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The Effect of Corruption on Foreign Direct Investment Inflows given the rise of Global Middle-Class: A Panel Data Analysis

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ABSTRACT

Building upon the emerging of one of the nonmarket forces context – global middle-class, this paper investigates the relationship between host country corruption and foreign direct investment (FDI) inflows using random effect and fixed effect models of panel data analysis at cross country level. The results found evidences that host country corruption facilitates FDI inflows. However, there exists a significant negative correlation between the two above mentioned variables if the host country is one of the high middle-class growth countries. This implies the strong local competition in host country where more educated professionals would challenge foreign investors to bribe or to penetrate the market, and thus deterring the inward FDI. Meaningful implications from this result shape a better understanding of MNEs' strategic investment decisions and open up a new research direction.

Key Words: FDI; corruption; global middle-class; MNEs; consumer spending power; local competition; globalisation; de-globalisation.

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1. INTRODUCTION

Corruption is not a new phenomenon as it has been a popular subject of interest in international business (IB) studies (Buckley, 2002). Corruption refers to the misuse of power by public officials for private gains (Bardhan, 1997; Rugman and Collinson, 2009). Despite enormous efforts around the world to combat corruption, this complex and multifaceted phenomenon has persisted due to both country's structural problem (politics, economics) and moral problem (culture) (Ahmad et al., 2012). Corruption includes different forms such as bribes and bureaucratic inefficiencies, theft of public assets, and patronages (OECD, 2015). Nevertheless, all these forms have a common point of creating additional or irregular payments to get things done (Kaufmann et al., 2003). In line with Habib and Zurawicki (2002)'s classic paper, this study will focus on the aspect of bribes and bureaucratic inefficiencies in corruption.

Corruption can be classified into two main types at a country level, arbitrary corruption and pervasive corruption (Doh et al., 2003; Rodriguez et al., 2005; Cuervo-Cazurra, 2008). The key differences between these types of corruption are their potential costs are known (pervasiveness) or unknown (arbitrariness) to foreign investors in host countries. While foreign direct investment (FDI) inflows (measure the value of inward direct investment made by foreign investors in an economy (OECD, 2017)) enables investors to exercise direct control over business operations in host countries (Agarwal and Ramaswami, 1992), both types of corruption have a huge impact on multinational enterprises (MNEs) in their FDIs strategic decision makings (Rodriguez et al., 2005).

This creates the premise for the motivation behind corruption. There is an interesting stream of thought believing in the role of corruption as a lubricant in an ineffective or sluggish economy. For example, Leff (1964), Braguinsky (1996), and Rashid (1981) suggested that in a case of rigid egalitarian regimes, corruption need not deteriorate economic performance, but rather "grease" the system and contribute toward Pareto optimality. Similarly, when host

governments ignore foreign MNEs, any arbitrary decisions arising from rent-exacting power by public agency officials could give MNEs the isomorphism, or even comparative advantages over their rival local firms, also enhance external legitimacies, resource availabilities, and survival capabilities of MNEs in the host country environments (Zaheer and Mosakowski, 1997; Rodriguez et al., 2005). Therefore, corruption could facilitate FDI volume because it acts as lubricant money that enables MNEs to avoid bureaucratic red tape and expedite decision making process (Huntington, 1968; Elliot; 1997).

Nevertheless, there is another stream of thought which opposed to corruption. It is proposed that corruption reduce the marginal product of capital, worsen the poverty, and thus "sand the wheels" or harm economic growth in a country (Shleifer and Vishny, 1993; Mauro, 1995; Keefer and Knack, 1996; Gupta et al., 1998; Lees, 2001; Meon and Sekkat, 2005). Additionally, corruption distorts the market by making regulatory controls ineffective and by acting as irregular taxes on foreign investment (Tanzi, 1998). In such a way, corruption deters FDI because it raises the costs of doing business, reduces incentives to invest in the host country, so foreign investors would divert money to a safer investment location (Tanzi and Davoodi, 1997; Lambsdorff, 1999; Wei, 2000; Svensson and Fisman, 2000; Drabek and Payne, 2002).

These evidences have created the ongoing debates about the two main streams of thoughts within scholars regarding the negative effect and the positive effect between corruption and inward FDI. The effect of host country corruption on FDI inflows had also been an interesting paradox that created mixed empirical anomalies and existing challenges in academic theoretical arguments (Cuervo-Cazurra, 2008). IB literature suggested that if the host country becomes risky then MNEs would avoid from entering, or change from FDI to other modes of entry, or make a quick exit from the market (Casson and da Silva Lopes, 2013). This is because foreign investors seek to reduce uncertainty and operational costs when deciding to

invest aboard (Dunning, 1995; Voyer and Beamish, 2004; Kwok and Tadesse, 2006). However, previous trends observed that high-risk perceived markets with the high level of corruption like China, Brazil, Thailand and Mexico still received large amounts of FDI inflows (Habib and Zurawicki, 2002). Although many efforts had been made on delivering sophisticated methodologies, empirical evidences about the studies of corruption on FDI inflows still yielded mixed results (Godinez and Liu, 2014).

Nevertheless, no scholars have yet to look at the similarities in those abovementioned countries (China, Brazil, Thailand, Mexico), and all accepted this given condition to start their researches. Coincidentally (or not), these four countries are in the world's top ten largest emerging markets which represent the surge in global middle-class growth (MCG) (Boumphrey, 2015). Moreover, the importance of MCG can also be demonstrated by Milanovic's "Elephant Curve" which is the premise behind the recent "revenge of the forgotten" across the world like Brexiteers, Trump supporters, and the rise of recent nationalism (The Economist, 2016). The "Elephant Curve" presented the cumulative change in global real income distribution shape between 1988 and 2008, with the implications that winners of globalisation were the middle-class in emerging markets (China, Vietnam, Thailand, India, etc.) and the very rich of global top 1%; while losers of globalisation were the lower earners in the very poor countries and the lower middle-class citizens of the rich countries (UK, US, etc.) (Milanovic, 2016). It led to the discussion whether the growth of the Asian (or more generally global) middle-class related to (if not impoverished) the income stagnation of the Western middle classes. Lakner and Milanovic (2013) and Milanovic (2016) proposed import roles, offshoring and foreign outsourcing from Asia (where benefited from neoliberal policies of globalization) as main reasons behind this paradoxical situation that decreasing global inequality would be the price the world pay for rising national inequalities in the rich countries.

Given this inherent gap about the effect of corruption on FDI inflows, bringing such an important nonmarket force as a conditional factor of the emerging global middle-class (MCG) shall narrow down this literature gap. Therefore, this paper addresses the following research question: “To what extent does host country corruption affect FDI inflows and how does MCG impact on this core relationship?”. There are two objectives set to answer the question: (1) to re-exam the effect of host country corruption on FDI inflows using recent data at country-level; and (2) to explore the potential moderation effect of MCG on the core relationship between host country corruption and FDI inflows.

The findings of this paper provide unique and up-to-date empirical evidences using random effect and fixed effect models of panel data analysis for 110 countries from 2013 to 2015. The results highlight a positive relationship between corruption and inward FDI, or corruption in host country facilitates FDI inflows. However, there exists a significant negative correlation between the two abovementioned variables if the host country is one of the high middle-class growth countries. This implies high level of local competition in host country with more educated or self-sufficient professionals, and it would be more challenging for MNEs to bribe or to penetrate the market and so deterring their inward FDI. The results contribute the new aspect of the nonmarket force such as global middle-class context into the existing IB literature and shape a better understanding for MNEs’ strategic investment decisions.

The research begins with Section 2 - theoretical background which critically reviews the two main streams of thoughts regarding the relationship between corruption and FDI, then theoretically explores the interaction of MCG in the main effect. Section 3 is research methodology which explains data and model specification. The empirical results from this paper are presented in Section 4 to highlight the key findings that are tested from the panel data regression models. The discussion to analyse and answers the proposed research question shall

be presented in Section 5. Finally, Section 6 is the conclusion which summarizes the outcomes and implications of this study, as well as provides a roadmap for the future research.

2. THEORETICAL BACKGROUND

2.1 Negative Effect of Host Country Corruption on Foreign Direct Investment Inflows

Traditional stream of thought viewed corruption as “sand" in any economic machinery originally because it reduces the marginal product of capital and worsen the poverty in a country (Shleifer and Vishny, 1993; Mauro, 1995; Keefer and Knack, 1996; Gupta et al., 1998). In this context, corruption could increase the costs of MNEs because they must be involved in resource-wasting or rent seeking activities where time, efforts and resources are devoted in managing bribes (Applebaum and Katz, 1987; Romer, 1994; Leite and Weidmann, 1999). This creates the process of obtaining the licenses for MNEs and add extra costs or irregular taxes for foreign investors, and thus reducing investment profits (Tanzi, 1998).

