by Arellano and Bover (1995) and Blundell and Bond (1988) for our estimates. The Arellano-Bover/Blundell-Bond estimator is referred to as A-B-B estimator. GMM is generally used to study dynamics of adjustment using samples with relatively large cross-sections and short time periods. In order to measure the effects of FDI outflows on domestic investment in the home country, this research study uses the system-GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998), which yield consistent and efficient estimates by addressing two key econometric issues.

Considering equation (1): this includes one of the explanatory variables of the lagged level of domestic investment. Firstly, the presence of a lagged dependent variable would yield biased estimates because ordinary least square estimates (OLS) leads to auto-correlation because of the correlation between error terms and lagged dependent variable (i.e., explanatory variable). Using ordinary least squares (OLS) would make estimations inconsistent and bias the coefficient of lagged terms upwards, while using the fixed-effects would cause a downward bias in estimated results. The system-GMM estimator controls for unobserved country-specific factors and the estimated coefficients would not be biased from an omitted variable. Secondly, FDI outflows are endogenous and jointly determined with domestic investment. Thus, there is a two-way relationship and causality running between domestic investment and FDI outflows. It is difficult to find appropriate and proper instrument for FDI outflows, and the system GMM estimator solves the endogeneity problem by using internal instruments based on lagged values of independent and dependent variables.

To overcome these issues, Arellano and Bond (A-B) (1991) recommend a first difference A-B GMM estimator. One advantage of this is that endogenous regressors and the lagged dependent variable can be instrumented using its lagged levels. We consider that $RGDP_{i,t}$ is weakly exogenous and can be instrumented using its lagged levels. The other advantage is that it also removes fixed country-specific effects by taking first differences of Equation(1), thus removing individual specific effects, as displayed below in Equation (2). $DI_{i,t} - DI_{i,t-1} = \alpha_1(DI_{i,t-1} - DI_{i,t-1}) + \alpha_2 (OFDI_{i,t} - OFDI_{i,t-1}) + \alpha_3(GOV_{i,t} - GOV_{i,t-1}) + \beta'(X_{i,t} - X_{i,t-1})(\upsilon_{i,t} - \upsilon_{i,t-1}) + \varepsilon_{i,t} \ldots$ ***(2)***

Blundell and Bond (1998) point out that the first-differenced GMM estimator developed by Arellano and Bond (1991) has poor finite sample bias and poor precision when lagged levels of series are weak instruments for the first differences, specifically for variables that are close to a random walk. The system-GMM model overcomes this problem by combining in one system the regression in differences with the regression in levels under the assumption. In Equation (2), given assumption of no autocorrelation between error terms and regressors or regressors and error terms, the minimum lag level of dependent- variables must be two or greater.

6. Empirical results. Table 3 contains the principal empirical result findings and reports results for System GMM in models (1)-(7). Across columns (1)-(7) in Table 3, our general result findings is that, in all cases, OFDI has consistently positive and significant effects on domestic investment particularly at 5% level of significance, a 1% increase in OFDI results in increase of domestic investment in range of 8% - 9.89%.Our result findings show across models (1)-(7) in Table 3, in all cases, Governance has consistently positive and insignificant effects on domestic investment. We can infer from our result findings that Governance (Institutional charateristics) effects are not significant on domestic investment, may be governance indicators are not strong enough to significantly increase outward FDI and boost domestic investment. Now, we briefly illustrate our result findings regarding these two variables in detail.

As shown in Table 3, the estimated results for FDI outflows is statistically significant and positive at the 5% level of significance, which complies with previous research findings. The estimated coefficients are stable and robust with different model specifications. From our findings, in all cases, FDI outflows have consistently significant and positive impacts on domestic investment at the 5% level of significance. Regarding OFDI in Table 3, a one percent increase in FDI outflows lead to increase in domestic investment by 8.94% in model 1, 8% in model 2, 8.65 % in model 3, 9.92 % in model 4, 9.89 % in model 5, 8.32% in model 6, and 9.62% in model 7. FDI outflows have the largest impact on domestic investment in model 5. A 1% increase in OFDI causes domestic investment to increase by 9.89 %. The significance of the positive relationship between FDI

outflows and domestic investment remains unchanged, even after using individual governance indicators along with explanatory variables in Table 3 in models 1-7. The positive and significant effects of FDI outflows on domestic investment still remain unchanged using the aggregate governance variable and individual governance indicators along with other control variables, as shown in Table 3 in models 1-7.

