FOREIGN AND DOMESTIC INVESTMENT IN INDONESIA: CROWDING IN OR CROWDING OUT?

Rizki Pratomo Sunarwibowo

Email: rizki.pratomo@budiluhur.ac.id
Fakultas Ekonomi dan Bisnis, Universitas Budi Luhur

ABSTRACT
Investment is widely known as the main determinant in the process of country development, hence it supports economic growth. There are mainly two sources of investment, foreign and domestic. This paper contributes to the debate on how foreign direct investment (FDI) influence domestic investment, whether FDI crowds in or crowds out domestic investment. This paper also studies the role of government that affect the formation of investment in Indonesia. Using provincial level data from 2010 until 2015, this research finds that FDI does crowd in domestic investment. This concludes that FDI supports the formation of domestic investment, or in other words it has positive effect on domestic investment. Government performance also has positive effect on domestic investment.

Keyword: *FDI, domestic investment, crowd in, government performance*

INTRODUCTION

Investment is widely known as an important factor for developing and enhancing economic growth, either in developing (less-developed) countries or developed (high-income) ones. It is also generally known as the incoming capital and technology transfer into business sectors. The investment funds are used to finance projects, such as: factories, infrastructures, education buildings, and health facilities that increase growth indicators, wealth of the households, or level of education.

Investment could be obtained from three means of financing, which are domestic financing, foreign direct investment (FDI), and foreign debt financing. Domestic financing could also be a debt from formal or informal sources, while foreign direct investment could also be a joint venture that is linked to domestic investors. The nature of the political regime may influence the investor's choice of source of financing. Yet, this will be a consideration of foreign company to invest in the country (Morrissey & Udomkerdmongkol, Governance, Private Investment and Foreign Direct Investment in Developing Countries, 2011).

Globalization in world economy and the advent of technology have changed the conditions how companies operate. Companies are urged to be globally competitive and shown constant growth. Trapczynski (2013) argues that foreign direct investment is widely considered to be the most advanced, yet the most risky form of internationalization. The

decision to commit substantial resources to a foreign market bears important implication for the long-term competitiveness of multinational companies.

Companies in Indonesia have also experienced the same challenges. The internet era has successfully brought the whole world to be nearer in time and distance. Internet carries information that is substantial and important to business in a very different way. Hence, the needs of competitiveness and technological advance are inevitable, in such way investment especially foreign investment is about to be important decision for companies to keep exist and for the country itself to increase its economic performance.

In Indonesia, investments are mainly financed by foreign direct investment. As seen during the period of 2010-2016, the foreign investment are about twice as much as domestic investment. Since 2013, foreign investment is considered not changing in value while domestic investment tends to rise. However, Indonesia's dependency of investment on foreign funding is thought as being rather excessive. The founding fathers argued that development should be carried out by our own power, strength, and funding independently. The amount of foreign funding, hence the interest of it, could be a severe burden for our descendants.

There are sound arguments raised nowadays to evaluate the policy of foreign investment, in order to support more on domestic investment by reducing the portion of foreign investment. One reason to limit inward foreign investment is that by receiving foreign investment, it implies that there would be control of foreign companies over the domestic productive capacity.
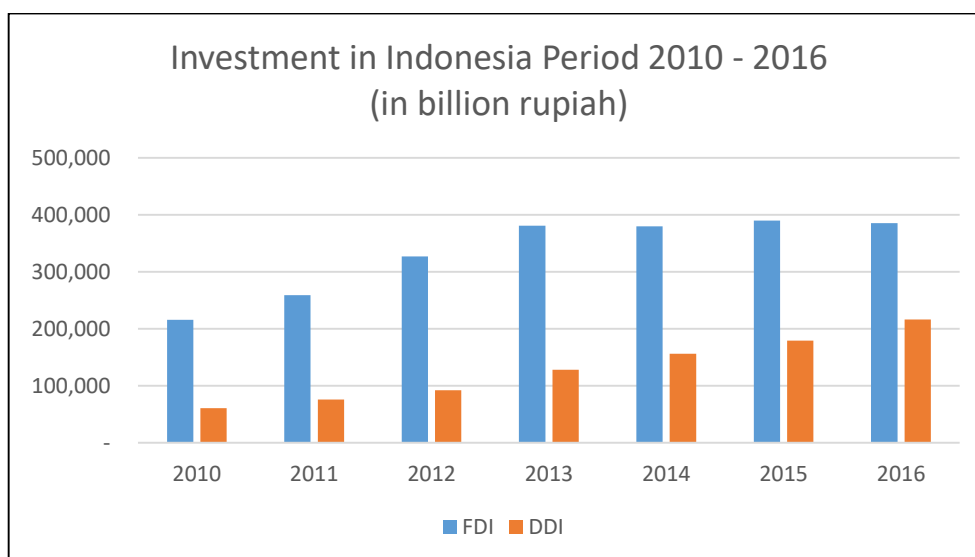
Graph 1. Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI) in Indonesia, Period 2010-2016 (BKPM, 2016)