Even though Rose-Ackerman (1997) claimed that foreign investors would involve in corruption and pay the highest bribe simply in the case they want to compromise the quality of goods if they get a license, in other words, corruption is the best way to award the license in host country. However, Meon and Sekkat (2005) argued that if the profitability of license is uncertain then it may create the "winner's curse" effect for foreign investors where winners of the auction may be the more optimistic rather than the most efficient. Additionally, foreign investors must bear additional contract-related risks since corruption contracts are not enforceable in courts (Boycko et al., 1995; Kwok and Tadesse, 2006). In such a way, corruption raises the costs of doing business and reduces incentives to invest aboard, hence foreign investors would divert their money to a safer investment location (Tanzi and Davoodi, 1997; Lambsdorff, 1999; Wei, 2000; Svensson and Fisman, 2000; Drabek and Payne, 2002). Consequently, corruption in host country acts as a "grabbing hand" and reduces the investment

profits, thus deters inward FDI (Kwok and Tadesse, 2006; Woo, 2010; Judge et al., 2011; Alemu, 2012).

Wei (2000) examined the effect of corruption on inward FDI stocks for 45 countries in 1989 and 1990 by using OLS cross-sectional regression, quasi fixed effects, and tobit estimation. The results found that corruption in host country is statistically significant and negatively affects FDI at a quantitatively large coefficient. The author also found that "an increase in the corruption level from that of Singapore to that of Mexico would have the same negative effect on inward FDI as raising the tax rate by fifty percentage points", emphasizing that corruption acts like tax on FDI by increasing the cost of doing business (Wei, 2000). However, it should be noted that the author's observations from this study are dominated by rich countries from OECD countries, and so the results could change if OECD countries were excluded from host country data.

Habib and Zurawicki (2002) analyzed the effect of corruption on inflow and outflow FDI with the use of cross-sectional analysis from three-year data (1996-1998) of 89 countries. By employing both OLS and probit regression models, the authors found that corruption deters the FDI in absolute terms. The paper also addressed the key implication from such result that foreign investors might be deterred to invest in highly corrupt countries because of the high transaction costs or the ethical reason, like they believe corruption is morally wrong (Habib and Zurawicki, 2002). Similar empirical results are confirmed by Zhao et al. (2003), and Voyer and Beamish (2004). Apparently, being one of the pioneers in the field to study this relationship cannot avoid some research limitation. Like Wei (2000)'s paper, the authors discovered the strong negative relationship between corruption and FDI, however this result could have been more robust or perhaps could be different if they had used panel data regression analysis rather than cross-sectional given the available three-year dataset.

A good example to demonstrate the limitation of both of the above papers is the work from Al-sadig (2009). By utilizing dataset of 117 countries between 1984 and 2004, the paper found a significant negative effect of corruption on FDI in OLS regression model, while the fixed effect of panel data regression analysis did not give any significant correlation. When Al-sadig tested the main effect using sample without OECD countries, the result, interestingly, identified a nearly significant positive relationship between corruption and FDI in fixed effect model. This represents a good initial direction for the research's empirical approach to study the proposed relationship.

2.2. Positive Effect of Host Country Corruption on Foreign Direct Investment Inflows

Although corruption is often seen as an unethical aspect, there is an interesting stream of thought which considers host country corruption as a lubricant in a sluggish economy. The early idea originated by Leff (1964) where he stated that corruption in fact, create a hedge against (or at least mitigate) other political risks in host country like expropriation or violence, and so investment will turn out less risky and may accordingly increase. The idea is then evolved and then proposed that in a case of rigid egalitarian regimes or monopolistic setting, corruption would facilitate transactions and speed up procedures, and so would "grease" the system as well as contribute toward Pareto optimality (Braguinsky, 1996; Rashid, 1981). For example, bribery can help both politicians and MNEs managers to gain their interests by convincing and offering the other party a balance to achieve their wealth maximization.

This would enable foreign investors flexibly and efficiently lessen the time spent in queues, or so-called "speed money" (Lui, 1985). Meon and Sekkat (2005) stated that "if some investment projects are dependent on the attribution of a license, corruption may be an efficient way of selecting such projects". In such a way, corruption could facilitate FDI volume because it acts as lubricant money that enables MNEs to avoid bureaucratic red tape and expedite

decision making process (Huntington, 1968; Elliot; 1997; Bardhan, 1997; Lui, 1985). Moreover, host country corruption could give MNEs the isomorphism or even comparative advantages over their rival local firms, also enhance their external legitimacies, resource availabilities, survival capabilities, thus attract FDI and act as “helping hand” (Zaheer and Mosakowski, 1997; Henisz, 2000; Rodriguez et al., 2005; Egger and Winner, 2005; Hopkin and Rodriguez-Pose, 2007). However, it should be noted that MNEs that pay the highest bribes may not necessarily be the most efficient firms but rather successful rent-seekers (Tanzi, 1998).

In contrast to the previous discussions where a negative relationship between corruption and FDI inflows was found, empirical evidences from Egger and Winner (2005) interestingly argued that corruption in host country is in fact, a stimulus for inward FDI. By employing panel data of 73 countries over the period of 1995 to 1999, the authors found a robust positive impact of corruption on FDI stocks in both short run and long run. There could be two reasons behind this contrast result compared to the previous empirical findings where the negative association is presented. First, the authors utilized the Hausman-Taylor model to overcome the potential endogeneity and unobserved heterogeneity bias in which cross-sectional OLS regressions from past studies cannot control for. Second, the limited number of observation problem due to either small country sample or lack of time dimension are avoided in this paper and perhaps, be the main reason behind this positive relationship. It should be highlighted that the unique implication here is that "in the presence of regulations and other administrative controls, corruption can act as a 'helping hand' to foster FDI" (Egger and Winner, 2005).

Cuervo-Cazurra (2008) by utilizing quasi-fixed effects from cross-sectional analysis of 74 countries in 1999, showed that although corruption negatively affects FDI inflows in general, but in transition economies the relationship represents a positive effect between corruption and FDI. This does not reflect that foreign investors do not care about corruption

level in transition economies, but they prefer to deal with the unknown cost (arbitrary corruption) rather than the known one (pervasive corruption), in other words, depending on their perceptions on different types of corruption. Nevertheless, there are some limitations here such as the author assumed the degree of homogeneity within investors from the same country. It should be noted that the author's earlier study also tested similar effect and discovered that host country corruption could lead to higher FDI inflows if there was a high level of corruption in the home country. Particularly, foreign investors who have been exposed to corruption at home may not be deterred by corruption abroad, but instead seek countries where corruption are prevalent, and so the relationship may depend on the country of origin of FDI (Cuervo-Cazurra, 2006).

Overall, the above discussion about the effect of host country corruption on FDI inflows suggest the mixed results from past studies (both negative and positive effects). Whether corruption is grease or sand in the wheels of foreign investment volume, it is therefore an empirical matter in which shall be addressed in this paper using up-to-date dataset and covering the proposed limitations. Thus:

Hypothesis 1.

Host country corruption will positively affect FDI inflow.

2.3 Middle-Class Growth as Moderating Factor in the Corruption and FDI Inflows relationship

2.3.1 The rise of Global Middle-Class

Before continuing further discussion on the relationship between corruption and FDI inflows, the paper, for now, shall consider an interesting aspect of nonmarket forces, global middle class, and later will explain how this variable related to the current study. The world has witnessed the two great expansions of the middle-class since 1800, with the first in the 19th

century where the Industrial Revolution created the substantial middle-class in Western Europe and the US, and the second right after the World War II in Europe, North America and Japan (EY, 2013). Today, for the third time, the surge in middle-class growth is happening once again with all eyes are turning to Asia, especially emerging middle-class economies like China, India (Kharas, 2010). Interestingly, one the early study on the topic of middle-class is Milanovic and Yitzhaki (2002) where they observed the global trend of middle-class at the time, with Asia being the most heterogenous continent, Latin America inequalities were large, while Europe and North America were fairly homogeneous. Nevertheless, this paper was written in 2002, the context could have changed ever since, and it would be useful to update the understanding of middle-class given its recent rise.

The global middle-class is relatively defined as those households with daily expenditures between $10 and $100 per person in purchasing power parity (PPP) terms, excluding those who are considered poor in the poorest countries and those who are considered rich in the richest advanced countries (Kharas, 2010). There is no direct measurement of the global middle-class, instead scholars tend to use different indirect approaches of measuring perceptions of such variable which shall be summarized in table 1.