We now discuss other two very important variables in the model: domestic investment and governance. Domestic investment in previous years have positive and significant impacts on current domestic investment in all models. The results reported in Table 3 under models 1-7 show that past domestic investment robustly enhances the current domestic investment rate. Across models 1-7 in Table 3, our general finding is that, in all cases, domestic investment in previous years have consistently highly positive and significant effects on current domestic investment, particularly at the 1% level of significance, and a 1% increase in Domestic investment in previous years leads to increase of current domestic investment in range of 94.91% - 97.72%.

As shown in Table 3, the estimated results for the lagged dependent variable (domestic investment in previous years) is statistically significant and has a positive correlation with current domestic investment at the 1% level of significance, which complies with previous research findings. The estimated coefficients are stable and robust with different model specifications. From our findings, in all cases, the lagged dependent variable (domestic investment in previous years) has a consistently significant and positive impact on domestic investment at the 1 % level of significance. Regarding OFDI in Table 3, a one percent increase in the lagged dependent variable (domestic investment in previous years) leads to an increase in domestic investment by 96.91 % in model 1, 95.30 % in model 2, 96.07 % in model 3, 94.91 % in model 4, 96.46 % in model 5, 97.72% in model 6, and 97.20% in model 7. Domestic investment in previous years was found to have the largest impact on current domestic investment in model 5.

Another major findings reported by Table 3 in column 1-7 is that governance (i.e., institutional characteristics) has a positive and insignificant impact on domestic investment. These results are highly consistent across models 1-7 that governance has insignificant impacts on domestic investment with positive coefficient. More importantly, it confirms that the level of governance support is not strong enough to significantly increase outward FDI and boost investment. Thus, governance should be significantly strong enough to gain economic benefits and formulate favorable policies to increase domestic investment.

Table 3 **Generalized Method of Moments (System-GMM)**

Dependent Variable : Domestic Investment/GDP: 2002-2014 (System- GMM)

Independent variables	1	2	3	4	5	6	7
Lag of DI	0.96915***	0.95307***	0.9607***	0.94912***	0.96466***	0.97722***	0.97209***
	20.58	20.26	21.4	21.03	19.76	19.46	20.06
OFDI	0.08947**	0.08008	0.08657**	0.09927**	0.09892**	0.0832**	0.096268**
	2.07	1.65	1.92	2.03	2.25	1.9	2.21
GOV	0.60323						
	1.11						
Control of corruption		0.20506					
		1.02					
Government effectiveness			0.60302				
			1.14				
Political stability				0.19555			
				0.81			
Regulatory quality					0.38236		
					0.75		
Rule of law						0.62433	
						1.03	
Voice and accountability							0.64219
							0.83
RGDP	0.33713	0.14316	0.42093	0.06215	-0.01516	0.41083	0.38679
	0.74	0.34	0.76	0.15	-0.05	0.93	0.84
GDPPC	-0.58465	-0.50386	-0.57182	-0.41562	-0.36655	-0.61185	-0.46202
	-1.64	-1.44	-1.57	-1.14	-1.21	-1.53	-1.45
INFLATION	0.02334	0.00948	0.02496	0.0087	0.01425	0.02613	0.02719
	0.6	0.27	0.59	0.27	0.43	0.73	0.61
TRADE	-0.00374	-0.00365	-0.00324	-0.00551	-0.00638	-0.0029	-0.00226
	-0.84	-0.75	-0.66	0.212	-1.56	-0.65	-0.46
Crises	-1.5034***	-1.419***	-1.477***	-1.4286***	-1.4635***	-1.5244***	-1.5171***
	-4.8	-4.2	-4.77	-4.33	-4.43	-5.04	-4.85
Remittance	-0.02119	-0.09908	-0.02149	-0.07979	-0.05292	-0.01746	0.006918
	-0.19	-1.18	-0.19	-1.02	-0.61	-0.17	0.06
Constant	-0.89251	3.0514	-3.2246	4.2829	4.9027	-2.9595	-3.8077
	-0.11	0.39	-0.3	0.55	0.8	-0.37	-0.41
No of Observations	480	480	480	480	480	480	480
No. of Groups	40	40	40	40	40	40	40
ar1(p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2(p-value)	0.12	0.10	0.2	0.112	0.12	0.121	0.101
Sargan tests(p-value)	0.998	0.993	0.998	0.994	0.997	0.998	0.998
Difference in Hansen(p-value)	0.987	0.987	0.986	0.984	0.981	0.987	0.988

Note; System-GMM is applied for estimation.The t-statistics are in brackets.*,** and *** indicate 10%, 5%, and 1% level of significance respectively. ar1 and ar2 are tests for first and second order serial correlation, respectively. The variables are previous domestic investment (Lag of DI), Outward FDI (OFDI), Governance proxy for institutional characteristics(Gov), Trade Openness (Trade), RGDP (real gdp), GDPPC (GDP per capita), Remittance (Foreign remittance inflows), Crises (Financial crises dummy), and Inflation.

