THE DYNAMICS AND DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN SELECTED ASEAN COUNTRIES

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Abstract: *One of the goals of economic integration is to open the economy to the outside and attract investors who, through their expenses, stimulate economic growth. An example of such a mechanism is The Association of Southeast Asian Nations – ASEAN. Founded in 1967, the organization now brings together 10 countries. Over 50 years of operation shows the significant impact of closer cooperation on the level of foreign investment. It was particularly significant in this context to implement the ASEAN Investment Agreement – AIA Council and the Free Trade Area ASEAN – AFTA (1992). Integration of a single market helped to create a dynamic process of free movement of goods, services, and free flow of capital and, as a result, attracted more foreign direct investment (FDI). A dozen or so years later, foreign investment is still clearly increasing, contributing to the region's growing importance in the world. The aim of the article is to present the level and dynamics of FDI stock in the years 2007-2017 in five selected ASEAN countries - Indonesia, Malaysia, Myanmar, Philippines and Thailand. Investment determinants were also determined, using panel analysis. A set of explanatory variables are economic variables: average wages, consumer spending, government expenditure, unemployment level; social: Human Development Index HDI; infrastructural: dynamics of growth in the value added of industry and access to electricity. Model results show a positive correlation between the size of investment and both types of expenditures, HDI ratio and infrastructure development. On the other hand, the positive relationship between the wage level and the negative one for the unemployment level are surprising.*

Keywords: foreign direct investments, determinants, panel analysis, ASEAN countries

JEL codes: E22, F21, O53, C23

Introduction

The global capital flows, in the balance of payments statistics, have been adopted to divide into foreign direct investment (FDI), portfolio investment and other investments. Foreign direct investment is a key factor in international economic integration, which has been intensified since the beginning of the 21ST century in regional groupings. The influx or outflow of foreign direct investment is carried out in the form of streams, the distribution of which is not even in the case of individual economies or integration groupings. Integration of international capital markets, despite financial and economic crises, from the 1980s to the present day has reached a size that has never occurred.. The development of communication technologies is also influenced by their rapid development. Foreign direct investment concerns not only the movement of capital in the form of financial means, but includes the flow of technology, know-how, management techniques and methods of modern marketing (Oziewicz, 1998)

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The aim of the article is to present the level and dynamics of FDI inflow in the years 2007-2017 in five selected ASEAN countries - Indonesia, Malaysia, Myanmar, Philippines and Thailand. Investment determinants were also determined, using panel analysis with fixed effects and correction for heteroscedasticity. A set of explanatory variables, after eliminating insignificant variables, are economic variables: average wages, share of consumer spending as a % of GDP, share of government expenditure as a % of GDP, unemployment level; social: Human Development Index HDI; infrastructural: dynamics of growth in the value added of industry and access to electricity. Model results show a positive correlation between the size of investment and both types of expenditures, HDI ratio and infrastructure development. On the other hand, the positive relationship between the wage level and the negative one for the unemployment level are surprising.

FDI definitions and determinants – literature review

A number of definitions of foreign direct investment can be found in the literature of both domestic and foreign sources. The definition formulated by the OECD (OECD Benchmark Definition…, 2019) is a commonly cited definition. According to this definition, FDI is meant to cover the expenditure of a resident of a single economy (direct investor) to a resident company in another economy (direct investment firm). This investment aims to establish a permanent commitment to a direct investment undertaking. The motivation of a direct investor is to have a "lasting interest" and significant influence on the management of an investment firm. "Lasting interest" occurs when a direct investor holds at least 10% of ordinary shares or votes. It is precisely the objectives of direct investment that distinguish them from portfolio investments where investors do not expect an impact on the management of an investment firm. Investment companies are affiliates in which a direct investor has from 10-50% percent of the votes, subsidiaries in which the investor owns over 50% of the shares and also quasi-corporations (branches and subsidiaries) in 100% belonging to (OECD Benchmark Definition…, 2019). Such a definition contradores the notion appearing in the literature that the essence of FDI is to take full and unlimited control of the direct investment undertaking.