[Insert Table 1]

In order to understand the importance of middle-class growth (MCG), Milanovic (2016a; 2016b) presented the global incidence curve or so-called the “elephant” curve (figure 1) to illustrate the cumulative change in real income growth between 1988 and 2008 at various percentiles of the global income distribution. The winners were the middle classes in emerging economies such as China, Vietnam, Thailand and India; and the global top 1% of the very rich from countries like Brazil, Russia and South Africa. The losers were lower earners in the very poor countries like sub-Saharan Africa where incomes remained almost unchanged over the 20-year period; the losers also include lower middle classes citizens of the rich countries like

US and UK where incomes had become stagnant, plus much of the population of former communist countries (Milanovic, 2016a; 2016b).

[Insert Figure 1]

This bold curve led to the waves of mixed opinions to discuss whether the growth of the Asian (or more generally global) middle class related to (if not impoverished) the income stagnation of the Western middle classes. Lakner and Milanovic (2013) and Milanovic (2016a) proposed the import roles, offshoring and foreign outsourcing from Asia (where benefited from the neoliberal policies of globalization) as the main reasons behind this paradoxical situation where decreasing global inequality would be the price the world pay for rising national inequalities in the rich countries. This could be the premise behind the recent revenge of the forgotten across the world (or losers of globalization) like the Brexiteers, Trump supporters, and the rise of recent nationalism (BBC, 2016; The Economist, 2016). Nevertheless, there are critics who "shoot" down this elephant (curve), by arguing that the comparison of people in 20 year-bracket from the fall of the Berlin Wall to the fall of the Lehman Brothers would not be appropriate because they may not be the same people, not belong to the same class, or perhaps not even belong to the same country (The Economist, 2016).

The research shall not go further into this discussion, but rather use this as the background of the study to demonstrate the important change in the global income distribution shape, and thus discuss on the fast rise of the global middle-class as moderating variable of the main effect between corruption and FDI inflows. Although the moderation effect of middle-class has not yet been studied in the past, the paper shall try to incorporate this emerging global theme into the research and hope to narrow down the existing literature gap. The next sections shall provide theoretical explanations for the potential two effects of MCG on corruption and FDI relationship.

*2.3.2 **Moderation Effect - Demand-side**: Consumption Spending Power*

According to Kharas (2017), there were about 3.2 billion people in the middle-class at the end of 2016, 140 million more are joining annually and this number could go up to 170 million in five years' time. The author also emphasized that its rapid expansion attributes 4 percent growth in real terms in which makes the global middle-class increase at a faster rate than global GDP growth of 3.4 percent (Kharas, 2017; IMF, 2016). Figure 2 illustrates the regional shifts in global middle-class with the fast-growing emerging Asia Pacific versus the stagnated Europe and North America middle-class. Moreover, the consumption spending of global middle-class in figure 3 predicts an increasing spending power in the emerging market, with the next big global consumers (or the sweet spots) are going be markets like Philippines, Vietnam, or Pakistan (EY, 2013). While the strong middle-class can drive per capita income and promise huge buying powers, MCG would offer tremendous opportunities to MNEs on the demand-side and attract the potential foreign investments (Easterly, 2001; Kharas, 2010; EY, 2013; Bank of America Merrill Lynch, 2016; Kharas, 2017).

[Insert Figure 2]

[Insert Figure 3]

Given the importance of MCG on the demand-side of MNEs and its potential opportunity for FDI, it would be appropriate to consider MCG as the moderating factor for the effect of host country corruption on FDI inflows. Specifically, the increasing in global middle-class consumption spending powers would motivate firms' international market entry decisions with the hope for substantial growth in sales and profits. Moreover, since middle-class consumers are willing to pay a little extra for quality as encouragements for product differentiation (Murphy et al., 1989), these purchasing habits should signal MNEs for FDI inflows despite the uncertainty about corruption level in the host country. It can also be that the benefits of unlocking these potential MCG spending powers are higher for MNEs than the

costs of staying in the market knowing uncertainty about level of host country corruption, therefore MNEs still stay in the market and invest in production and marketing of new goods. Nevertheless, these are only the demand-side reasons for MNEs to penetrate the proposed foreign market. It would be useful to also consider MCG on the supply-side for MNEs to see the moderation effect.

*2.3.3 **Moderation Effect - Supply-side**: Local Competition*

It is proposed that middle-class tends to consume or invest in education for a better human capital accumulation, enhancing productivity, signalling social trust, greater occupational prestige and autonomy, and apparently, increasing their income levels (OECD, 2016; Gould and Hijzen, 2016; Burrows, 2015; Pressman, 2007; Brown and Hunter, 2004). For instance, figure 4 indicates the strong association between education and earnings, where people in top income quintile tend to have higher levels of education (Brookings, 2015). At the same time, by investing in advanced education, middle-class economies would produce more white-collar professionals for their own local markets. They are intellectual, educated, self-sufficient and skilled, so local markets can eliminate resource constraint problems and increase local competition (OECD, 2016; Lin and Sun, 2010). Therefore, MNEs who are looking for growth in such emerging MCG markets must consider their abilities to compete with the local competition (EY, 2016b).

[Insert Figure 4]

In the case MNEs cannot compete with local competition, they must then change the existing FDIs to other modes of entry or exit from such markets. For example, Nestlé in 2015 cut 15 percent of its workforce across 21 African countries because Nestlé overestimated the MCG in Sub-Saharan markets which were dominated by family businesses broadly thriving on local know-how (FT, 2015). Challenging local competition with aggressive local players are

also applied with the case of Coca-Cola and PepsiCo in China rural areas in 2010, where their direct local rival Hangzhou Wahaha built a $5.2 billion business against these MNEs, filled product gaps, met local needs, kept the costs low, and appealing to patriotism (McKinsey, 2010). Therefore, foreign investors who see such local competition as a threat to penetrate the MCG markets could reduce their FDI inflows.

The supply-side of MCG moderation effect can fully be integrated by adding the element of corruption into the discussion. There are two potential scenarios arising:

- ***Scenario 1: Complicit***

In the case that the emerging middle-class people are complicit (or are the same with) the corrupted bureaucracies in a local market, some form of sophisticated acts of corruption (or so-called creative corruption) should arrive. According to Monbiot (2015), "when the system already belongs to the elite, bribes are superfluous". It can be that in a country with highly educated and corrupted middle-class people, MNEs are more difficult to penetrate due to difficulties to reach good deals of investments. If the global organizations are looking for growth in such emerging and yet corrupted markets, the first step they must take is to consider their opportunity and risk profiles (EY, 2016b), or economically speaking, if their expected costs (local competition, time, efforts, reputation risking of dealing with sophisticated corruption) are larger than their expected benefits of staying and dealing with the host country corruption, MNEs would not penetrate as they do not get their deserved profits, hence they would reduce FDI inflows from such markets.

- ***Scenario 2: Not Complicit***

This case is applying for the emerging middle-class people who are <u>not complicit</u> (or are different from) the corrupted bureaucracies in a local market. It is proposed that middle-class' abilities to influence public policies have diminished because policy makers are more responsive to affluent constituents (i.e. the top 1% in the Branko Milanovic's "elephant" curve)

whose preferences differ considerably from the majority (OECD, 2016; Page et al., 2013; Bartels, 2009). In other words, local corrupted government does not care about the interests of the intellectual and educated white-collar professionals from MCG, but rather be manipulated and do anything to maximize interests of themselves and of those 1% top global population (who wish to be even richer by reducing MCG size), says imposing nationalism policies to shoot down the elephant globalization. It is suggested that anti-immigration and anti-globalization views can arise as the shrinking of middle class, creating disillusionment and damages political engagement, also turning voters towards protectionist policies (OECD, 2016; Stiglitz, 2012; Bettiza, 2010). This can deter to foreign investors in such corrupt and emerging economies, and thus a reduction in inward FDI is expected.

Both of these scenarios lead to the decrease in FDI inflows given the dynamic interactions between corruptions and MCG. Overall, it seems that the supply-side (location competition) argument of MCG moderation effect is more realistic than the demand-side (consumption spending power). Given the research objectives and the above discussion, it is therefore proposed that:

Hypothesis 2.

Given a rise in MCG, corruption of host country will negatively affect FDI inflow.