In Table 3, we report results of seven econometric models, referred to as models 1-7, respectively. Based on equation (3), our core model specification comprises of the previous year's domestic investment, OFDI, and governance. In order to control for endogeneity between domestic investment and FDI outflows, we include control variables in our econometric model. We include set of control variables, namely, RGDP, GOV, GDPPC, Inflation, Trade, Crises, and Remittance, given their strong influence found in previous research studies and recent studies by Al-Sadiq (2013).

In terms of control variables, financial crises were found to have a negative and significant impact on domestic investment at the 1 % level of significance in all seven models. As expected with our priori expectation of a negative relationship between financial crises with domestic investment, our results show that financial crises are significantly and negatively associated with domestic investment. Domestic investment in previous years has the largest impact on current domestic investment in models 6 and 7. Results show that other control variables such as RGDP, GDPPC, INFLATION, TRADE and Remittance have insignificant impacts on domestic investment, which implies that domestic investment is unresponsive to real GDP, trade openness, GDP per capita, inflation, and foreign remittance. The Sargan test and serial correlation test results are displayed in Table 3. There is no evidence of second-order serial correlation in the differenced error terms and Hansen tests

do not reject the null hypothesis of the joint validity of all the instruments.

7. Conclusion. The primary motive of this study was to empirically test the relationship between outward FDI and domestic investment using panel data from 41 of the world's largest economies over the time period 2002-2014. Our estimates using system-GMM suggest that FDI outflows have positive effects on domestic investment. Our system Generalized Method of Moments (GMM) model results show that one dollar increase in OFDI leads to an increase in 0.0894 dollars of domestic investment. Outward FDI may have positive, negative or neutral effects on home country's domestic investment rate. The effects of outward FDI will be strongly negative on domestic investment if financial resources and capital is scarce as well as financial markets are underdeveloped. If financial resources and capital is abundant, the effects of outward FDI on domestic investment expected to be strongly positive. This relationship is estimated using ordinary least squares and a system-GMM estimator to tackle possible endogeneity issues of independent variables, especially FDI outflows. The empirical results demonstrate a positive relationship effects of outward FDI on domestic investment among world's largest economies because economies where financial resources and capital is abundant as well as strong capital markets, the outward FDI is expected to have strongly positive effects on domestic investment. A one percent increase in outward FDI leads to increase of domestic investment by approximately 8.94%, as reported in Table 3 in model 1.These findings comply with previous research studies such as Steven and Lipsey (1992), Herzer and Schrooten (2008), and You and Solomon (2015). Our results also show that governance has a positive and insignificant impact on domestic investment. These results may be driven by presence of weak institutional characteristics such as poor control of corruption, weak law and order, lack of political stability, government ineffectiveness, and lack of voice and accountability. Different types of policy will be needed to address these institutional distortions to significantly affect domestic investment and increase FDI outflows and, as a result, significantly boost domestic investment.

References:

Acemoglu, D., S. Johnson and J. A. Robinson .(2005). Institutions as a fundamental cause of long-run growth. *Handbook of economic growth*, *1*, 385-472.

Adams, R. H. (2006). International remittances and the household: Analysis and review of global evidence. *Journal of African Economies*, *15*(suppl 2), 396-425

Al-Sadig, A. (2013). The effects of foreign direct investment on private domestic investment: evidence from developing countries. *Empirical Economics*, *44*(3), 1267-1275.

Arellano, M., and S. Bond .(1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), 277-297.

Arellano, M., and O. Bover .(1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, *68*(1), 29-51.

Barajas, A., R. Chami., C. Fullenkamp., M. Gapen, and P.J. Montiel .(2009). Do workers' remittances promote economic growth?. *IMF Working Papers*, 1-22.

Bevan, A., S. Estrin, and K. Meyer .(2004). Foreign investment location and institutional development in transition economies. *International business review*, *13*(1), 43-64.