Lipsey & Sjoholm (2004) states that foreign investment companies pay higher wages than the domestically owned companies. Foreign firms might pay a high price for labor for several reasons. One is that they may be forced to do so by host-country regulations or home country pressures. Another might be that workers have a preference for locally owned employers. A third is that foreign-owned firms might wish to reduce employee turnover because they invest more in training than locally owned firms or because they fear the leakage of their technological advantages if employees move to other employers. Finally, foreign firms may, because of a lack of knowledge of the local labor market, pay higher wages to attract good workers. In other words, domestic firms might be in a better position to identify and attract good workers without paying a wage premium. This finding suggests that foreign companies eager to pay more in order to hire better quality workers, that in turn will be beneficial to host-countries purposes.

Farla, De Crombrugghe, & Verspagen (2016) recognize the effect of foreign direct investment (FDI) on growth and development in relatively poor countries through the transfer of know-how, the accrual of investment funds, and even the improvement of labor standards, is often seen as one of the potential benefits of globalization. However, there are some costs for this benefits. FDI causes control of foreign firms over the domestic productive capacity, including technological knowledge. For some of the dynamic Asian economies that were growing rapidly in the second half of the 20th century, this was a reason to limit inward FDI, and instead focus on other channels for technology transfer (e.g., licensing or "arms-length" relationships with foreign firms).

Morrissey & Udomkerdmongkol (2011) concern about the impact of foreign investment on domestic investment in developing countries, whether FDI crowds in or crowds out domestic investment. They conclude that FDI crowds out domestic investment in such way that FDI rises more than domestic investment and the benefits for the country are reduced. They also consider that the decision on choosing alternative investment is also influenced by quality of governance or institution. Regimes that are stable, more market-oriented, and supportive of the private sector are likely to be more attractive to private investors. A ''capital-unfriendly'' (or labor-friendly) regime is therefore one that is unstable and oriented against market liberalization; more strictly, unstable regimes have a distinct possibility that a government that is not capital-friendly may come to power.

The academic debate does not show more consensus on the benefits of FDI than the actual policy choices. Here, two issues are central to the debate: whether or not FDI has

positive productivity spillovers (through transfer of know-how) on domestic firms, and which effect FDI has on (private) domestic investment. With regard to the latter, two opposite outcomes are possible: either "crowding in," which means that FDI will lead to more investment from (private) domestic sources, or "crowding out," which is the opposite. There is conclusion that foreign direct investment positively influence a country's overall level of investment, as the evidence for crowding out is absence (Hence, Farla, De Crombrugghe & Verspagen, 2016).

We generally acknowledge the benefit of investment, especially foreign direct investment that has positive knowledge and capital transfer to domestic firms. The necessity of being independent in elaborating development in a country become important. There is a thought that by doing and financing the development using domestic investment has more real effect on the citizen itself. While the ongoing debate is still unclear about the effect of foreign investment on domestic investment, this paper tries to fill the gap by focusing the research only in one specific country using province-level data. The former papers use country-level data and try to equalize the condition of each country that this might cause bias conclusion. Under the points that state the importance of domestic investment, this paper would like to investigate the role of foreign direct investment and institutional performance in establishing domestic investment. Thus, we might understand the effect of foreign funding on domestic investment, whether foreign funding crowd in or crowd out domestic investment; and we might also recognize what factors induce the development of domestic investment.

