

Foreign Direct Investment as a Driver of Economic Development in Thailand

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The article addresses some of the most important impacts of foreign direct investment (FDI) to emerging economies, focusing on Thailand. With the help of selected research methods, the proposed paper proves stylized facts concerning FDI in Thailand. Using the PESTEL analysis, authors analysed the macro-environment for FDI in Thailand and with correlation models, the correlation between FDI and selected economic variables was analysed. The results of statistical analyses fulfilled the expectations. Thailand is an attractive destination for FDI which has a positive effect on economic growth, employment and export. However, the results also demonstrated that FDI is positively correlated to air pollution in Thailand, therefore economic policy will have to pay more attention to environmental protection when attracting FDI. If we compare elements of PESTEL analysis of Thailand with Euro-Med states' conditions, we can expose that some elements are very similar. Especially Southern Euro-Med states' faced numerous political crises in the past. Corruption, government instability, and inefficient government bureaucracy are characteristic also for Southern Euro-Med states and are influencing negatively on the international capital flows. On the other hand, there are also some elements in the PESTEL analysis that are valid not just for Southern Euro-Med but for the whole Euro-Med region. These are especially the threat of terrorism and environmental challenges. Both present a major common challenge in the whole Euro-Med region.

Key Words: foreign direct investment, economic development, Thailand, effects of FDI, PESTEL analysis

INTRODUCTION

[50] There are several studies showing determinants and impacts of foreign direct investment (FDI) on emerging markets. When examining the determinants of FDI inflows into emerging markets Green and Häusler (2003) found that investors predominantly select their investment destinations based on growth prospects, market size, the overall productivity of labour, the availability of sufficient infrastructure, political stability and supportive conditions, a low level of corruption, a predictable legal framework and the validity of the rule of law. Others found that firms seek macro-environmental opportunities, such as high and stable economic growth, low inflation rate, and low labour costs, and favour supportive government policies, strong market potential, and no exposure to import duties or quotas (Techakanont 2008; Walsh and Yu 2010; Duscha 2012; Trunk and Stubelj 2013).

According to Kumar and Anupam (2011) FDI offers attractive benefits that include technology, investments, savings and growth. Angresano, Zhang, and Zhang (2002) analysed the effects of FDI in emerging economies and found that FDI reflects a dynamic style of leadership, and openness to change and new technology. According to Arbatli (2011) FDI was viewed in emerging market economies as a tool to increase productivity, finance development, and import new technologies. In general, FDI fosters human capital development by providing employee training and transferring advanced technologies to the host country. It also strengthens corporate institutions by exposing host countries to developed economies' best business practices and corporate governance. FDI reduces unemployment, affects the development potential of the economy, increases engagement of local companies in supplier and subcontractor networks, generates additional tax revenue for the state, supports development strategies of individual sectors, develops managerial knowledge, and generates better utilisation of the local infrastructure and service activities (Wang and Blomström 1992; Stephan 2005; Perez 2008; Maček and Ovin 2014). Studies analysing benefits of FDI in Euro-Med countries show similar results (Adamo and Garonna 2009). In 2002, OECD reports that countries with weaker economies consider FDI



as the only source of growth and economy modernization. Many governments, particularly in developing countries, therefore give special treatment to foreign capital (Carkovic and Levine 2002).

Simultaneously, firms investing in foreign countries, face several macro-environmental risks and uncertainties, such as natural disasters, political instability, increasing (minimum) wages, and corruption (WKO 2012). By analysing the driving forces behind FDI in emerging markets, Tulug (2004) identified that political and economic factors are considered to be the main obstacles to foreign investors. Among the political factors, political instability, excessive bureaucracy and government interference, as well as corruption, are identified as the most significant, while among economic factors especially high inflation, economic instability and high credit costs account for the highest economic risks (Tulug 2004). [51]

While studies in the field of analysing determinants and threats of FDI in emerging markets are present, on the other side there has not been a lot of focus on the determinants and effects of FDI in Thailand and Euro-Med states. Therefore, this article presents the analysis of the determinants and selected effects of FDI in Thailand and exposes those that are similar also to Euro-Med states. It starts with the presentation of FDI development in Thailand. After a brief discussion of the PESTEL analysis for FDI in Thailand in the third chapter, in the fourth chapter authors present some of the Thailand characteristics that are the same also for Euro-Med states. The fifth chapter demonstrates results of the regression analysis on selected economic and ecological effects and FDI in Thailand. The last chapter presents conclusions.