The second often-stated definition of the concept of FDI is the definition given by the IMF Balance of Payments Manual. This definition also describes FDI as a category of international investment in which the direct investor's objective is to obtain interest and establish a long-term relationship whereby a direct investor has a significant impact on the managed Enterprise. This definition does not distinguish between the degree of binding intensity (as previously quoted by the OECD definition). It indicates that an investor with a minimum of 10% shareholding in an investment firm has a significant impact on the company. It also indicates that 10% of the shares must belong to a single investor, having a total of 10% of the shares by investors from the investor's economy, but unrelated to capital among themselves, does not constitute FDI. In addition, loans to non-affiliated undertakings are not a FDI (Patterson and International Monetary Fund, 2004).

Several divisions of foreign direct investment are presented in the literature. These divisions differ in accepted classification criteria, among them the breakdown of investments into incoming FDI and FDI flows. Another division of direct investment distinguishes between Greenfield and brownfield investments. Greenfield Investments rely on the creation of the company from scratch and are characteristic of developing countries. Brownfield investments consist of mergers and acquisitions of already existing companies and are characteristic of high-rise countries (Górniewicz, 2013).

The determinants of making foreign investment by traders are the subject of numerous theoretical considerations. One of the most well-known theories explaining the motives of making FDI is an eclectic theory of international production (Dunning, 2014) with the name of the paradigm OLI (ownership, location, internalization). The fulfilment of these three conditions together is a prerequisite for the foreign investor's FDI. First of them, ownership-specific advantages, is the fact that a direct investor entering a foreign market has a specific ownership

advantage, ie. has such assets that are not available to other companies on this market, e.g.: modern technologies, innovative manufacturing techniques, patents, marks, commodities, managerial and marketing skills. Having these advantages will compensate the investor for its worse position at the entrance to the local market, resulting from cultural differences, language barriers, limited access to information, higher transport and communication costs. Second, location-specific advantage, consists of a cheap workforce, a dynamically developing market, a stable political situation, cultural similarities in the host country, conducive to an investment atmosphere. An additional advantage will be the omission of trade barriers if the host country applies. Finally, the benefits of the internationalization of the company (Internaliztion-specific advantages) can arise from a proprietary advantage, e.g.: possession of a particular brand of product. Transferring this advantage to your own company abroad is much safer than selling a license. Since the sale of a licence entails a loss of control over the use of that licence and the risk of a reduction in the quality of the product produced by a foreign company, which could therefore translate into a reduction in the value of the whole brand. In this case, the direct investor will be willing to undertake direct investment as it will allow for continuous quality control of the product.

Among other theories related to the determinant of foreign direct investment, commonly referred to in the literature, one could mention the theory proposed by Dunniga and Lundan, describing the main four types of FDI (Dunning and Lundan, 2008). Also other authors in their work cite this theory (Hoang and Bui, 2015). The idea is to distinguish the criteria by the goals of the foreign investor. There are four main motives for the export of FDI (United Nations Conference on Trade and Development, 1998):

- market seeking investment - direct investor makes an investment in order to gain access to the market of goods and services in the host country. The determinants of these decisions are, among others, market size (defined by GDP and GDP per capita), access to regional and global markets, consumer preferences, market structure;
- efficiency-seeking investment, which can be achieved by diversification of risks through activities in the markets of many economies, improvement of corporate structure, raising the profitability of the company by economies of scale;
- access to raw materials, cheaper resources, both skilled and unskilled, and through the availability of infrastructure for roads, ports, energy and telecommunications networks;
- absorption of strategic asset-seeking investment – investor intends to acquire assets that will allow it to maintain or increase its competitiveness in the regional or global market. These values include acquiring new distribution channels, acquiring new technologies or know-how.

Factors creating FDI can also be divided into socio-economic (eg. level of GDP, labour market, inflation, market size, consumer prefercences), institutional and legal (eg. national and local law, market structures, freedom of economic activity, government activity), infrastructural (eg. road quality, access to energy sources, telecommunications, airport base) and cultural (eg. tradiction, religion, level of trust among people) (Bhardwaj et.al., 2007). It is also important to note that the host economies, and thus absorbing FDI, have specific expectations for FDI. Through the investment they complement the shortages of financial capital due to insufficient internal savings. Moreover, the inflow of investment increases the potential to implement new technologies, modernizing the economy, reducing backwardness, especially in low developed regions. Finally, as a result, FDI leads to the improvement of the competitiveness on the international arena (Nielsen et.al., 2017).