This research will aim to seek the influence of choosing foreign direct investment under certain government performance on the expansion of domestic direct investment, and determine the effect into further analysis. We also discuss the ideal condition, especially related to economic and government performance, in which domestic investment will develop and expand.

We consider that there might be endogeneity problem in several variables used in the model, namely Economic Growth is proxied by GDP might correlate with Public Investment and Foreign Domestic Investment to Government Performance. This paper only use dataset consists of province-level data during the period of 2010 and 2015, after decentralization of 34 provinces took place in Indonesia. Balanced panel data will be constructed to make data available to regress. The proper data would be acquired from government boards source data,

that is Indonesia Investment Coordinating Board (BKPM), Bank of Indonesia (BI), and Statistics Indonesia (BPS).

THEORETICAL MODEL AND HYPOTHESES

Foreign Direct Investment and Domestic Investment

Morrissey & Udomkerdmongkol (2011) mention that the nature of the political regime may influence the investor's choice of source of financing. Regimes that are stable, more market-oriented, and supportive of the private sector are likely to be more attractive to private investors; these will be termed ''capital-friendly'' regimes. A ''capital-unfriendly'' (or labor-friendly) regime is therefore one that is unstable and oriented against market liberalization; more strictly, unstable regimes have a distinct possibility that a government that is not capital-friendly may come to power (and forward-looking investors will consider this). The empirical analysis of how features of the political regime influence agent's preferences over the source of financing. They seeks to find the effect of growth of real output, public investment, foreign direct investment, and governance indicators; on domestic direct investment. Their conclusion shows that foreign funding crowds out domestic investment in such way that foreign funding rises more than domestic investment.

Agosin & Machado (2007) state that there was a global increase in FDI from the mid-1990s and many countries implemented economic liberalization in the early 1990s that attracted FDI. They report that the major increase in their ''openness to FDI'' index was during 1990-1996, with only small changes after 1996. These global and policy influences on FDI are unlikely to confound inferences from a sample for the period 1996–2009. As we all know that there was an economic turmoil around 1998 that influenced economic performance in countries around the world.

If foreign investment crowds out domestic investment, total private investment rises by less than the foreign investment and the benefits for the country are reduced. In contrast, if foreign investment crowds in (stimulates) private investment, total investment increases by more than the foreign investment and the benefits are enhanced. Similar findings are known in the sub-saharan country in Africa, that foreign investment crowd out domestic investment (Mutenyo, Asmah, & Kalio, 2010); while in Latvia the same pattern of crowding out also happens (Titarenko, 2005).

Along with former papers, such findings are found in the study for countries in Africa, Asia, and Latin America during the period of 1971-2000; Agosin & Machado (2005) find

that foreign investment has no significant effect on domestic private investment for countries in Africa, Asia, and Latin America during the period of 1971-2000, although there seems to be crowding out in Latin America in some sub-periods.

Farla, De Crombrugghe, & Verspagen (2016) challenge the result that foreign investment crowds out domestic investment, in such way that is done by Morrissey & Udomkerdmongkol (2011). The latter research replicates the first model and elaborate different methodologies. The result shows that foreign investment does not crowd out domestic investment, in other word there is a crowd in effect on domestic investment. Furthermore, Farla, De Crombrugghe, & Verspagen (2016) argues that crowding in is generally seen as beneficial for economic growth, but the effect of crowding out on economic growth is ambiguous. On this dichotomy of crowding in or crowding out, it is sometimes argued that market entry of foreign-owned firms pushes less efficient domestically owned firms out of the market, which may be beneficial for productivity, but implies a negative (short-term) effect on investment and productive capacity.

Misun & Tomsik (2002) find similar finding that foreign direct investment does crowd in domestic investment for Hungary and Czech Republic in the 1990s; while Kim & Seo (2003) states the same evidences for South Korea during the period of 1985-1999.