FDI DEVELOPMENT IN THAILAND

With their significant GDP growth and infrastructure, developing emerging markets present a major destination for FDI. FDI presents the strongest source of growth for investors because it encounters some sort of control and ownership, as well as a long-term commitment by the investing firm (Noeth and Sengupta 2012, 10–11).

According to the *Asia-Pacific Trade and Investment Report* (2014)

and the *World Investment Report* (2014), Thailand is an important destination for FDI. Data in FDI inflow in the figure 1 show that, especially after 1986, FDI has been an important element of economic development in Thailand.

- [52] The value of FDI inflow to Thailand has been increasing since 1986. In particular depreciation of the US Dollar against the Japanese Yen and the German Mark in 1986, caused many export-oriented companies from overseas to shift their production to Thailand. Thailand rapidly became a major destination for FDI in the region. The main reasons for FDI growth were the investment promotion by the BOI (Board of Investment of Thailand), relatively cheap labour costs, and the devaluation of the local Thai Baht, which granted company access to cheaper factors of production (Tambunlertchai 2009). Furthermore, a rapid appreciation of the Japanese Yen forced many Japanese industrial firms to shift their production sites to Southeast Asia, including Thailand (Tambunlertchai 2009). During the Asian financial crisis the level of FDI inflows dropped but the post-crisis era was characterized by an increase of FDI, especially with M&AS (OECD 2011).

In 2011, just after the first recovery from the economic crisis, Thailand was severely hit by historical flooding, which forced many firms to change their investment plans. The consequence was a 35 percent decline in FDI inward flows. At the same time, FDI outward flows increased by 45 percent (*Financial Times* 2012). Restoration of political stability in the second half of 2014 also slowed down the FDI flow, but since then FDI flows have again been rising. Today Thailand is among the 8 priority destinations for foreign investment destinations within emerging economies for the period 2014–2016. It is the 7th largest FDI recipient in East and South-East Asia.

In recent years the surge in FDI has been driven mainly by a rise in mergers and acquisitions. In 2013, Thailand was the second-largest target of M&A purchases in Southeast Asia, behind Singapore, with concluded sales worth \$6 billion. A major deal was the acquisition of Bank of Ayudhya by Bank of Tokyo for \$5.3 billion. In 2013 Japan was the main investor followed by Hong Kong and the Netherlands. In table 1 the main investing countries in Thailand are



TABLE 1 FDI Inflows by Country and Industry (2013)

Main investing countries	%	Main invested sectors	%
Japan	60.6	Metallurgy and machinery	30.6
Hong Kong	8.1	Electronic and electric. goods	25.3
Netherlands	6.9	Services	18.9
Malaysia	4.5	Paper and chemical goods	15.0
Singapore	4.2	Agricultural products	5.1
USA	2.0	Light industry, textiles	4.0
Taiwan	1.6	Minerals and ceramics	1.1
The Cayman Islands	1.2		
Switzerland	1.1		

NOTES Based on data from the Thailand Board of Investments (<http://www.boi.go.th>).

shown.

Table 1 shows the 9 countries that invested the most in Thailand. As it can be seen, Japan invested 60 percent of all investments in Thailand in 2013. Among European countries the Netherlands was the biggest investor, investing around 7 percent of all investments in Thailand. In table 1 also FDI inflows by industry are shown. The main invested sectors in Thailand, according to the last available data, are metallurgy and machinery, followed by electronic and electrical goods, services, and paper and chemical goods.