Materials and methods

For the analysis different macroeconomic, social and infrastructure indicators we collected, using generally accessible databases from International Monatary Fund IMF, World Bank, United Nations UN and International Labour Organization ILO (https://www.imf.org/en/Data; https://data.worldbank.org; https://unctadstat.unctad.org; http://hdr.undp.org/en/data; data.un.org;

https://www.ilo.org/global/statistics-and-databases/lang--en//index.htm). In final we have collected over 40 indicators for all of the ASEAN countries, i.e.: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. The process of cleaning data required to determine time span for analysis. Even though the time span of databases for many of chosen indicators ranged from 1970 till 2018, the lack of data for many countries (eg. Brunei Darussalam or Laos) forced the authors to shorten the study period to 2007-2017 (11 years) and limit the number of coutries to 7 – Indonesia, Malaysia, Myanmar, Philippines, Thailand, Singapore and Vietnam. In the next step calculated models showed no interesting nor statistically significant results which led authors to conclusion that one more step is needed. Focusing especially on Singapore it was clear that values of FDI[4] and some economic indicators (eg. GDP, wages, rate of unemployment) would differ in orders of magnitudes from other ASEAN countries, and those would be definitely outliers in our models. In this case, Singapore was excluded from the analysis. On the other side Vietnam was characterized not only by the different dynamics in FDI comparing to other countries, but also by outliers referring to the economic indicators, which led authors to conclusion that only 5 countries should be taken into account for the final analysis.

As the analysed data comprised combined cross-section data (selected ASEAN coutries) and time series data (2007-2017), the panel data regression was used to study the dependence of FDI stock[5] (dependant variable) in 5 selected ASEAN countries on a set of determinants (table no. 1). They could be divided into 3 groups: economic (average weekly wage, rate of unemployment, share of government expenditure as a % of GDP, share of consumer spending as a % of GDP) social (Human Development Index HDI) and infrastructural (annual growth of industry value added, access to electricity). Due to large differences in values between countries, FDI and wage variables have been standardized by dividing the given value by the maximum value. As a result of this action, numbers in the range (0; 1) were obtained (the values of all explanatory variables for the years 2007-2017 are presented in table no. 3). The selection of the set of explanatory variables was dictated by the availability of data for all surveyed countries and time ranges, as well as a "quality" of model. Following the scatter plot analysis, it was decided to use a linear model, and as a result function of dependent variable y expressed using the following formula:

$$1) \quad Y = \alpha X1 + \beta X2 + \gamma X3 + \delta X4 + \varepsilon X5 + \zeta X6 + b$$

where:
Y – FDI inflow in ASEAN countries (USD per capita)
X1 – average montly wage in ASEAN countries (in USD)
X2 – rate of unemployment (%)
X3 – share of government expenditure (as a % of GDP)
X4 – share of consumer spending (as a % of GDP)
X5 – Human Development Index (value from 0 to 1, the higher the better)
X6 – industry (including construction) value added (annual % growth)
X7 - access to electricity (% of households)

Next, ordinary regression models were constructed using the classical method of least squares (CMLS). Model was estimated with the approach based on the Breusch-Pagan test and panel fixed

[4] In 2017, Singapore was the largest direct investor within the integration group, i.e. the INTRA-ASEAN investment. FDI for this country accounted for 69% of all investment investments between ASEAN countries (according to UNCTAD database).

[5] FDI stocks are the accumulated value held at the end of the reference period. The increase in stocks in a given period indicates the inflow of direct investment. In addition, stocks are more stable than the absolute values of investment flows, hence the use of stocks is more suggested (Anwar and Nguyen, 2010; Cieślik, 2019; Camarero et.al., 2017)

effects. The assessment of model was made using Hausmann test and modified Wald test for heteroscedasticity in fixed effects model.

Table 1. Set of variables used in the panel regression model

Abbreviation	Variable definition	Source
FDI	Stock of Foreing Direct Investments (USD per capita)	United Nations (UNCTAD)
W – X1	Monthly average wage (in USD)	Interarnational Labour Organization
UNE – X2	Rate of unemployment (%)	International Monatery Fund
GE – X3	Share of government expenditure (% of GDP)	United Nations (UNCTAD)
CS – X4	Share of consumer spending (% of GDP)	International MonataryFund
HDI – X5	Human Development Index	United Nations (UNDP)
IDS – X6	Industry (including construction), value added (annual % growth)	WorldBank
ATE – X7	Access to electricity	WorldBank

Source: Own performance.

