

Determinants of Foreign Direct Investment Inflows to Myanmar

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Abstract

The fast growth of Myanmar in recent decades was brought by capital accumulation, supported by foreign direct investment (FDI) and productivity improvement. A vector error correction model (VECM) analysis on the determinants of FDI inflows to Myanmar from 2000 to 2018 revealed the existence of a positive and long-term relationship between FDI inflows, and the quality of public sector governance and human capital development. The result underpins the importance of implementing reform measures to create a business-friendly policy framework to attract foreign investors.

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1 Introduction

Emerging countries in East Asia such as China, Malaysia, Thailand, and Vietnam have recorded fast growth, and its growing importance in the world economy leads to the movements of the centre of the gravity of the world economy from the North-Atlantic region to the Asian region (OECD, 2013). The fast growth of these countries was driven by structural transformation away from an agriculture-dominated and commodity export-oriented one to one led by the export-oriented manufacturing sector. In this process of structural transformation, capital accumulation through foreign direct investment and domestic savings mobilisation, and the reallocation of labour from sectors with low labour productivity to sectors with higher labour productivity has been a driving force for industrialisation in these countries.

This structural transformation was facilitated by a set of policy measures including ensuring macroeconomic stability; promoting regulatory reform conducive to private investment; human capital development with particular emphasis on education; and implementing outward-oriented industrialisation strategies such as trade and investment liberalisation. These policy measures contributed to improving the quality of inputs and boosting productivity (Stiglitz, 1996).

Aiming to join the group of fast-growing countries in East Asia, Myanmar implemented its transition process to transform a centrally-planned economy to a market-based one in 2011. Myanmar is endowed with a wealth of natural resources and a strategic location between major growth poles and markets such as China and India and the proximity of fast-growing South East Asian countries. However, its potential for economic growth was not materialised due to the long and complex civil wars dating back

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to its independence in 1948. Consequently, Myanmar's military governed the country to ensure the unity of the country for half a century. Under the initiative of the military government, the Burmese Way to Socialism was launched in 1962. Industries were nationalised, and trade, currency, fiscal management, and banking were centralised. The country did not begin to open up to a market economy until the 1990s (World Bank, 2019). Responding to the suppression of dissidents by the military government, the United States implemented economic sanction measures in 1988. The European Union and Japan followed suit, which hindered Myanmar's integration with the global economy.

In 2011, Myanmar started the unique transition process, a "triple transition". The transition includes the political transition from the military-rule to multi-party democracy and negotiated ceasefires of the prolonged conflicts in the country's border areas. In the economic sphere, the transition from a centrally-planned economy to a market-based one has been prioritised. The government implemented a set of reform measures to improve its legal and regulatory framework to attract foreign direct investment (FDI) inflows. The launch of the transition process resulted in an immediate and favourable effect. Transition to the democratic regime resulted in the substantial relaxing of the economic sanction measures by the United States and other advanced countries. Myanmar's average annual growth rate from 2011 to 2017 was 7% which was among the five fastest-growth countries in the world. Thanks to this achievement, Myanmar upgraded its status in the World Bank's classification from the least developed countries to a lower-middle-income country in 2015 (Thwe, 2019; World Bank, 2019).

Like other emerging countries in the East Asian region, Myanmar's fast growth was brought by capital accumulation, supported by FDI and productivity improvement (World Bank, 2019). Advocates of the contribution of FDI to boosting productivity highlight the potential gains from FDI inflows to a country through technology transfer, the introduction of new production processes, management skills, domestic market knowledge, integration with global value chains and access to new markets. These benefits produce positive externalities, such as spillover effects of technology and skills (Alfaro *et al.*, 2004; Hale and Long, 2006).

Against this background, this study sheds lights on the determinants of FDI inflows to Myanmar from 2000 to 2018. Despite the importance of FDI inflows on the economic growth and structural transformation of a country in question, existing studies specific to Myanmar are limited, probably reflecting long-term disintegration with the global economy up to the 2000s (Soe, 2020). The contribution of this study is to present the existence of a long-term relationship between FDI inflows and these two key determinants. This study aims to enrich empirical evidence of the determinants of FDI inflows to Myanmar by the latest available data. Main research questions are whether and to what extent the quality of public sector governance and human capital development contributed to FDI inflows. The answer to this question implies the impact of reform measures of the government on FDI inflows in this period. This result underpins the importance of the long-term commitments to improving public sector governance and human capital development to attract FDI and thereby, potential gains for growth and impetus to structural reform. Myanmar's experience will provide an important lesson to other developing countries.