PESTEL ANALYSIS FOR FDI IN THAILAND

A determinant of FDI is demonstrated by PESTEL analysis (political, economic, social, technological, environmental and legal). Using an analysis of variables that have direct and indirect impact on FDI flow, authors try to prove which variables are the most important determinants of FDI.

Political

Since becoming a constitutional monarchy in 1932, the country has faced numerous political crises. The politics of Thailand were conducted within the framework of a constitutional monarchy, whereby the Prime Minister was the head of government and a hereditary

[54] monarch the head of state, until 22 May 2014. Since the coup d'état of 22 May 2014, the 2007 Constitution has been revoked, and Thailand has been under the rule of the military organization called the National Council for Peace and Order, which took control of the national administration. The Chief of the NCPO abolished the National Assembly and assumed all responsibility for the legislative branch.

According to the WEF (2015) corruption, government instability, and inefficient government bureaucracy are the major concerns of foreign investors in Thailand.

The problem of corruption is deeply embedded in the culture of the Thailand and has become so serious that many Thais tolerate corruption as long as politicians 'do something for the nation.' On the annual corruption index, published by Transparency International, which measures the perceived degree of corruption in the public sector, Thailand is ranked 85th of 174 countries in the year 2014 (Transparency International 2014). In order to keep Thailand an attractive investment destination, the government is encouraged to effectively address corruption.

Political instability characterised Thailand during the last few years. Particularly between 2007 and 2010, and 2013 and 2014 political unrest repeatedly had a strong negative impact on the economy and also on foreign investors in Thailand.

Another factor within the political environment influencing investor decision is the threat of terrorism. There have been terrorist attacks in several southern provinces and border regions, as well as in the major cities Bangkok and Chiang Mai (Foreign and Commonwealth Office 2013).

An index indicating the ease of doing business ranks Thailand to the 46th position of 189 economies across the globe. In this index the business regulatory environments across economies are compared with one another in areas such as starting a business, dealing with construction permits, registering property, protecting investors, paying taxes, enforcing contracts and others. While Thailand is ranked particularly high in the areas of getting electricity (11th), and protecting minority investors (33th), there is plenty of



TABLE 2 2015 Index of Economic Freedom

Rule of law	Index	Limited government	Index
Property rights	40.0 ↓	Government spending	81.4 ↓
Freedom from corruption	35.0 ↑	Fiscal freedom	81.5 ↑
Regulatory efficiency	Index	Open markets	Index
Business freedom	72.5 ↑	Trade freedom	75.4 ↑
Labor freedom	63.5 ↑	Investment freedom	45.0 –
Monetary freedom	69.9 ↑	Financial freedom	60.0 ↓

[55]

room for improvement in the areas of getting credit (97th) and starting a business (96th) (WEF 2015).

The ease of starting business stands out negatively, as there are several regulations put in place by the Thai government in order to restrict foreign investments and entrepreneurship. For instance, foreign entrepreneurs need to employ at least 4 local employees in order to obtain a work permit. Furthermore, investments in several sectors are entirely prohibited and, again, there are strict rules to be followed in order to obtain a work permit for foreign staff. If a certain business is not promoted by the BOI (Board of Investment), foreign investors are only permitted to hold up to 49 percent of the shares of that business entity (Dubout 2012). The details about FDI regulation are presented later.

According to the 2015 Index of Economic Freedom, published by the Heritage Foundation (in partnership with the *Wall Street Journal*), Thailand ranks 75th of 185 countries. The index measures criteria such as the rule of law, limited government (measuring the tax burden, government spending, the budget balance and public debt), regulatory efficiency and open markets (tariff- and non-tariff barriers, foreign ownership, etc.), and it supports a global move towards greater economic freedom (see <http://www.heritage.org/index/>). Table 2 shows the individual segments of the Index of Economic Freedom in detail, where a score of 100 accounts for the maximum of each.

The value of 40.0 for Property Rights indicates that the court system is highly inefficient, and delays are so long that they deter the

[56] use of the court system. Corruption is present, and the judiciary is influenced by other branches of government. Knowing that in an economically free country, where there would be no constraints on the flow of investment capital the score of Investment Freedom would be 100, the score of 45 in Thailand therefore indicates a variety of restrictions on investments.