Results and discussion

Before we discuss the results of panel analysis, it is worth looking at the data on the development of FDI in the countries studied. But first, some general comments. The development of FDI in ASEAN countries has been an object of the observation for several decades. The data indicates that the countries of this association are recording a dynamic increase in foreign investment, although of varying intensity, determined by the global economic situation. The literature emphasizes that the upward trend of direct investment in ASEAN countries is the result of economic reforms and market liberalization. These reforms have contributed to improving the investment climate in the region, which encouraged transnational corporations to increase investment expenditure (Diacon (Maxim), 2014). Most of the analyzes focus on the model approach, which uses such FDI determinants as: size of the economy (determined eg. by national income), exchange rate, labor costs (wages), human capital, quality of infrastructure, openness of the economy (Tri et.al., 2019; Bhatt, 2008; Hayakawa and Matsuura, 2011; Masron and Abdullah, 2010). Invariable gravitational factors, such as country distance, common border or language are also used (Ismail, 2009). The structure of the investment changes as the volume of investment increases. Sectors belonging to the so-called digital economy play an increasingly role. It includes: Information and Communication Technologies ICT, e-commerce, investment in data center development, information and communication technologies etc. (United Nations Conference on Trade and Development, 2019).

As for the analysed countries, clear differences in the level of foreign direct investment stocks can be observed (fig. no. 1). The highest values were recorded for Malaysia, followed by Thailand. At the same time, FDI stocks increased in all countries, the highest absolute grow was noted in Malaysia – 1790 USD per capita. In relative terms, the highest increase occurred in Myanmar, but the absolute FDI stocks values in this country stayed the lowest. One can also see how important cyclical fluctuations are for FDI stovks dynamics. A particularly marked decrease was recorded in Malaysia during the global economic crisis in 2008-2009.

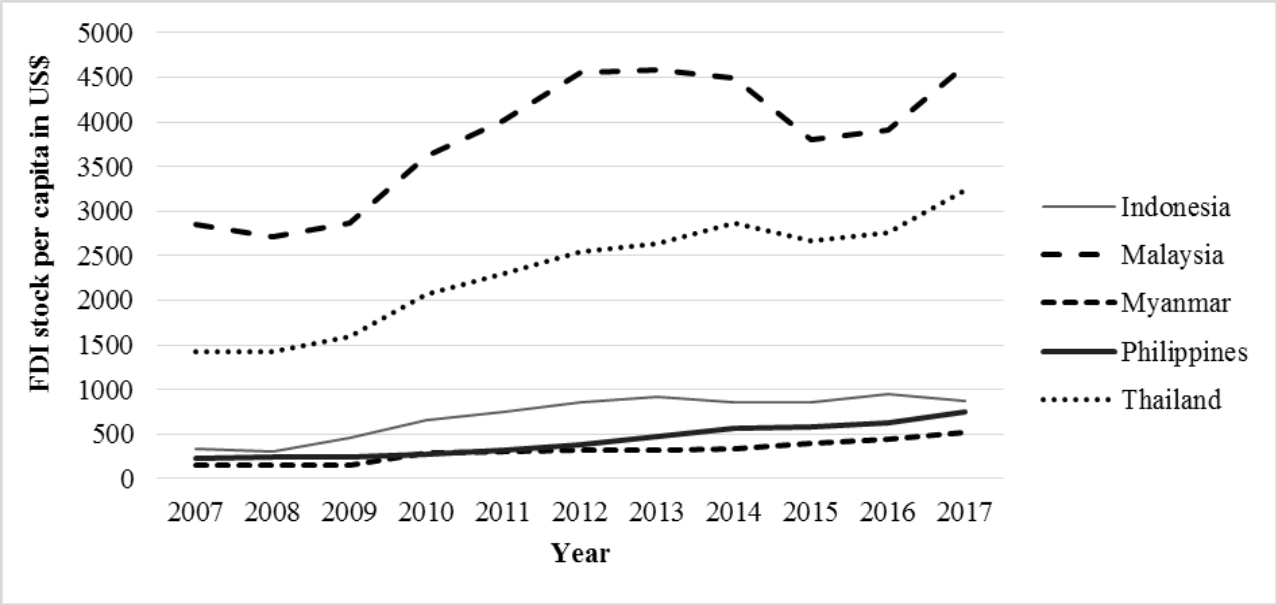

Figure 1. Changes in FDI inward in selected ASEAN countries in 2007-2017.
Source: Own performance based on UNCTAD database.