The rest of this paper is constituted as follows: Section 2 reviews existing literature related to determinants of FDI inflows. Section 3 presents Data and Methods such as model specification, followed by Results and Discussion on the econometric analysis in Section 4. Then, Section 5 provides Conclusion, including policy recommendations.

2 Literature Review

2.1 Determinants of FDI inflows

There is a bulk of literature that aimed to identify the determinants of FDI inflows. These studies focus on economic, social and political factors. Explanatory variables in the past studies include market size, labour costs, trade openness, inflation rate, human capital development and the quality of public sector governance (Noorbakhsh, Paloni and Youssef, 2001; Narayanamurthy, Sridharan and Rao, 2010; Yu and Walsh, 2010; Buchanan, Le and Rishi, 2012; Jadhav, 2012; Mangir, Ay and Saraç, 2012; Ramirez and Tretter, 2013; Kumari and Sharma, 2017; Asongu, Akpan and Isihak, 2018; Kueh and Soo, 2020). However, there is no agreed set of explanatory variables regarding the determinants of FDI inflows.

Moreover, existing studies specific to Myanmar's determinants of FDI inflows are limited, reflecting long-term disintegration with the global economy. Ramirez and Tretter (2013) investigated the institutional determinants of FDI inflows to South East Asian countries, including Myanmar over 1995-2011. The panel data analysis in the study highlighted that the institutional factors such as the protection of property rights, business freedom, trade freedom and investment freedom were positive and statistically significant to FDI inflows. Based on this result, the study called for the importance of improving business freedom and investment freedom to attract FDI inflows since Myanmar's score of them was far below the average of regional peers. Kueh and Soo (2020) examined the macroeconomics determinants of FDI inflows in Cambodia, Laos, Myanmar, and Vietnam from 2000 to 2016. The selected macroeconomics determinants were comprised of market size, inflation rate, openness, real effective exchange rate and labour force. The panel data analysis in this paper indicated that all the exogenous variables were cointegrated and significant in influencing FDI inflows.

2.2 Importance of the quality of public sector governance and human capital development in Myanmar's context

Among these explanatory variables in the preceding studies, this paper deals with the quality of the public sector governance and human capital development since the relationship between FDI inflows and two variables specific to Myanmar were not examined enough by the latest data in the preceding studies.

Improvement of the public sector governance, in particular, creating a business-friendly regulatory framework has been one of the priority issues of the government to attract FDI. Buchanan, Le and Rishi (2012) found by a panel data analysis of 164 countries from 1996 to 2006 that improving the quality of public sector governance had not only a positive impact on FDI inflows, but it also reduced FDI volatility and related uncertainty.

Myanmar enacted the Foreign Investment Law in 1988 to attract FDI. In 2012, the revised Foreign Investment Law was implemented that streamlined the procedure of FDI inflows. In 2014, the Special Economic Zone Law was enacted that provides a "One-stop" service of the administrative procedures related to foreign investors in the designated zones. To update the finding of Ramirez and Tretter (2013), this study aims to examine the impact of the progress of the regulatory reform on the FDI inflows by the latest available data that covers the period after the "Triple transition" in 2011.

The other explanatory variable is human capital development. In general, enhanced human capital development increases FDI inflows by making the investment climate attractive to foreign investors. This is done through a direct effect of the upgraded skill level of the workforce, as well as via

indirect effects such as improved socio-political stability and health. For a country seeking for FDI that contributes to the upgrading its industrial structure towards a higher value-added one, upgrading human capital way above the basic schooling level is required (Majeed and Ahmad, 2008).