Further, the initial researcher make a response on research of Farla, De Crombrugghe, & Verspagen (2016) which state that both model have their own weaknesses, thus not an ideal model. First, Morrissey & Udomkerdmongkol argue that the data being used by Farla et al may cause misguidance, nevertheless this could be understood because it is difficult to disentangle foreign capital formation from domestic capital formation. Second, they argue that the method used, the Generalized Method of Moments (GMM), may not be the most appropriate estimator to account for heterogeneity as in the case, as compared to Maximum Likelihood Estimators (MLE) which gives smaller variance and typically smaller mean square error (MSE) in the case of unbiased observations. Alternative estimators, such as fixed effects with attention to endogeneity problems, may be fruitful in some contexts but efforts to improve the data offer more promise, especially in country studies (Morrissey & Udomkerdmongkol, 2016). The MLE might give better estimation, however it needs complex specifications in the model, which are burdensome considering the endogeneity problems. However, this method could be a more fruitful alternative.

Based on the Auto Regressive Distributed Lags (ARDL) model, Goh & Wong (2014) consider the effect of inward and outward FDI on domestic investment in Malaysia from

1991Q1 to 2010Q3 and find support for crowding-in between inward FDI and domestic investment, but crowding-out between outward FDI and domestic investment. ARDL is a method to predict current values of a dependent variable based on current value and the lagged of independent variables in time-series data model. Basically, ARDL is a parsimonious infinite lag distributed model. Furthermore, they argue that since the inward FDI–domestic investment nexus is relatively elastic compared to its outward FDI–domestic investment counterpart the Malaysian government should attract inward FDI and use it to offset the crowding-out effect brought about by outward FDI.

Chen, Yao, & Malizard (2017) investigate the fundamental relationship between FDI and domestic investment in China from 1994Q1 to 2014Q4. They find that the neutral nexus in China disappears when entry mode is introduced into the analysis. In fact, they also find that Equity Joint Venture (EJV) crowds in domestic investment, but Wholly Foreign Funded Enterprise (WFFE) crowds it out. These relationships remain valid regardless of the estimation techniques and across different subsample periods. In general, they attribute crowding in between EJV and domestic investment in China to positive spillovers brought about by foreign investors benefiting the Chinese firms. Meanwhile, they suspect that crowding out between WFFE and domestic investment in China originated from market-seeking WFFEs displacing their Chinese competitors.

Institutions and Economic Growth

Acemoglu & Robinson (2012) contend that differences in institutions can explain the differences in economic performance across time and space. Institutionalists posit that economic growth is a function of economic and political institutions. They define the distinction between "extractive" and "inclusive" institutions. The first refers to non-democratic political institutions on the one hand and weak rule of law and the absence of private property rights on the other. It follows that "inclusive" institutions are a web of democratic political institutions, strong rule of law and the protection of private property for a broad cross section of society. The dominant discourse on institutions contends that "inclusive" institutions are the deep determinants of long-run growth.

Constantine (2017) in contrast argues that it is not institutions that cause growth; rather, it is a country's economic structure that is the fundamental cause of economic performance. Therefore, differences in economic structures across time and space can explain the differences in economic development. Many less developed countries have some

form of "inclusive" institutions, it is the primary problem is that these are only written in law and hardly or only selectively enforced. She argues that this is the outcome of decreasing returns production structures. Enforcing institutions are not costless, and diminishing returns economic activities simply do not produce sufficient value added to cover the costs of enforcement. The reverse is true in rich countries with increasing returns economic structures.

Costatini & Liberati (2014) establish institutional findings in three ways. First, institutional quality has a stable and robust absolute impact on human development. Second, institutional quality has also a stable and robust relative impact, as in all cases when the institutional quality index is used to weight the measure of technological transfer, the impact is positive and significant. Third, and to some extent more important, institutional quality trumps both the cognitive proximity and the sector-based effects.

Emphasing relationship between institutions and economic growth, Silve & Plekhanov (2015) provide evidence that economic institutions are an important determinant of innovation in a large sample of advanced and emerging market economies. Innovation in turn translates into economic growth, and thus innovation appears to be an important channel through which better economic institutions can lead to higher growth in the long run. Then in particular, the analysis showed that industries involving higher levels of innovation grow faster in countries with a higher quality of economic institutions. Countries with better economic institutions therefore tend to develop more innovation-intensive structures of exports as over time innovation-intensive industries increase their contribution to overall exports of these countries.