3. METHODOLOGY

3.1. Data

To test the proposed hypotheses, this paper employs secondary data from public domains like the World Bank and the Transparency International database which should raise no issues around the validity and reliability of the dataset (Appendix 1). While the World Bank source is employed to specify relevant macroeconomic variables of the research like FDI inflows, GDP, etc., the Transparency International Index is selected to offer the most comprehensive information related to the degree of corruption perceptions as seen by business people, risk analysts, and public though different years at country-level (Javorcik and Wei, 2009). Combining a sample size of 110 countries across the world for an up-to-date tenure of three-year-span from 2013 to 2015, the cross-country panel dataset has the total number of observations N=330.

3.2. Variables Specification

Given that this paper empirically investigates the effect of corruption on FDI inflows depending on the conditional factor of MCG, the *dependent variable* here is FDI inflow (**fdi**), while *independent variable* is corruption (**cpi**), and middle-class growth (**mcg**) is the *moderating variable* of the main effect. The following determinants of FDI inflow i.e. inflation (**inf**), population (**pop**), and GDP (**gdp**), shall be used as the *control variables* of the study.

Scholars suggested that high rates of inflation (**inf**) in the domestic country can diminish sales and signal an instable economy where the host government lack of capacity to impose an adequate monetary policy, thus deterring FDI as it creates additional uncertainties for net present value of long term investments (Arbelaez and Ruiz, 2013; Elfakhani and Mulama, 2011; Kahai, 2004; Trevino and Mixon, 2004; Asiedu, 2003). Empirical evidences had also

confirmed with the idea where inflation discourages FDI inflows. Using panel data analysis of 84 countries from 1970 to 1999, Li and Liu (2005) found that inflation is statistically significant and negatively affects inward FDI in developing countries.

Another factor that had also been identified from previous studies is the size of host economy measured by population (**pop**). A large market size reflects potential local market demand and provides reasonable scope to attract market-seeking FDI (Kobrin, 1976; Dunning, 1993; Franco et al., 2008). Past findings suggested that market size of the host nations measured by population is positively associated with the levels of FDI inflows (Culem, 1988; Wei 2000; Habib and Zurawicki, 2002; Konwufine, 2004; Janicki and Wunava, 2004; Al-Sadiq 2009).

Finally, Gross Domestic Product (**gdp**) is the classic reason for determining FDI decision. High GDP in the host country indicates potential consumption and ensures demand for output of local market-oriented FDI (Kobrin, 1976; Grosse and Trevino, 1996; Habib and Zurawicki, 2002). Empirical evidences supported the idea that host country's GDP is positively significant to FDI (Nigh, 1986; Trevino et al., 2002; Zhang, 2009; Pillai and Rao, 2013). Akpan et al. (2014) employed panel data analysis between 2001 and 2011 to examine the determinants of FDI inflows in BRICS countries (Brazil, Russia, India, China, South Africa) and MINT countries (Mexico, Indonesia, Nigeria, Turkey), and they found that GDP of host nations has significantly positive effect toward FDI inflows for both BRICS and MINT countries.

There is an assumption here that the research adopts the Eclectic (OLI) Paradigm as an initial theoretical platform and focuses on characteristics of FDI location or host country characteristics, ceteris paribus, as the key drivers of FDI inflows in this paper. Dunning (1981; 1988; 1993; 2000; 2004; 2006) suggested that MNEs must be *Ownership*, *Location*, and *Internalization* advantages for their FDIs to be beneficial. Since most foreign investors who expand their production internationally possess certain *Ownership* advantages and

Internalization advantages, the important remaining factor in deciding FDI are *Location* advantages of the host countries in which its explanation is not limited to firm but also country specific level, like why certain locations attract more FDI than others (Stefanovic, 2008). Given this assumption and the variable specification, empirical model can now be constructed to address the research question.

3.3. Method

3.3.1 Moderation Analysis

Given the research objectives, this paper shall utilize the moderation analysis. The key relationship to test here the effect of CPI (X) on FDI (Y) depending on the moderating effect of MCG (M). Under the light of moderation, Andrew Hayes (2013:8) proposes a comprehensive definition of this M variable: "When the goal is to uncover the boundary conditions for an association between two variables, moderation analysis is used. An association between two variables X and Y is said to be moderated when its size or sign depends on a third variable or set of variables M". Particularly, under what conditions of M does X lead to Y? The nature of this theoretical model is originally delivered from earlier works of Baron and Kenny (1986), James and Brett (1984), and Judd and Kenny (1981) on moderation and mediation model testing.

Under the light of this study, H1 proposed that CPI negatively affects FDI, while H2 suggested that CPI positively affects FDI given the rise in MCG. Specifically, the MCG as moderating variable would play an essential role in changing the relationship between corruption and FDI in terms of sign and size. To quantify the effect of MCG in multiple regression analyses (which shall be addressed in detail in 3.4.2), the interaction term (CPI*MCG) shall be added to represent the interaction between CPI and MCG. Thus, the initial linear regressions for moderation analysis shall be represented in the following table 2 for better

visual illustration. From table 2, the regression function (1), (2), (3) shall be incorporated later in the regression analysis. Here, α is the constant of the equation; β1, β2, β3 are slope coefficients; and ε is the random error term or noise term.

[Insert Table 2]

3.3.2 Regression Analysis

Regression analysis refers to statistical approaches for investigating and establishing relationships between variables (Sykes, 1993). Given the research objective of empirically examining the effect of corruption on FDI inflows given MCG, it is essential to test the relationship between FDI inflow and its determinants using different regression models like Pooled Ordinary Least Squares (pooled OLS), Fixed Effect Model (FE), and Random Effect Model (RE) are chosen. All these models shall be constructed on the function of $FDI = f(CPI, MCG, CPIxMCG, INF, POP, GDP)$.

These models are chosen for the study because of the nature of panel data set, however each model has its own pros and cons. While running multiple regression using OLS is a common approach to estimate the effect of corruption on FDI in the past literature, but its biggest disadvantage remains with not considering the time and space dimension and so the results could be unrealistic, and coefficient estimators may be biased (Stock and Watson, 2012). Compare to OLS, FE and RE have the advantages over this problem. But FE uses up too many degrees of freedom by adding dummy variables for each cross-section, which leaves RE's results relatively be the most efficient compared to the other two (Wooldridge, 2011).

To get the most robust results, the paper decides to first select the models (OLE, FE, RE) and tests whether the respective model is subject to heteroskedasticity or/and autocorrelation, then has correlation method accordingly. The research's detailed strategy of

estimation process can be summarized as follow in figure 5. The paper can then use the final results for interpreting coefficients of each model which shall be addressed in the next chapter.

[Insert Figure 5]

Having produced the dataset and research methodology, the next section can now present and discuss the results that were performed by the regression analysis. Note that the paper employs Stata MP (v13) to perform the analysis on the collected data and to provide meaningful research outcomes.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Given the below table 3, the descriptive statistics of all variables that have been used in the study are be summarised for a better understanding of the dataset. The three years data from 2013 to 2015 for 110 countries create the total number of observations of 330 i.e. N=330. From the table, it is observed that the standard deviation of all the variables is much more than the mean value of each variable. This indicates a vast range of data series for that particular variable and rightly so for the case of cross-country data. Additionally, it reflects the two extremes of developed countries and under developed countries.

[Insert Table 3]

It should be highlighted that with the lowest negative *Foreign Direct Investment (FDI) inflow* in the world in 2013, Belgium's inward direct investment represents the unique example where its divestment is greater than its investment. In contrast, Netherlands is the country with highest recipient for FDI inflow in the world in 2013 where it attracts recorded source of more than $328 billion. Figure 6 can illustrate the top 10 and bottom 10 countries from the dataset according to their FDI inflows from 2013 to 2015.

For the case of *Corruption Perception Index (CPI)*, the values are limited for a range from 0 (highly corrupt) to 100 (very clean). Here, the standard deviation of corruption variable is below its mean, with the highest corruption index of 8 (Afghanistan in 2013), and the lowest corruption index of 92 (Denmark in 2014). The figure 7 can illustrate the top 10 and bottom 10 countries from the dataset according to their CPI from 2013 to 2015.

Unsurprisingly, the highest GDP performance in the world goes to China with 11.06 trillion dollars in 2015 and the lowest one from the dataset belongs to Sao Tome and Principe in 2013 with about 300 million dollars. These statistics are proportional to the population of these countries. So, China with the biggest market size in the world would certainly achieve the highest GDP, and the opposite is the same with Sao Tome and Principe.