Basing on the diagnostic tests model assumptions and findings are found reliable in relative terms which is presented in table no. 2. The table aslo shows us the values of coefficients of explanatory variables and their significance. It can be seen that the highest significance concerns the variable "wages". At the same time, the positive sign of the coefficient may be interesting, which suggests an increase in FDI stocks along with an increase in wages in the economy. This type of relationship seems surprising, because usually the opposite relationship is assumed (Moore 1993; Lucas 1993). On the other hand we could find some elaborations on ASEAN countries, confirming the observed phenomenon (Tri et.al., 2019; Hayakawa and Matsuura, 2011). The explanation may be a change in investors' expectations about the labor market in the country they are entering. While the search for low labor costs was characteristic for the initial stage of development of FDI in ASEAN coutries, at present a qualified workforce with high quality of human capital is being sought. This may be related to the aforementioned change in the structure of the FDI inflow, with the high-tech sectors dominating today. The above relationship can also be explained by the variable "rate of unemployment" for which the coefficient is negative. It can be assumed that the decrease in unemployment is associated with higher wages, while the improvement in the labor market creates more positions for qualified employees, which attracts direct investment. Mixed and complicated relation between FDI and unemployment was shown before by other authors, eg. regarding Balcans or Tunisia (Grahovac and Softić, 2017; Belloumi, 2013).

Positive signs of coefficients were calculated for “share of government expenditure” (Hanclova, 2011), “share of consumer spending” (Anyanwu, 2013) and “Human Development Index” (Vidales and Garcia-Perez, 2019; Gohou and Soumare, 2012). In the case of the first two, higher expenses of both groups increase the potential sales market for foreign concerns and stimulate the inflow of their investments. In turn, HDI, as a complex indicator of economic development, means both a higher level of expenditure on the internal market (an element of HDI is national income per capita) and the level of education of the society, which in turn can lead to an increase in qualified staff on the labor market. Finally, the quality of infrastructure improves the conditions for the inflow of foreign direct investment (Gordon et al., 2012; Asiedu 2002), hence the positive value of the coefficients for “access to electricity” and “industry value added” (although in the latter case the p parameter is slightly above 0.1)

Table 2. Estimated results for panel regression model for FDI stocks in selected ASEAN countries (for years 2007-2017).

Independent variables	Coefficient	Robust std error	p value	Signification sign
Const.	-1.80	0.42	0.01	**
Average wages (W) –X1	0.87	0.13	0.00	***
Rate of unemployment (UNE) – X2	-1.84	0.75	0.07	*
Share of government expenditure (GE) – X3	1.56	0.47	0.03	**
Share of consumer spending (CS) – X4	1.17	0.29	0.01	**
Human Development Index (HDI) – X5	1.24	0.39	0.03	**
Industry value added (IDS) – X6	1.06	0.61	0.16	
Access to electricity (ATE) – X7	0.06	0.03	0.10	*

**** p<0.01, ** p<0.05, * p<0.1*

Value of	description	value
R-sq:	within	0.81
	between	0.76
	overall	0.76
Hausmann test	Prob>chi2	< 0.05
Modified Wald test for heteroscedasticity in fixed effects model	Prob/chi2	0

Source: own calculations.

Conclusions

Direct investment in ASEAN countries has been the subject of research for many years. The works cover a range of issues, from presenting the structure and dynamics of FDI to modeling relationships between individual variables. One can meet studies on a single country as well as comparative analyzes. In the paper, the authors attempted to determine the determinants of FDI stocks in five selected countries of the Association. Data analysis indicates that direct investment increases in each of them, although there are periodic fluctuations related to the economic situation. At the same time, the share of investments in high technology sectors is increasing. Among the variables stimulating capital inflow, the authors point out: an increase in government and consumer spending, an improvement in the economic development rate and an improvement in infrastructure. Higher wages and a decrease in the unemployment rate also generate higher FDI stocks, by improving labor market conditions, increasing the number of qualified staff and enhancing the quality of human capital. In the next stage of the study, the authors will focus on completing the list of explanatory variables and expanding the number of countries covered by the analysis. Comparative attempts by ASEAN countries with those of other integration groups, e.g. EU, NAFTA or Mercosur, may also be interesting.