In order to increase trade flows with other countries and to foster economic integration, Thailand is a member of the following trade organizations: WTO, APEC, ASEAN (USTR 2012) and the World Bank (Aussenwirtschaft Austria 2012). Furthermore, Thailand signed bilateral investment treaties (BIT) with 40 countries, including Germany, China and Switzerland (UNCTAD 2014).

Economic

Thailand's economic development was very successful between the years 1960 and 1996. The economic growth rate was nearly 8 percent p. a. and was mainly the result of growing FDI inflows and exports. The key challenge to Thai-based producers, domestic and foreign, by the mid-1990s was to enhance production capabilities and move up the value-added ladder as competition from lower wage countries like China, India, Indonesia and Indochina intensified.

In 1997 the GDP declined by 1.4 percent and by a further 10.5 percent in 1998 because of the economic crisis. After levels of around 5–6 percent for many years inflation reached around 8 percent in 1998. While the financial collapse was primarily a short-to-medium term phenomenon caused by inadequate financial regulations and weak public and private sector governance, deteriorating industrial competitiveness exacerbated the situation. Export performance worsened dramatically in 1996, falling by 1.3 percent after many years of 10 to 20 percent growth rates.

The economy returned to 4.4 percent growth in 1999, albeit with continuing low capacity utilization and significant disruptions in the real sector, and continued to grow by 4.6 percent in 2000. In 2001 GDP growth slowed to 1.8 percent due to weak export demand caused by the global slowdown. This decline placed pressures on the fiscal balance that was recovering from negative levels caused by the



economic crisis, and makes the economy more vulnerable to weak performance in the US and Japan.

Over the last ten years, the macro-environmental landscape in Thailand was in continuous shape with some extreme events that required foreign investors to re-evaluate their external business environment and to reconsider their direct investments in the country. In 2004, the country suffered from the worst natural disaster that has ever hit Thailand. A tsunami off the coasts of Indonesia, Sri Lanka and Thailand caused the deaths of about 8,000 people in Thailand. In 2006, the country was plunged into a political crisis, when the former Prime Minister Thaksin Shinawatra was ousted from his position in a military coup. Since that event, pro-Thaksin supporters, the 'red shirts,' gather together and rally against the new government on a regular basis, sometimes peacefully, sometimes not. In 2010, the situation escalated again and led to violent demonstrations aimed at bringing down the new government. Finally, a military intervention caused deaths of more than 50 people, attracting considerable international attention (BBC 2010).

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In 2011, citizens suffered from natural disasters again, both personally and from the related economic slowdown. The tsunami in Japan in March 2011 forced numerous Japanese investors to cut their spending in Thailand, and, later that year, historical flooding in Northern and Central Thailand paralyzed the country for months. Consequently, a multitude of manufacturing companies had to shut down their production. These events brought down economic growth to 0.1 percent in the year 2011, from the previously estimated 4–7 percent (Bank of Thailand 2011). Such events had a huge impact on current and future investments of companies in Thailand. Nevertheless, the strategic move towards an export-oriented industrialization particularly helped the country to achieve the status of an important emerging market. This transition is underlined by the fact that the industrial and service sectors each contribute about 44 percent to the country's GDP nowadays (WKO 2012). In 2014 GDP growth in Thailand was 0.7 percent and is projected to rebound to 3.5 percent by the end of 2015.

Historically, Thailand has been characterised by very low unem-

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ployment. Whilst this is usually considered a favourable economic indicator, companies face a big challenge to fill open positions with skilled labour within several key areas, restricting growth within these industries. Consequently, manufacturers are partly forced to move their investments into other countries with higher labour availability (EABC 2012). In 2014, the unemployment rate was about 0.56 percent and is among the lowest in the world. The reason for a very low unemployment rate is in the structural problems of a country: because of a lack of unemployment insurance there is no impetus to stay jobless for long. Those who lose their jobs invariably enter the so-called informal sector or seek out a part-time job, and are counted as employed. Private consumption is relatively high, which is due to favourable household income, continuous stimulus by the Thai government, and the low saving rates in Thailand. Therefore, private spending is one of the key drivers for the economic growth and stability.