Blejer, M., and M.S. Khan .(1984). Private investment in developing countries.*Finance and Development*, *21*(2), 26.

Blundell, R., and S. Bond .(1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, *87*(1), 115-143.

Chakraborty, C., and P. Basu .(2002). Foreign direct investment and growth in India: a cointegration approach. *Applied Economics*, *34*, 1061-1073.

Desai, M.A., C.F. Foley and J.R. Jr Hines (2005). Foreign direct investment and domestic capital stock. *American Economic review Papers and Proceedings*, *95*, 33-38.

Feldstein, M. (1994). *The effects of outbound foreign direct investment on the domestic capital stock* (National Bureau of Economic Research Working Paper: No. 4668).

Greene, J., and D. Villanueva .(1991). Private investment in developing countries: an empirical analysis. *Staff Papers-International Monetary Fund*, 33-58.

Hatzius, J. (2000). Foreign direct investment and factor demand elasticities. *European Economic Review*, 117-143.

Herzer, D., and M. Schrooten .(2008). Outward FDI and domestic investment in two industrialized countries. *Economics Letters*, *99*, 139-143.

Hansen, H. and J. Rand .(2006). On the Causal Links between FDI and Growth in Developing Countries. *The World Economy*, *29*, 21-41.

Im, K.S., M.H. Pesaran and Y. Shin .(2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, *115*, 53-74.

Lee, C.G. (2010).Outward Foreign direct investment and economic growth: evidence from Japan. *Global economic review: Perspectives on East Asian economies and industries*, *39*,317-326.

Levin, A.T., C.-F.J.Lin and C.-S.J.Chu. (2002). Unit root tests in panel data : asymptotic and finite-sample properties. *Journal of Econometrics*, *108*, 1-24.

Lim, E.-G. (2001). *Determinants of, and the Relation between, Foreign Direct Investment and Economic Growth: A Summary of the Recent Literature* (IMF Working Paper No. WP*/01/*175).

Liu, X., P. Burridge and P.J.N. Sinclair.(2002). Relationships between economic growth, foreign direct investment and trade: evidence from China. *Applied Economics*, *34*, 1433-1440.

Narayan, P. K. (2005). The relationship between saving and investment for Japan. *Japan and the World Economy*, *17*, 293–309.

Ndikumana, L. (2000). Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from panel data. *World development*, *28*(2), 381-400.

Osili, U. O. (2007). Remittances and savings from international migration: Theory and evidence using a matched sample. *Journal of Development Economics*, *83*(2), 446-465.

Oshikoya, T. W. (1994). Macroeconomic determinants of domestic private investment in Africa: An empirical analysis. *Economic development and cultural change*, *42*(3), 573-596.

Pesaran, H. M.(1997). The role of economic theory in modelling the long-run. *Economic Journal*,*107*, 178-191.

Pesaran, H., and Y. Shin.(1999). An autoregressive distributed lag modeling approach to cointegration analysis, in: S. Strom (Ed.)Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium. Cambridge, UK: Cambridge University Press, 371-413.

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

Ram, R. (1988). Additional evidence on causality between government revenue and government expenditure. *Southern Economic Journal*, *54*, 763-769.

Siliverstovs, B., and D. Herzer .(2006). Export-led growth hypothesis: evidence for Chile. *Applied Economics Letters*, *13*, 319-324.

Serven, L., and A. Solimano .(1993). Debt crisis, adjustment policies and capital formation in developing countries: where do we stand?. *World Development*, *21*(1), 127-140.

Roe, M. J., and J.I. Siegel .(2011). Political instability: Effects on financial development, roots in the severity of economic inequality. *Journal of Comparative Economics*, *39*(3), 279-309.

Stevens,G.V.G., and R.E. Lipsey .(1992).Interactions between domestic and foreign investment. *Journal of Money and Finance*, *11*, 40-62.

You, K., and O.H. Solomon .(2015). China's outward foreign direct investment and domestic investment: An industrial level analysis. *China Economic Review*, *34*, 249-260.

Wai, U. T., and C.H. Wong .(1982). Determinants of private investment in developing countries. *The Journal of Development Studies*, *19*(1), 19-36

Woodruff, C., and R. Zenteno .(2007). Migration networks and microenterprises in Mexico. *Journal of development economics*, *82*(2), 509-528.

Zhang, K.H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America. *Contemporary Economic Policy*, *19*, 175-185.