[Insert Figure 6]

[Insert Figure 7]

4.2 Correlation Results

The correlation matrix is presented in table 4 where it reports Pearson correlation coefficients and refers to measure the bivariate correlation, or linear correlation between two variables. The results here find that the highest correlation has been found to be between POP and GDP (0.7014); follows by FDI and GDP (0.6844); and closely by CPI and FDI variables (0.2190). It is observed that CPI has a significant positive association with FDI at 10% level, while MCG negatively relates to FDI and also significant at 10% level. This suggests that corruption facilitates FDI in bivariate form and the high middle-class growth countries tend to receive less FDI. In contrast, the lowest and negative correlation has been found amongst INF and FDI but is not significant.

[Insert Table 4]

Moreover, the correlation matrix can help to detect multicollinearity between independent variables. If two independent variables are highly correlated, it results in the multicollinearity problem and potentially causes regression model to assign a statistically insignificant parameter estimate to an important independent variable. It should be noted that most of the independent variables (except INF) are strongly correlated to the dependent variable FDI and this indicates the presence of multicollinearity here.

Nevertheless, as suggested by Gujarati (2004:359) that if these correlations are relatively low (between 0.5 and 0.8) then the presence of multicollinearity here would not create a serious problem. Moreover, past studies like Cuervo-Cazurra (2008) had also found (a rather high) presence of multicollinearity among independent variables and thus the probability of type II error is large, but did not distort their standard errors of the estimations. Therefore, the multicollinearity problem here would not be treated as prioritize for now.

4.3 Estimation Results

For estimation results, the paper constructs five different models from Model 1 to Model 5. Each model has sub-model a or b with model a is the results without control for heteroskedasticity and autocorrelation coefficient, while model b is the one after being controlled. The focus shall be highly on model b of each model from 1 to 5. After going through the estimation process and carefully selecting models to generate the best model results, the study utilizes the Random Effect Models (RE) across all models except for model 4 with the use of the Fixed Effect Model (FE). These estimation results of different regression models are summarized in table 5 and shall be discussed in detail in section 4.4.

Table 5 provides the results for estimating FDI inflows through the different proposed models according to the selected set of FDI determinants. The study estimates an equation

(column 1a/b first), and then subsequently incorporates columns 2a/b through 3a/b. Given the full model of Model 3a/b did not get the significant interaction between *mcg* and *cpi,* the paper proposes to divide the sample of *mcg* into *high mcg* (Model 4a/b) and *low mcg* (Model 5a/b) according to its median in order to compare the coefficients of *cpi* in these two regressions.

[Insert Table 5]

4.4 Analysis and Discussion

To analyze the results from table 5, let's recall the hypotheses tested.

Hypothesis 1.
Corruption of host country will positively affect FDI inflow.

In order to test the hypothesis 1, model 1 regresses FDI against CPI and controlling for INF, POP, GDP. The model was estimated by selecting the Random Effect (RE) panel data analysis. It should be noted that given the RE models and the existing macroeconomic variables in which include time lag in nature, there is no need to include year dummies for these models. Before correcting for heteroskedasticity and autocorrelation problem, model 1a indicates a statistically significant at 5% level with positive coefficient for the relationship between corruption on FDI inflow.

However, this effect is no longer significant when the model corrects for heteroskedasticity and autocorrelation problem. Nevertheless, it can be argued that 5% level is not 1% significant level. So given the same R-square of 0.49, the model accounts for nearly 50% of the variance which indicates relatively good fit. For one-unit increase in corruption level, FDI inflow will increase by 29% for both model 1a and 1b. Hence, corruption of host country will facilitate the FDI inflow although it is not statistically significant. Therefore, the hypothesis 1 is supported. This finding is in line with the literature where corruption in host

country is considered to "grease" the system and "helping hand" to attract for foreign investment. The positive result, although not statistically significant, confirms the empirical findings from Egger and Winner (2005) and Cuervo-Cazurra (2006).

Similarly, model 2 even though adding extra MCG variable into the regression, before correcting for heteroskedasticity and autocorrelation problem, the result is pretty much the same with model 1a, however once again it changes in 1b for corrections. Also, population and GDP are positively significant with FDI inflows. The rationale to run model 2 is addressed in the moderation analysis discussion, in which opens up a way for interaction term in model 3.

Hypothesis 2.

Given a rise in MCG, corruption of host country will negatively affect FDI inflow.

To test the moderation effect of MCG within the interaction between corruption and FDI (hypothesis 2), model 3 added the interaction term of CPI*MCG. A similar story happened again under model 3b where the significance of corruption disappears after model 3a. However, there are an interesting finding in model 3b where the moderator variable CPI*MCG has the negative sign. It can be interpreted that for additional growth rate in MCG, FDI inflows in corrupt country will reduce by nearly 38%. Although it is not statistically significant, this still supports the hypothesis 2. Since the interaction between MCG and CPI is not significant, the paper divided the sample of MCG according to the median, to test separately the moderation effect under high MCG countries and low MCG countries.

Interestingly, the results in model 4 and 5 are quite robustness and yield the unique finding for this research. Noted that model 4 is Fixed Effect (FE) model. The results indicated that there exists a significant negative correlation (at 1% level) between the corruption and FDI inflows if the host country is one of the high middle-class growth countries. The result is robust across both model 4a and 4b. So for an additional growth in high MCG group in the corrupt

country, FDI will be deterred by 57%, and the result is statistically significant at 1% level. The low middle-class growth countries in model 5 are also contributing similar results but just less significant.

This, once again, supports the hypothesis 2 where given a rise in MCG, corruption of host country will negatively affect FDI inflow. The rationale behind this result is explained by the supply-side or local competition of the moderation effect that was discussed in the literature review. The potential two scenarios of either complicit and not complicit relationship between the corrupted bureaucracies and the middle-class professionals are the reasons behind the reduction in FDI inflows in such context. This hints the potential dynamic interactions among the three parties of corrupted bureaucracies, middle-class professionals, and the foreign investors given the increasing in local competition. It could mean that the strong local competition cancels out the effect of global MCG purchasing power (demand-side) which deter MNEs from penetrating these corrupted markets. However, the supply-side explanation of strong local competition seems to be more realistic and backed by real life examples of MNEs that were discussed in the literature review. This finding empowers MNEs' current emerging understandings (or could be misguided belief or illusions) on the real power of global middle-class and so this requires rational in-depth knowledge about local competition before making any strategic investment decisions. One may wonder now as MNEs turn their backs on the global middle-class, would they join those 1% in the Milanovic's curve to "shoot down the elephant"! All of this, perhaps, could just had been another classic evidence of Barber and Odean (2000)'s about "the courage of misguided convictions" driven by foreign investors' irrational decisions.

5. CONCLUSION

In conclusion, this paper investigated the relationship between corruption and FDI inflows depending on the MCG, by using panel-data analysis with 110 countries over the period of three years from 2013 to 2015. Prominently, the study has met all of its objectives and has answered the research question on the relationship between FDI and corruption, as well as has contributed the middle class as a moderating variable as a brand-new aspect toward the existing literature.

An extensive review was conducted, and a fair critique of the previous academic theories was carried out to access the literature context. A new theoretical framework is contributed into the significance of this paper where it proposed middle-class moderation effect from the supply-side local competition (with the complicit and not complicit scenarios) aside from the purchasing power demand-side.

Detailed regression analysis with the use of moderation effect is also another strength of this paper. Interestingly, the results from this study found a positive relationship between corruption and inward FDI, in other words, corruption in host country facilitates FDI inflows. However, there exists a significant negative correlation between the two abovementioned variables if the host country is one of the high middle-class growth countries. The robust results indicated that there exists a significant negative correlation (at 1% level) between the corruption and FDI inflows if the host country is one of the high middle-class growth countries. Meaningful and realistic implications and suggestions for foreign investors under these markets are also addressed.

Given the time and scope of the research, it could have been more fulfilled if there are no coefficient inconsistencies in the regression models. The potential reasons could be due to the dataset which future research can incorporate any firm's or industry's data level, to reduce the missing information in error terms. Moreover, it would be interesting to empirically test the

effect of local competition on these dynamic models between corruption, FDI inflows, and middle-class growth. This opens up the new direction for the future of research and shape the modern world.