Driffield & Hughes (2003) explain why there is crowding out effect on domestic investment that is more pronounced in high governance countries is because levels of investment (private and FDI) are greater under high governance, competition for profitable opportunities is greater and, at the margin, foreign investors command the better opportunities. Foreign firms have easier access to finance and a productivity advantage over domestic firms so may be willing to pay higher prices for capital goods (and labor), which discourages investment by domestic firms. Thus, country with better institution development tends to bear crowding out effect on domestic investment.

Szkorupová (2015) proves that there is negative crowding out effect of domestic investment by foreign direct investment. There are several explanations of negative crowding out effect domestic investment by FDI. During the transformation process was

performed foreign direct investment by way privatization. The foreign investors acquired share in strategic companies in strategic industry (telecommunication, gas industry, manufacturing industry etc.). These companies crowd out domestic investment. Domestic companies are unable to conduct business effectively and be competitive multinational companies. Another reason is the policy of national governments that promote business of foreign investors and on the other hand, domestic companies without the benefit of business. Domestic companies do not fulfil global standards for quality of supplies therefore suppliers from host countries are not attractive for cooperation with multinational companies.

Morrissey & Udomkerdmongkol (2011) use five governance indicators (GI) as explanatory variables in their research, namely voice and accountability (VA), political stability and absence of violence (PS), regulatory quality (RQ), rule of law (RL), and control of corruption (CC). As GI are ordinal measures, they urge everyone should be careful interpreting coefficients; for example, a value of 4 does not imply that governance is twice as good as a country with a value of 2 (where higher values are better). They recognize the ordinal nature of the data and use the percentile rank to construct a binary variable GI (=VA, PS, RQ, RL, CC) equal to 1 if the country has a ''high'' value (based on the percentile rank, so high is 'good'' or above the mean) of the governance indicator and 0 otherwise.

Hypotheses

This paper tries to propose hypotheses from empirical model specification that uses Indonesian province-level data, based on literature review and theoretical concept described beforehand.

Hypotheses 1. Foreign direct investments have positive effect on domestic investment. If domestic investment becomes higher when there is expansion in foreign investment, then we could say that foreign investment crowd in domestic investment. This hypotheses is supported by former papers elaborated for developing countries (Farla, De Crombrugghe, & Verspagen 2016; Misun & Tomsik 2002; Kim & Seo 2003; Goh & Wong 2014; Chen, Yao, & Malizard 2017).

Government performance indicators have positive effect on the expansion of domestic investment. Government performance is measured on governance indicators: public investment, infrastructure construction, and electricity fulfilment development. **Hypotheses 2.a.** Public investment has positive effect on domestic investment. **Hypotheses 2.b.** Infrastructure construction has positive effect on domestic investment. **Hypotheses 2.c.**

Electricity fulfilment development has positive effect on domestic investment. These hypotheses are in line with the work of several researcher that government or institution has important role in expanding investment (Costatini & Liberati 2014; Driffield & Hughes 2003; Acemoglu & Robinson 2012).

Hypotheses 3. Economic growth has a positive effect on the expansion of domestic investment. This hypotheses is supported by the work of Morrissey & Udomkerdmongkol (2011) and Silve & Plekhanov (2015).

RESEARCH METHODOLOGY

Research Method

This research uses secondary data taken from official government board in Indonesia. From the research problem, we acknowledge this as a causality research since the purposes of this study are trying to find out and to analyze the relationship of two or more problems (Sekaran, 2007).

Data

This research uses secondary annual data from the year of 2010 to 2015. The data is acquired from government boards source data, namely Indonesia Investment Coordinating Board (BKPM), Bank of Indonesia (BI), and Statistics Indonesia (BPS).