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Table 4. Values of variables used in the survey in years 2007-2017

	Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	FDI											
FDI stock per capita (standardized)	Indonesia	0.07	0.07	0.10	0.14	0.16	0.18	0.20	0.18	0.19	0.21	0.19
	Malaysia	0.61	0.59	0.62	0.78	0.87	0.98	0.99	0.97	0.82	0.84	1.00
	Myanmar	0.03	0.03	0.03	0.06	0.07	0.07	0.07	0.07	0.08	0.10	0.11
	Philippines	0.05	0.05	0.05	0.06	0.07	0.08	0.10	0.12	0.12	0.13	0.16
	Thailand	0.31	0.31	0.34	0.45	0.50	0.55	0.57	0.62	0.58	0.60	0.70
	Infrastructural measures											
Access to electricity (% of households)	Indonesia	0.91	0.93	0.94	0.94	0.95	0.96	0.96	0.97	0.98	0.98	0.98
	Malaysia	0.00	0.00	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Myanmar	0.49	0.51	0.52	0.49	0.54	0.55	0.56	0.52	0.61	0.56	0.70
	Philippines	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.90	0.89	0.92	0.93
	Thailand	0.95	0.96	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Industry value added (annual % growth)	Indonesia	0.05	0.04	0.04	0.05	0.06	0.05	0.04	0.04	0.03	0.04	0.04
	Malaysia	0.01	-0.01	-0.07	0.05	0.02	0.05	0.04	0.06	0.05	0.04	0.05
	Myanmar	0.19	0.18	0.18	0.37	0.10	0.08	0.11	0.12	0.08	0.09	0.09
	Philippines	0.06	0.05	-0.02	0.12	0.02	0.07	0.09	0.08	0.06	0.08	0.07
	Thailand	0.07	0.02	-0.02	0.10	-0.04	0.07	0.01	0.00	0.03	0.03	0.02
	Economic measures											
Rate of unemployment (%)	Indonesia	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
	Malaysia	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03
	Myanmar	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Philippines	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06
	Thailand	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Share of government expenditure (as a % of GDP)	Indonesia	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.09	0.10	0.10	0.09
	Malaysia	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.13	0.13	0.13	0.12
	Myanmar	0.08	0.07	0.07	0.06	0.06	0.08	0.11	0.15	0.15	0.15	0.14
	Philippines	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11
	Thailand	0.14	0.14	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16
Share of consumer spending (as a % of GDP)	Indonesia	0.59	0.57	0.57	0.56	0.55	0.56	0.57	0.57	0.57	0.58	0.57
	Malaysia	0.46	0.45	0.49	0.48	0.48	0.50	0.52	0.52	0.54	0.55	0.55
	Myanmar	0.77	0.80	0.78	0.76	0.77	0.76	0.69	0.63	0.65	0.67	0.64
	Philippines	0.73	0.74	0.75	0.72	0.73	0.74	0.73	0.73	0.74	0.74	0.73
	Thailand	0.53	0.54	0.53	0.52	0.53	0.54	0.53	0.52	0.56	0.57	0.55
Montly wages (standardized)	Indonesia	0.19	0.20	0.23	0.24	0.23	0.23	0.23	0.21	0.20	0.24	0.27
	Malaysia	0.82	0.84	0.85	0.87	0.88	0.92	0.96	1.00	0.88	0.89	0.90
	Myanmar	0.12	0.13	0.13	0.14	0.15	0.16	0.16	0.16	0.16	0.20	0.23
	Philippines	0.38	0.41	0.38	0.40	0.42	0.43	0.42	0.41	0.39	0.38	0.40
	Thailand	0.42	0.44	0.46	0.49	0.51	0.54	0.69	0.66	0.48	0.63	0.62
	Social measures											
Human Development Index	Indonesia	0.64	0.65	0.66	0.66	0.67	0.68	0.68	0.68	0.69	0.69	0.69
	Malaysia	0.75	0.76	0.77	0.77	0.78	0.78	0.79	0.79	0.80	0.80	0.80
	Myanmar	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.56	0.57	0.57	0.58
	Philippines	0.66	0.66	0.66	0.67	0.67	0.68	0.69	0.69	0.69	0.70	0.70
	Thailand	0.71	0.71	0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.75	0.76

Source: Own performance based on IMF, World Bank, UN and ILO databases.