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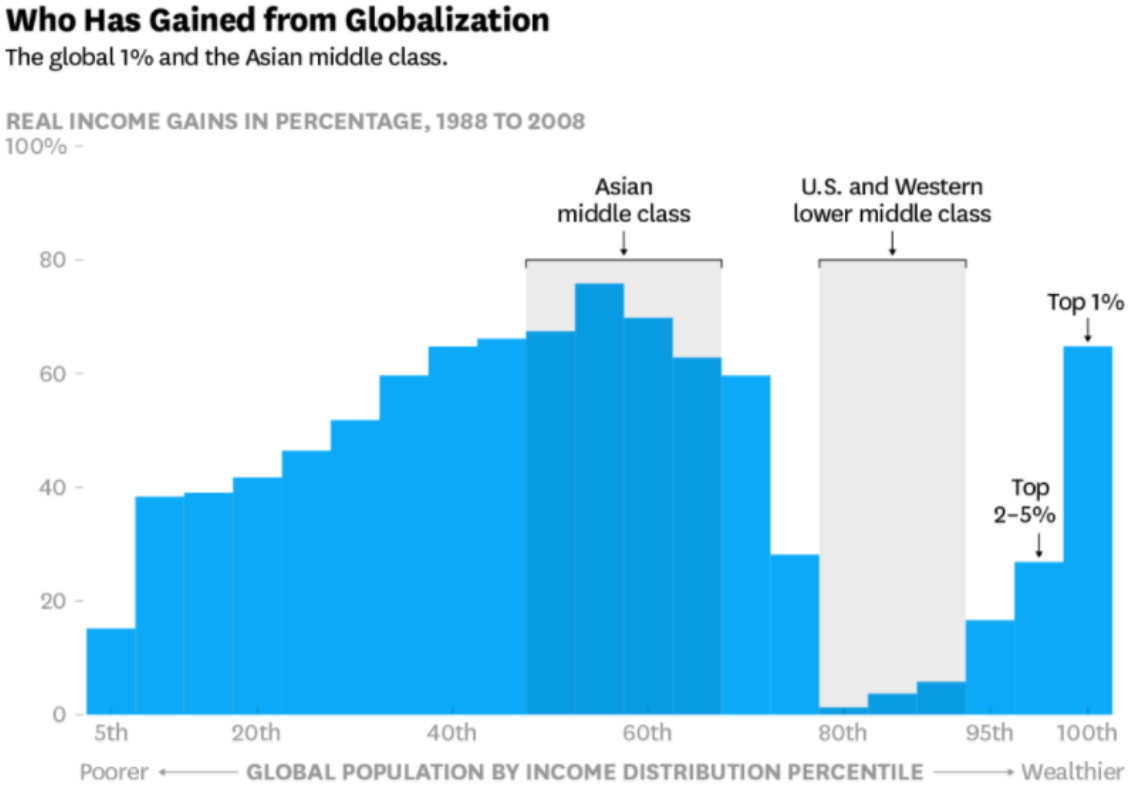
APPENDICES

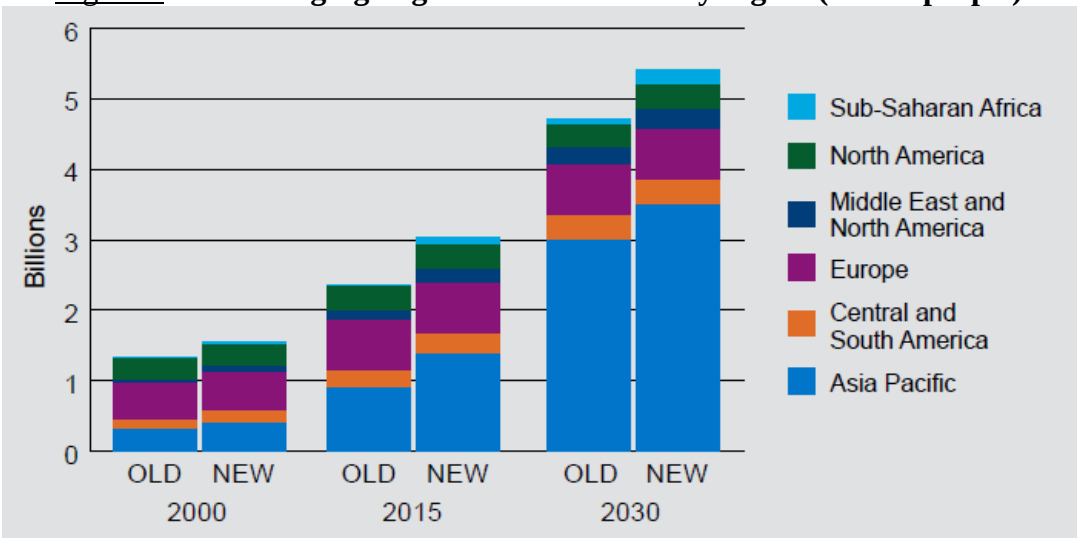
List of Figures:

Figure 1. **Globalization as an "Elephant" Curve**



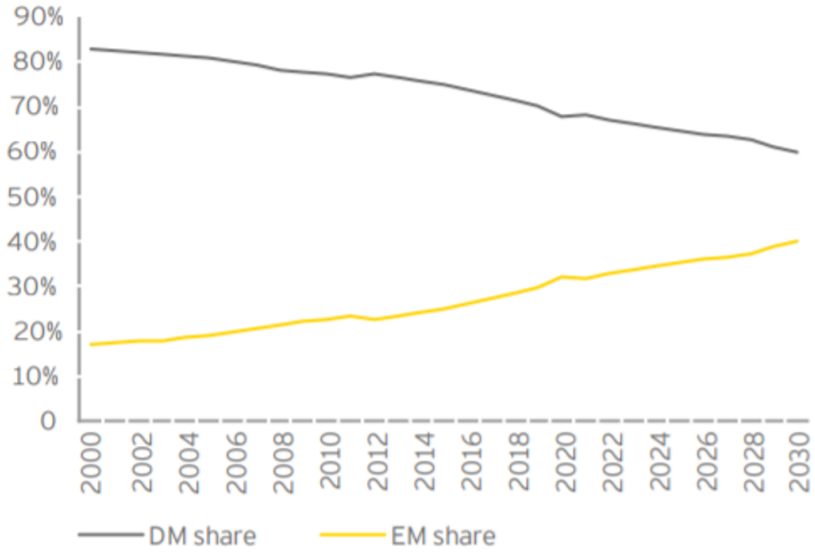
Source: Milanovic (2016a).

Figure 2. **The emerging of global middle-class by region (billion people)**



Source: Kharas (2017)

Figure 3. **Projected consumption spending of middle-class in Developed Market (DM) and Emerging Market (EM)**

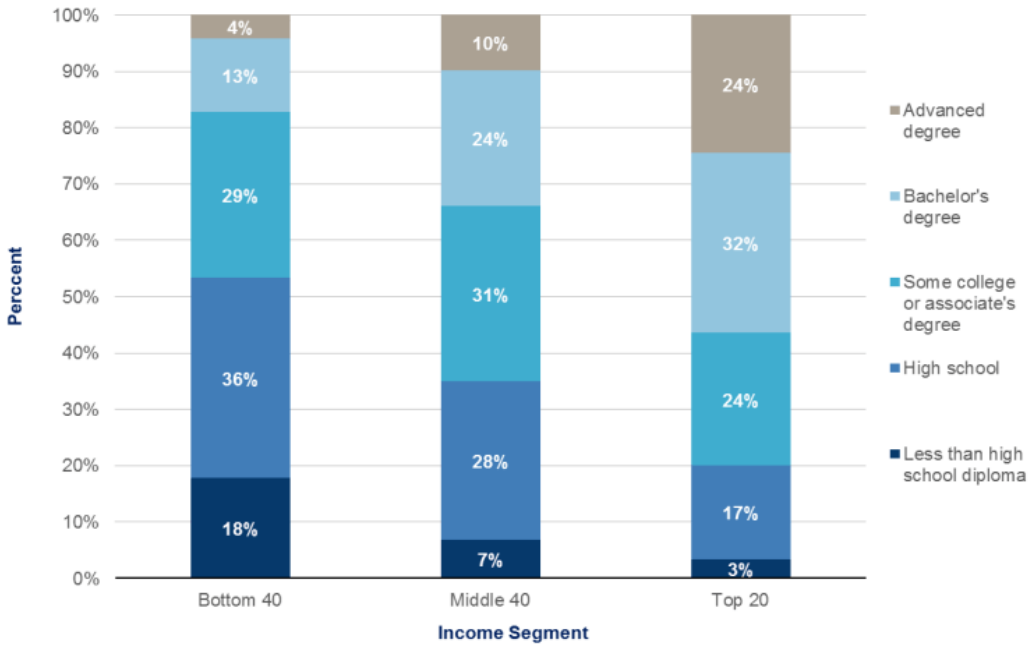


When will the EM countries hit their sweet spots? (projected)

Country	Year
Egypt	2011
Indonesia	2015
India	2017
Philippines	2019
Vietnam	2019
Pakistan	2024
Nigeria	2025
Bangladesh	2029