Empirical Model Specification

Domestic direct investment expansion depends on several factors as we already acknowledge before. Foreign direct investment is indicated to have strong relationship to domestic investment. Foreign investment itself depends on recipient country business environment and economic policy, types of foreign funding and the strength of domestic firms (Agosin & Machado 2005; Misun & Tomsik 2002). Similar factors, perhaps also including financial development, will be determinants of private investment (Jongwanich & Kohpaiboon, 2008). In countries with good governance, namely political stability, low corruption, strong property rights; levels of foreign funding and investment will be higher but the impact of foreign funding on private investment can be enhanced or diminished compared that is under poor governance. Democratic institutions that encourage foreign funding are also likely to promote domestic investment.

This paper proposes empirical model that employs economic growth, public investment, foreign direct investment, and government performance indicators which are captured using the data of infrastructure construction and electricity fulfilment development, as exogenous variables. We posit direct investment as endogenous variables. The empirical model specification is shown below.

$$LOG\_DDI_{ij} = \beta_0 + \beta_1 GROWTH_{ij} + \beta_2 LOG\_PUBLIC_{ij} + \beta_3 LOG\_FDI_{ij} +$$
$$\beta_4 LOG\_CONSTRUCT_{ij} + \beta_5 ELEC_{ij} + \varepsilon_{ij}$$

Where:

LOG_DDI = Natural logarithm value of Domestic Direct Investment (over GDP) in province i year t

GROWTH = Economic Growth (in percentage), measured by per capita Regional Gross Domestic Products (RGDP) in province i year t

LOG_PUBLIC = Natural logarithm value of Public Investment (over GDP) in province i year t

LOG_FDI = Natural logarithm value of Foreign Direct Investment (over GDP) in province i year t

LOG_CONSTRUCT = Natural logarithm value of Infrastructure Construction in province i year t

ELEC = Electricity Fulfilment Development (in percentage) in province i year t

In empirical model specification, we specify that domestic investment is a function of economic growth, public investment, foreign investment, and government indicator. Economic growth (GROWTH) and electricity development (ELEC) do not use natural logarithm value as they are originally in percentage value, while other variables are in nominal values so we need to transpose them into logarithm.

Variable Description

Domestic Direct Investment (LOG_DDI) uses data taken from official government boards that exists for public use. In the model, we use the value as the portion of DDI over

each year GDP. Panel data for 34 provinces during the period of 2010-2015 is constructed into balanced panel method. Overall, there are 204 observations which are grouped into 34 entities (provinces).

Economic Growth (GROWTH) is proxied using per capita Regional Gross Domestic Products (RGDP) during the period of 2010-2015. Per capita RGDP can be retrieved by dividing GDP with population at that province. As the data already presented in percentage, we do not transpose this value into natural logarithm.

Public Investment (LOG_PUBLIC) will be proxied by the amount of Gross Fixed Capital Formation (GFCF) in the province during 2010-2015. In the model, we use the value as the portion of DDI over each year GDP.

Foreign Direct Investment (LOG_FDI) uses data form official government boards. We use the value as the portion of FDI over each year GDP. Panel data for 34 provinces during the period of 2010-2015 is constructed into balanced panel method.

Infrastructure Construction (LOG_CONSTRUCT) uses data from official government boards. The data serves as proxy to government indicator in development that describes the accomplished construction within the year, and then transposed into natural logarithm value.

Electricity Fulfilment (ELEC) is the percentage of houses that already have electricity power source. This data roles as proxy to government indicator in people sovereignty.

Estimation Method

The research employs Generalized Least Squares (GLS) estimation with panel data. STATA/MP 13.0 will be utilized to analyze the data. GLS is a least square method that is fruitful to estimate models that suffered from heteroscedasticity and autocorrelation. Before we decide to employ GLS method, we run specific test on the model in order to specify the proper method. There are three options of estimating panel data. We could choose common effect, fixed effect, and random effect. Common effect is the simplest way to estimate panel data. This method combines time series data and cross sectional data, thus regress them with OLS estimation. This approach is considered as lack of understanding individual and time dimension, since the slope and intercept is treated as constant. The fixed effect model has more understanding in the variety of individuals, this method assumes that there is difference between intercept on every individuals, while the slope is still treated as constant. In random effect method, different parameters between individuals and time are included in the error terms, so this model is often called as Error Component Model. To choose proper estimation

model within the three, we have to employ some set of test. The first one, F-statistics test is used to determine whether to use common effect or fixed effect. Second, Lagrange Multiplier (LM) test is used to choose between random effect or common effect. And the last one, we could employ Hausman Specification test to determine whether fixed effect or random effect is better method.