As an example of empirical studies, Noorbakhsh, Paloni and Youssef (2001) concluded by their panel analysis of 36 developing countries from 1980 to 1994 that human capital measured by secondary school enrolment rate was a statistically significant determinant of FDI inflows, and its importance became increasingly greater through time. Kumari and Sharma (2017) reached at a similar conclusion in their study of 18 Asian developing countries over 1990-2012 that human capital represented by the secondary school enrolment rate was statistically significant to FDI inflows to these countries.

In Myanmar, as the result of a nation-wide adult literacy programme started in 1973 and the long-term education plan 2001-2030, most adults acquires attainment of the basic education level, capable of basic writing, reading and arithmetic. To increase access beyond the basic education, public investment to education increased substantially, which resulted in the improvement of the gross secondary education enrolment rate from 36.9% in 2000 to 68.4% in 2018 (World Bank, 2019). This study investigates the impact of human capital development by adopting the secondary education enrolment rate that has not been examined in earlier studies.

3 Data and Methods

3.1 Data sources

The study uses annual time series data from 2000 to 2018. The sources of each variable are as follows:

Foreign direct investment (FDI): Since FDI data at the constant price are not readily available, data are proxied by using the ratio of gross FDI inflows per GDP provided by the World Bank's World Development Indicators database and GDP data at the constant price provided by the IMF's World Economic Outlook database.

The quality of public sector governance (GOV): The quality of public sector governance is measured by the Regulatory Quality index of the World Bank's Worldwide Governance Indicators (WGI). The WGI is a research dataset summarising the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organisations, international organisations, and private sector firms. The Regulatory Quality index in the WGI captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufmann, Kraay and Mastruzzi, 2010).

Human capital development (HRD): Human capital development is measured by the gross enrolment rate of secondary education. The data source is the World Bank's World Development Indicators database.

Economic sanction dummy (DUM): To capture the potential impact of the economic sanction measures against Myanmar by the United States and other advanced countries, the Economic sanction dummy is added to the model whose value is set at one from 2000 to 2010, and zero from 2011 to 2018.

Data description in natural logarithm (\ln) of each variable is displayed in Table 1.

Table 1: Data description

	<i>lnFDI</i>	<i>lnGOV</i>	<i>lnHRD</i>
Mean	7.134	0.098	3.877
Median	7.120	-0.051	3.874
Maximum	8.424	0.811	4.226
Minimum	6.199	-0.416	3.608
Std. Dev.	0.722	0.406	0.169

3.2 Model specification and methodology

The purpose of this study is to examine the relationship between FDI inflows (*FDI*), the quality of public sector governance (*GOV*) and human capital development (*HRD*). The model specification for the empirical analysis is shown below:

$$\ln FDI_t = \alpha \ln GOV_t + \beta \ln HRD_t + \gamma DUM + \delta + \varepsilon_t \quad (1)$$

FDI is FDI inflows; *GOV* is the quality of governance; *HRD* is human capital development; *DUM* is the economic sanctions dummy, and ε_t is the random error term.

The study employs the vector error correction model (VECM) analysis. A VECM specification restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. VECMs are widely used to model economic variables that are non-stationary individually but linked by long-run relationships. A VECM analysis can lead to a better understanding of the nature of data among different component series, and this can identify equilibrium or a long-run relationship among the variables.

3.3 Lag order selection

Lag order is initially set at three at maximum under the limited number of observations. An unrestricted vector autoregression model was estimated, and the optimal lag order is selected at three by Akaike Information Criterion (AIC), Schwarz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ) as presented in Table 2.

Table 2: Lag order selection Criteria

Lag	AIC	SC	HQ
0	-2.009160	-1.725940	-2.012177
1	-4.479004	-3.770954	-4.486546
2	-4.217065	-3.084185	-4.229132
3	-7.215401*	-5.657691*	-7.231994*

Note: * indicates lag order selected by the criterion

3.4 Unit root test

As the next step of the VECM approach, the stationary property of the data is checked. In line with the widely-used procedure of the unit root test, the augmented Dickey-Fuller (ADF) test (Said and Dickey, 1984) and the Phillips–Perron (PP) test (Phillips and Perron, 1987) are employed. The output of

the unit root test employing intercept is presented in Table 3.