Source: EY (2013)

Figure 4. **Educational Attainment of Global Middle-Class in 2004-2006**



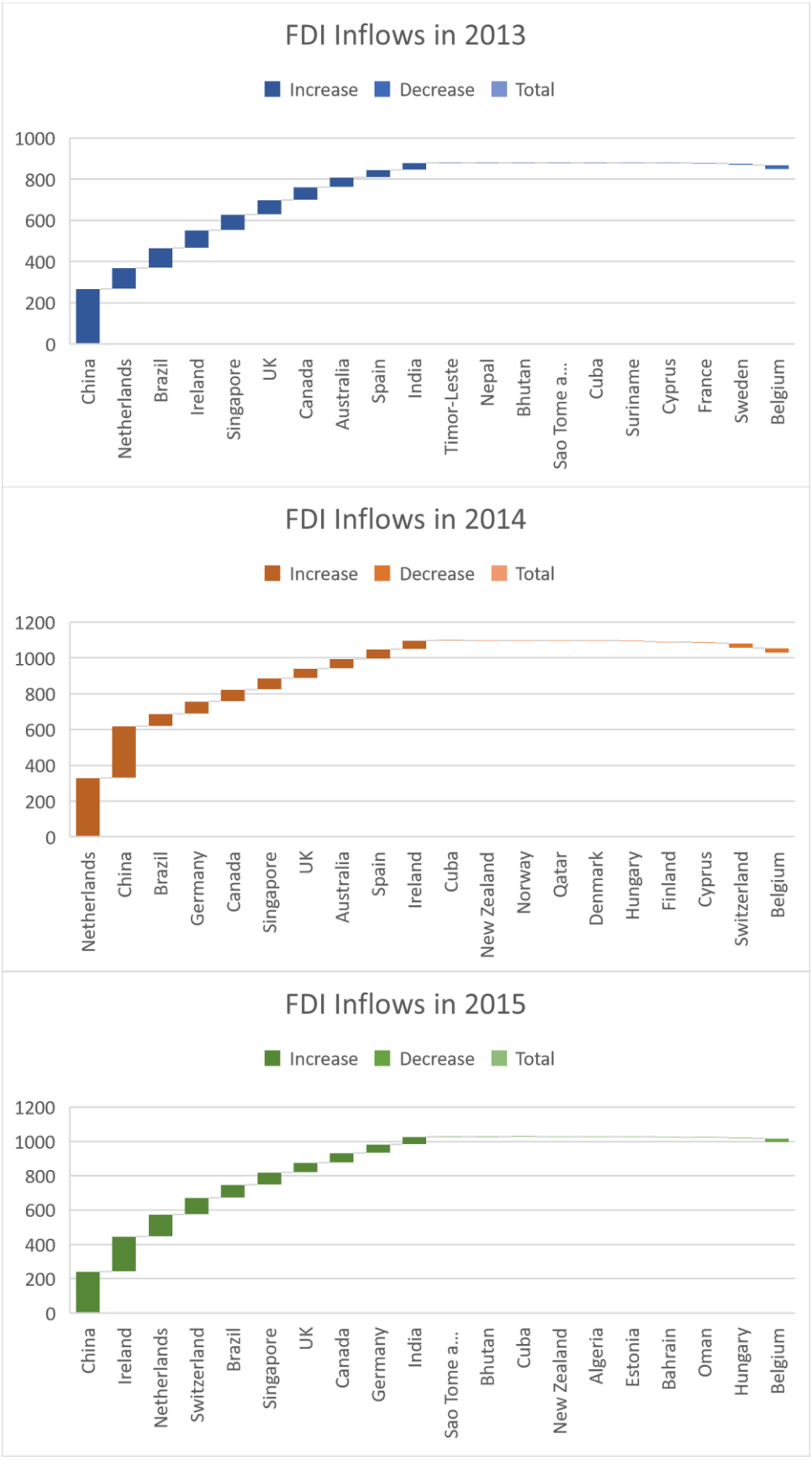
Source: Brookings (2015)

Figure 5. **Detailed Strategy of Estimation Process**

- To choose between OLS, FE, or RE:
  - Use F-test to choose between OLS and FE, if p_value is smaller than 0.05 then choose FE
  - Use Breusch Pagan test to choose between RE and OLS, if p_value is smaller than 0.05 then choose RE
  - Use Hausman test to choose between RE and FE, if p_value is smaller than 0.05 then choose FE
- To test whether there are problems of heteroskedasticity or/and autocorrelation:
  - After having decided the model to estimate the regression using the above three tests, proceed to test whether there are problems of heteroskedasticity or/and autocorrelation
  - Use Wald test to check for heteroskedasticity, if p_value is smaller than 0.05 then there is heteroskedasticity
  - Use Woolridge test to check for autocorrelation, if p_value is smaller than 0.05 then there is autocorrelation
- To correct for these problems:
  - If there is heteroskedasticity, use robust option in Stata to choose White robust standard error option to control for heteroskedasticity
  - If there is autocorrelation, use Woolridge to control for autocorrelation
  - If there are both heteroskedasticity and autocorrelation, choose cluster option to control for both

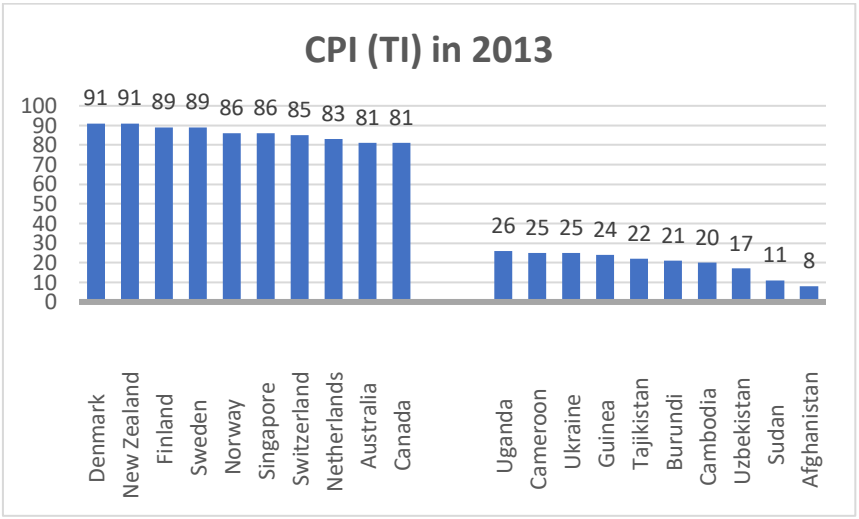
Sources: Adaption of Wooldridge (2011) and Stock and Watson (2012).

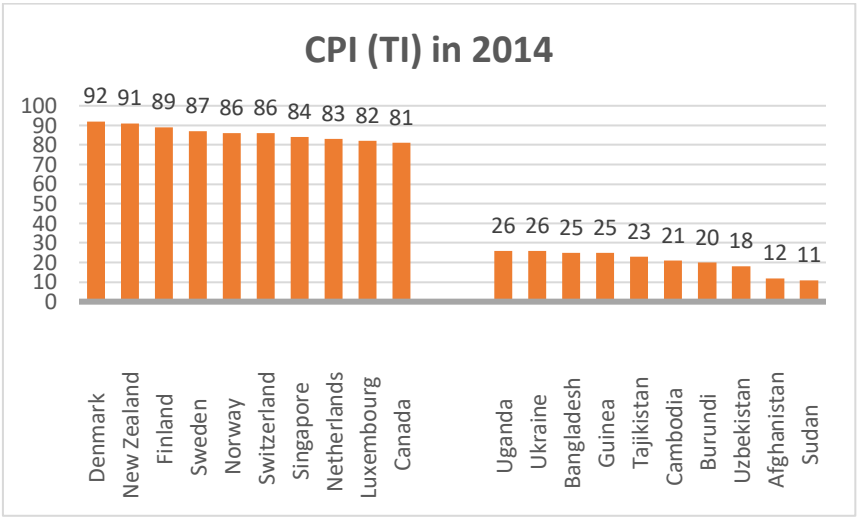
Figure 6. **Top 10 and Bottom 10 countries according to FDI inflows (2013-2015)**