EMPIRICAL RESULT AND ANALYSIS

Descriptive Statistics

Summary of data is quantified using STATA/MP 13.0 shown below.

Table 1. Summary of Data

Variable	Obs	Mean	Std. Dev.	Min	Max
LOG_DDI	204	-5,257333	1,905021	-13,265447	-2,507344
LOG_FDI	204	-4,429424	1,385155	-9,407536	-1,859850
GROWTH	204	0,061056	0,029948	-0,042800	-0,284600
LOG_PUBLIC	204	-1,048399	0,243825	-1,797623	-0,545763
LOG_CONSTRUCT	204	-2,822063	0,371511	-3,752502	-2,000932
ELEC	204	0,832340	0,153671	-0,317900	-0,999400

From Table 1. we see that the observation used in this research is 204, which is constituted of the data from 34 provinces within 6 years time-series data. Despite the usage of natural logarithm data, it becomes improper to summarize data because it is difficult to directly understand the meaning of the summary. Nevertheless, we still can understand that the mean from economic growth (GROWTH) is positive, that is 6.11 percent nation-wide. Mean value of electricity fulfilment (ELEC) reaches 83.23 percent nation-wide, meaning that government indicator is in a good aspect. Unfortunately, there exists the minimum value of 31.79 percent indicating that the development is not equally distributed.

Multicollinearity

We evaluate the existence of multicollinearity using VIF test. If VIF value exceeds 10 or the tolerance (1/VIF) is less than 0.1, then we conclude that there is multicollinearity between variables in the model. STATA/MP 13.0 output is shown below.

Table 2. VIF

Variable	VIF	1/VIF
LOG_FDI	1,05	0,951338
GROWTH	1,00	0,995626
LOG_PUBLIC	1,14	0,880849
LOG_CONSTRUCT	1,04	0,962547
ELEC	1,05	0,954232
Mean VIF	1,06	

The table shows that VIF value of all variables are less than 10 or the tolerance (1/VIF) exceeds 0.1, meaning that there is no multicollinearity between variables in the model.

Heteroscedasticity

We evaluate the existence of heteroscedasticity using the Modified Wald test for groupwise, using the command of xttest3.ado. If we could not reject H_0, then we conclude that the variables in the model is heteroscedastic. The result shows the value that indicates us to reject H_0 in which chi2 value is 4775.74 and Prob>chi2 is 0.0000, meaning that the relationship of the variables in the model is heteroscedastic, instead of homoscedastic.

Lagrangian Multiplier Test

Panel data method requires us to employ some test to properly determine the correct method to regress the data. We use Breusch and Pagan Lagrangian Multiplier test to determine whether Pooled Least Square (PLS) or Random Effect Model is better. The result is shown in the table below. The test indicates us to reject H_0, which has chibar2 value 90.04 with Prob>chibar2 0.0000, meaning that it is better to use Random Effect Method to regress the data.

Hausman Specification

We run Hausman Specification test to evaluate whether to use Random Effect or Fixed Effect to regress the model. Basic panel data method consists of three, namely: Pooled Least Square, Random Effect and Fixed Effect method. After we specify that Random Effect is better than Pooled Least Square, the last test is to compare Random Effect versus Fixed

Effect using this Hausman test. The test indicates that the probability to reject H_0 is 2.30%, below alpha 5%, meaning that it is best to use Fixed Effect method for our model.

Autocorrelation

Since the previous test indicates us to use Fixed Effect method, it is important to check if there is autocorrelation between variables in the model. This test is needed to be sure that our estimator is considered Best Linear Unbiased Estimator (BLUE). The estimation shows F-value 2.601 with Prob>F 0.1163. The value of 11.63% is above alpha 5%, indicates that the regression does not reject H_0, meaning that there exists autocorrelation in the model. This result will be handled using specific regression method to make sure the result is still BLUE.