Table 3: Result of unit root test

Variables	ADF test statistic with intercept		P-P test statistic with intercept	
	Level	First difference	Level	First difference
<i>lnFDI</i>	-0.867	-6.822***	-1.703	-6.781***
<i>lnGOV</i>	0.165	-4.261***	0.347	-4.250***
<i>lnHRD</i>	0.681	-3.089**	0.441	-3.193***

Note: *** and ** indicate the significance level at 1% and 5%, respectively.

The result of the unit root test shows that all the variables, *lnFDI*, *lnGOV* and *lnHRD* are integrated of order one or I (1) at the 5% significance level.

3.5 Johansen cointegration test

The Johansen tests for cointegration or for long-run equilibrium relationship between variables are used to establish the number of cointegrating vectors (Johansen and Juselius, 1990). These are the trace test for joint hypothesis and the λ -max test for hypothesis on individual eigenvalues. The result of the Johansen tests is presented in Table 4. As both results of the trace test and the maximum eigenvalue test show, it is concluded that there exists at least one cointegration vector among the variables at the 5% significance level.

Table 4: Results of Johansen cointegration tests

Hypothesized number of coefficient(s)	Trace statistics	5% critical value	P-value
None*	38.682	29.797	0.004
At most 1	11.723	15.495	0.172
At most 2	1.121	3.841	0.290

Hypothesized number of coefficient(s)	Max-Eigen statistics	5% critical value	P-value
None*	26.960	21.132	0.007
At most 1	10.601	14.265	0.175
At most 2	1.121	3.841	0.290

Note: * denotes rejection of the hypothesis at the 5% significance level.

4 Results and Discussion

As a result of data properties checking, the VECM is formulated for the purpose of this study as follows:

$$\Delta \ln FDI_t = c_0 + c_1 ECT_{t-1} + \sum_{i=1}^{p-1} c_2 \Delta \ln FDI_{t-i} + \sum_{i=1}^{p-1} c_3 \Delta \ln GOV_{t-i} + \sum_{i=1}^{p-1} c_4 \Delta \ln HRD_{t-i} + e_t \quad (2)$$

Δ is the first difference operator. e_t is the random error term. p is the lag order. ECT_t , the error correction term that captures the long-term relationship is defined as:

$$ECT_{t-1} = \ln FDI_{t-1} - a_2 \ln GOV_{t-1} - a_3 \ln HRD_{t-1} - a_4 \quad (3)$$

The results of the estimation are presented in Table 5.

Table 5: Results of the estimation

Variables	Coefficient	Standard errors	t-statistics
Long-term relationship			
$\ln FDI(-1)$	1.000	-	-
$\ln GOV(-1)$	-1.063	0.096	-11.129***
$\ln HRD(-1)$	-3.776	0.225	-16.813***
Constant	7.490	-	-
$ECT(-1)$	-1.954	0.396	-4.933**
Short-term relationship			
$\Delta \ln FDI(-1)$	0.609	0.303	2.010*
$\Delta \ln FDI(-2)$	0.520	0.194	2.683**
$\Delta \ln GOV(-1)$	-1.291	0.449	-2.876**
$\Delta \ln GOV(-2)$	-0.682	0.390	-1.749
$\Delta \ln HRD(-1)$	-11.023	2.841	-3.879**
$\Delta \ln HRD(-2)$	-11.234	2.901	-3.873**
DUM	0.060	0.146	0.412
Constant	0.728	0.150	4.847**

Note: *** and ** indicate the significance level at 1% and 5%, respectively.

The result of the long-term relation or the error correction term (ECT) is presented as below whose details are presented in Table 5, and the cointegration relationship is displayed in Figure 1:

$$ECT_{t-1} = \ln FDI_{t-1} - 1.063 \ln GOV_{t-1} - 3.776 \ln HRD_{t-1} + 7.490 \quad (4)$$