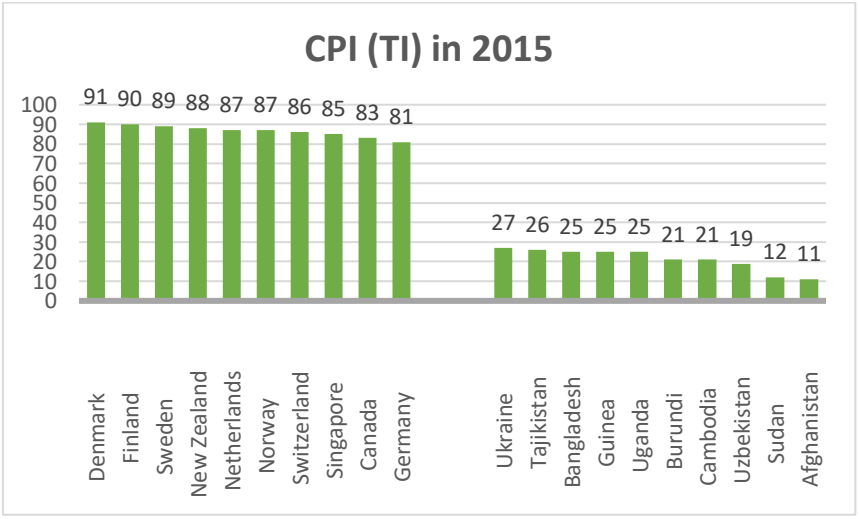


Source: The World Bank (2017)

Figure 7. **Top 10 and Bottom 10 countries according to corruption index (2013-2015)**







Source: Transparency International (2017)

List of Tables:

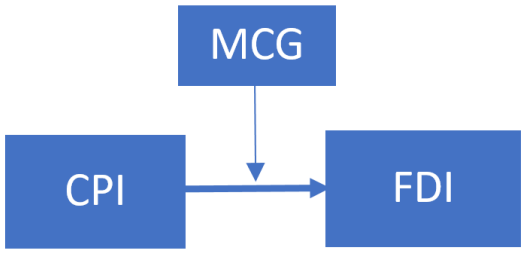
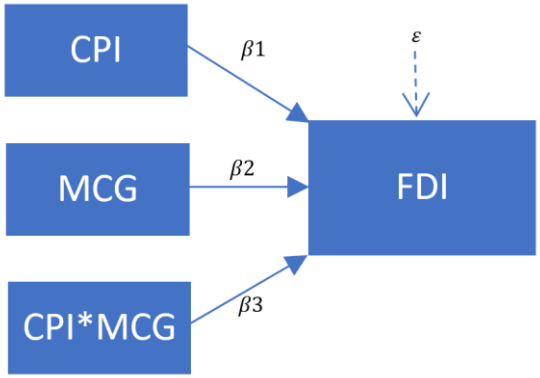
Table 1. **List of approaches to measure Global Middle-Class Growth.**

No.	*Source*	*Measure*	*Limitation*
1	Slocum and Mathews, 1970	-Use income level to measure social class in the study of consumer credit behaviour	-Simplify the distribution of income across countries
2	Quah, 2002	-Use cross-country distribution of income to graph the "twin peaks" in global income	-Neglect country size and intra-country income distribution
3	Sala-i-Martin, 2002	-Combine micro household survey data with macro data to derive the global distribution of income -Estimate a kernel density function for each country from available income share data and use this to derive estimates of each individual's income	-Unrealistic as this exercise requires, in principle, knowledge of the income level of every person in a common currency
4	Milanovic, 2009	-Use population weights to estimate international inequality -Consider welfare implications from its changes	-Assume international inequality is global inequality -But in fact, the former refers to population weighted changes in the distribution of mean country per capita incomes, and it tries to position every individual in the world on the same scale -Do not concern within country inequality
5	Kharas, 2010	-Advance step of Sala-i-Martin (2002), combine micro household survey data with macro data -Estimate of the size of the middle class for 145 countries, account for 98 percent of the world's population and 99 percent of its GDP -These countries have both household surveys, from which household income distribution can be measured, and national income accounts from which total household consumption expenditures can be measured	-Household surveys for 14 small countries are not available and so author assigns the same income distribution to these countries as the mean for the surrounding region which may not be accurate

6	Atkinson and Brandolini, 2013	-Take into account the homogeneous middle phenomenon of Palma (2011) -Propose middle-class growth in most countries is a function of growth in incomes and in population and not due to changes in inequality -Use Solow's "middle 60 percent" to measure middle-class, bracket between the bottom 20 percent (which includes the poor or those at risk of poverty) and the top 20 percent (the well-off)	-Transfer away from the middle 60 percent could, if made proportionately, leave measured income inequality unchanged, i.e. only a fixed-income middle class rather than actual account for the changes or growth effect

Sources: Combination from various listed sources.

Table 2. **Regression function for moderation analysis**

Conceptual diagram	
Statistical diagram	 Conditional effect of CPI on FDI $= \beta 1 + \beta 3\ MCG$
Regression functions	$FDI = \alpha + \beta 1\ CPI + \varepsilon$ (1) $FDI = \alpha + \beta 1\ CPI + \beta 2\ MCG + \varepsilon$ (2) $FDI = \alpha + \beta 1\ CPI + \beta 2\ MCG + \beta 3\ (CPI\ x\ MCG) + \varepsilon$ (3)

Sources: Adapted from Hayes (2013).

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
fdi	330	12.8327	37.32114	-28.38	328.68
cpi	330	47.44848	19.90644	8	92
mcg	330	0.0007576	0.0250416	-0.16	0.18
inf	330	0.0367879	0.0531899	-0.04	0.49
pop	330	52.44282	179.3011	0.19	1371.22
gdp	330	472.5047	1223.45	0.3	11064.67

Source: Author's own work

Table 4. Correlation Matrix

	fdi	***cpi***	***mcg***	***inf***	***pop***	***gdp***
fdi	**1**					
cpi	**0.2190***	**1**				
mcg	**-0.0953***	**0.0657**	**1**			
inf	**-0.0832**	**-0.3857***	**-0.073**	**1**		
pop	**0.5351***	**-0.1094***	**-0.0669**	**0.0606**	**1**	
gdp	**0.6844***	**0.1851***	**-0.0763**	**-0.0919***	**0.7014***	**1**

*indicates significance at 10%. *Source*: Author's own work

Table 5. Regression Results

Regression Models – Independent variable: FDI

VARIABLES	(1a) Model 1a	(1b) Model 1b	(2a) Model 2a	(2b) Model 2b	(3a) Model 3a	(3b) Model 3b	(4a) Model 4a mcg_high	(4b) Model 4b mcg_high	(5a) Model 5a mcg_low	(5b) Model 5b mcg_low
cpi	0.2919**	0.2919	0.2912**	0.2912	0.2922**	0.2922	0.07922	0.07922	0.3082**	0.3082
	(0.1236)	(0.1791)	(0.1234)	(0.1808)	(0.1233)	(0.1829)	(0.1413)	(0.1655)	(0.1529)	(0.2315)
mcg			1.9734	1.9734	21.4022	21.4022				
			(48.1410)	(22.2753)	(127.1174)	(51.7285)				
cpi*mcg					-0.3793	-0.3793	-0.5728***	-0.5728***	-2.2277	-2.2277*
					(2.2485)	(0.9346)	(0.1586)	(0.0728)	(2.7687)	(1.2604)
inf	8.4219	8.4219	8.4849	8.4849	8.6482	8.6482	-2.3975	-2.3975	5.5478	5.5478
	(29.6501)	(14.6243)	(29.7445)	(14.5683)	(29.8127)	(14.8113)	(9.3101)	(4.2414)	(43.4144)	(18.6624)
pop	0.0424**	0.0424	0.04228**	0.0423	0.0422**	0.0422	0.2083**	0.2083***	0.0556**	0.0556
	(0.0185)	(0.0400)	(0.0184)	(0.0401)	(0.0184)	(0.0401)	(0.0835)	(0.0272)	(0.0230)	(0.0482)
gdp	0.01509***	0.0151***	0.0151***	0.0151***	0.0151***	0.0151***	0.03361***	0.0336***	0.0136***	0.0136**
	(0.0027)	(0.0052)	(0.0027)	(0.0052)	(0.0027)	(0.0052)	(0.0033)	0.0022	(0.0032)	(0.0059)
Constant	-10.6783	-10.6783	-10.6581	-10.6581	-10.7098	-10.7098	-14.0139*	-14.0139*	-12.6497	-12.6497
	(6.5467)	(7.0346)	(6.5324)	(7.0840)	(6.5260)	7.1788	(7.0505)	(7.1642)	(8.4481)	(9.2816)
Observations	330	330	330	330	330	330	125	125	205	205
R-squared	0.4903	0.4903	0.4902	0.4902	0.4907	0.4907	0.2966	0.2966	0.4977	0.4977

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1