Regression

We know that the model suffers from heteroscedasticity and autocorrelation problem. Since we decide to use Fixed Effect, we have to regress the model using robust standard error option or Generalized Least Square (GLS) in order to make the estimation BLUE. The GLS estimation method deals with model that has heteroscedasticity and autocorrelation problem. Heteroscedasticity is much related to time-series data, while autocorrelation is much related to cross-sectional data. This method takes each individuals effect into regression so the result will be robust and still BLUE.

After some previous tests that are already computed, this research employs GLS method to estimate the model. The result is shown below.

Table 3. Regression

LOG_DDI	Coef	Std. Err.	z	P>|z|
LOG_FDI	0,450405	0,117055	3,85	0,000
GROWTH	1,390090	3,190093	0,44	0,663
LOG_PUBLIC	2,494842	1,547112	1,61	0,107
LOG_CONSTRUCT	-0,976392	1,215183	-0,80	0,433
ELEC	5,866724	2,848934	2,06	0,039

From Table 3, we find that there are only 2 exogenous variables which have significant value using 95% significance level, namely: LOG_FDI and ELEC. The coefficient values are 0.450 and 5.867 respectively.

We could confirm that **Hypotheses 1** is proven, meaning that foreign direct investments have positive effect on domestic investment, or in other words foreign investment crowd in domestic investment. This finding is align with the result of Farla, De Crombrugghe, & Verspagen (2016), Misun & Tomsik (2002), Kim & Seo (2003), Goh & Wong (2014), and Chen, Yao, & Malizard (2017). They conclude that there exists crowd in effect of inward FDI on domestic investment.

We could not find enough proves to confirm **Hypotheses 2.a.** Public investment is not significant even under 90% significance level. **Hypotheses 2.b.** is also not confirmed, as infrastructure construction has probability value 42.2% far above 5% alpha. But we could confirm **Hypotheses 2.c.** saying that electricity fulfilment development has positive effect on the expansion of domestic investment. Electricity fulfilment development supports the formation of domestic investment. The result of government performance indicators supports the research of Szkorupová (2015), that concludes government policy plays positive role on developing FDI. This also support the work of Farla, De Crombrugghe, & Verspagen (2016) and Silve & Plekhanov (2015).

We could not confirm **Hypotheses 3** because economic growth does not have significant z-value but the coefficient is still positive, meaning that economic growth does support the formation of domestic investment.

CONCLUSION

Conclusion

This research confirms the work of Farla, De Crombrugghe, & Verspagen (2016), thus support their work in the debate against Morrissey & Udomkerdmongkol (2011) about the effect of FDI on domestic investment. Using Indonesia data, this paper concludes that (1) foreign direct investments (FDI) do have positive effect on domestic investment. This finding is in align with the result of Farla, De Crombrugghe, & Verspagen (2016), Misun & Tomsik (2002), Kim & Seo (2003), Goh & Wong (2014), and Chen, Yao, & Malizard (2017). They conclude that there exists crowd in effect of inward FDI on domestic investment; and (2) that electricity fulfilment development does have positive effect on domestic investment. The result of government performance indicators supports the research

of Szkorupová (2015), that concludes government policy plays positive role on developing FDI. This also support the work of Farla, De Crombrugghe, & Verspagen (2016) and Silve & Plekhanov (2015).

Suggestion

This paper tries to explain the behaviour of FDI in Indonesia, that concludes the existence of crowd in effect on domestic investment. Foreign direct investment is empirically proven to have positive effect on domestic investment. However, the government has to strengthen the management of domestic investment, to be able to compete with foreign technology. The government must pay attention to the formation of domestic investment, as there exists crowd in effect that causes domestic investment becoming higher every year. Even though FDI has positive effect on the formation of domestic investment, but the ratio or the amount of FDI must be set to a limit. Government performance indicator plays important result in this study. However, this paper fails to show proper determinants of these indicators, due to the limited time and the scope of the research. The only significant indicator variable is only electricity. This means that government should improve the quality of public services, so the utility of their citizen also improves. The use of road infrastructure in government performance indicator is quite intriguing, but is difficult to acquire such data at the time. However, it is plausible in the future research to consider the data.

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