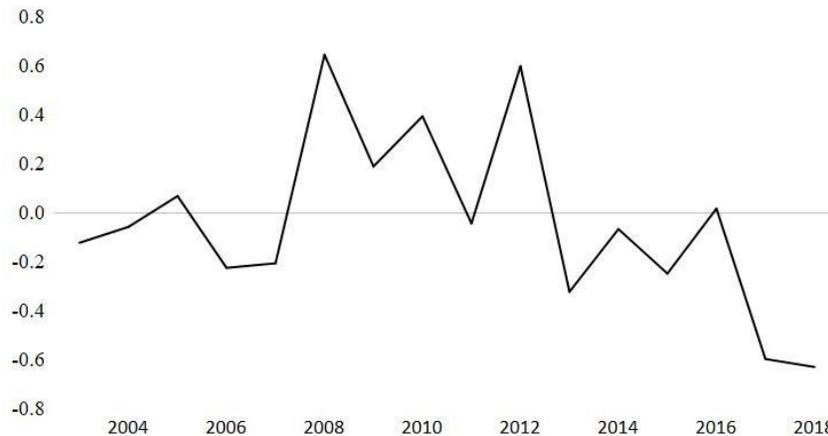


Figure 1: Cointegration relationship

The VECM analysis reveals the existence of a positive and long-term relationship between *FDI* inflows and two explanatory variables, *GOV* and *HRD*. The coefficient value of the *ECT* is at -1.954 and statistically significant at the 5% level. While the coefficient value of the *ECT* is usually expected to be between -1 and 0 towards the convergence to the long-term equilibrium, the coefficient value of the *ECT* in this VECM analysis is -1.954. According to Narayan and Smyth (2006), if the value on the coefficient of the lagged error correction term is between -1 and -2, this implies that instead of monotonically converging to the equilibrium path directly, the error correction process fluctuates around the long-run value in a dampening manner. However, once this process is complete, convergence to the equilibrium path is rapid.

The results of the short-term relation appear that the impact of changes of *GOV* on *FDI* inflows is ambiguous, while changes of *HRD* give a negative impact.

The results of the VECM analysis on the existence of a positive and long-term relationship of the quality of the public sector governance (*GOV*) and human capital development (*HRD*) are in line with existing studies reviewed in Section 2 such as Buchanan, Le and Rishi (2012) Ramirez and Tretter (2013), Noorbakhsh, Paloni and Youssef (2001) and Kumari and Sharma (2017). The results also imply that improvements in public sector governance and human capital development contributed to the promotion of *FDI* inflows to Myanmar as other countries in South East Asia.

5 Conclusion

The fast growth of Myanmar in recent decades was brought by capital accumulation, supported by *FDI* and productivity improvement. The VECM analysis on the determinants of *FDI* inflows to Myanmar from 2000 to 2018 revealed the existence of a positive and long-term relationship between *FDI* inflows, and the quality of public sector governance and human capital development. The results underpin the importance of the implementation of reform measures to create a business-friendly policy framework to attract foreign investors. The results also imply the importance of continuing the commitments to the reform measures to ensure investors' confidence.

Moreover, the need for accelerating reform is amplified by increasing competition of attracting FDI inflows among regional peers in South East Asia. Evidence suggested that favourable policy changes to attract FDI such as liberalisation and regulatory reform in one country were positively correlated with FDI policy changes elsewhere (Cooray, Tamazian and Vadlamannati, 2014). This observation implies that the country needs to respond to external pressures to push through reforms to compete with regional peers to attract foreign investors. As an example of external pressure from regional countries, the Philippines, Indonesia and Malaysia have set concrete programmes to improve their rankings based on the World Bank's *Ease of Doing Business* ranking of each country. These countries make holistic efforts across the government to promote business-friendly regulatory reforms.

In the sphere of human capital development, the government has increased public investment in education that results in improvement of enrolment rates of the primary and secondary education. However, the quality of education has much room to improve to facilitate the acquisition of skills for use in the labour market. Increasing the provision of technical and vocational education and training is another priority issue in terms of better employability (World Bank, 2019).

As a caveat, this study has some limitations. In particular, due to a relatively short data period available for the study, the econometric model in this study needs to be parsimonious, which limited analysis of more multiple determinants of FDI inflows such as the market size, infrastructure development and macroeconomic stability. It is expected that the subsequent studies could add these factors to the analysis to mitigate the limitations of this study.

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