Social

Thailand made remarkable progress in terms of human development in the last two decades (United Nations Thailand 2008). In 2008, the Thai government launched several programs to generate sufficient income and to grant access to loans to everyone, including low-income groups. As the government seems to understand that a strong social system contributes to the further development of the nation, Thailand has an extensive social security and welfare system in place, which provides coverage to most of its citizens. This system is funded by contributions from workers, and additional contributions from employers and self-employed people (Euromonitor 2010). Social security measures include pensions, disability pensions, sickness and maternity leave, unemployment benefits, child allowance and medical coverage. However, the rates highly depend on individual contributions, and their volume cannot be compared to western standards. On the International Human Development Index (which is published annually by the United Nations and which is part of the United Nations Development Programme) Thailand ranks 89th of 186 countries worldwide (UNDP 2014).



Challenges within the social environment include high levels of maternal mortality in the most southern part of Thailand, child malnutrition in some northern parts, and the very unsustainable (ab)use of natural resources. Even though educational reforms were established and Thai people rank amongst the highest educated populations in the world (Euromonitor 2010), the quality of education, and its adaptability to global economic needs, remains a problem. Furthermore, vulnerable minority groups, such as informal workers or migrants, are not benefiting from Thailand's economic progress equally (ILO 2012). Poverty in Thailand is primarily a rural phenomenon. Some ethnic groups and some regions-particularly the North and Northeast lag greatly behind others. Benefits of economic success have not been shared equally, especially between Bangkok and the rest of the country. The value of GINI coefficient 0.4 in 2014 indicates income inequality and a lack of equal opportunities in Thailand (CIA 2015). [59]

Technological

According to the Global Competitiveness Report 2014–2015 Thailand's 'technological adoption is generally poor' (65th out of 144), and 'less than a quarter of the population accesses the Internet on a regular basis.' However, if analysing the overall infrastructure (the infrastructure in terms of railroads, ports, electricity supply, the collaboration between universities and the industry in terms of R&D and mobile telephone networks) it is about world-average (WEF 2015).

In The Global Innovation Index 2014, published by the WIPO (World Intellectual Property Organisation), Thailand ranks 48th of 143 countries. This index is based on 7 categories: Institutions (94th), Human capital and research (36th), Infrastructure (71th), Market sophistication (34th), Business sophistication (55th), Knowledge and technology outputs (47th) and Creative outputs (60th). According to this index, the category Institutions and within them political environment (95th) as well as regulatory environment (122nd) are the most worrying (WIPO 2014).

According to the World Economic Forum, Thailand ranks 72nd of

[60] 144 countries in terms of property rights, 104th with regard to intellectual property protection and 68th in terms of judicial independence (WEF 2015). The protection of intellectual property is one of the most important drivers for R&D, the production of technological advanced products, creativity, innovation and high-skilled employment. Because IP-protection can be considered a major source of foreign investments and competitiveness, the Thai government positively shaped the IP environment and legal framework within the last two decades. A dedicated IP rights jurisdiction was put in place, the Patent Cooperation Treaty and the Paris Convention were accessed, and various public campaigns on awareness and IP were launched.

According to Gil Sander (2011), Thailand is characterized by an on-going noteworthy transition in the development of technological products. Besides the changing nature of products – the country has gone from merely exporting raw commodities such as rubber or rice to becoming one of the largest exporters of cars and auto parts, hard discs and integrated circuit packages – there is now a strong focus on sophisticating tasks and processes. Nowadays, more and more manufacturing parts are imported from different countries, while only the assembling of final products is done in Thailand, including testing, packaging and marketing. This innovation moved Thailand up the value chain, since more Thai workers are performing complex tasks, and, in return, can expect better wages (Gil Sander 2011).

However, the research, development and design of these products is still mainly performed outside Thailand. While lots of innovation comes from learning by doing, R&D is the major driver of technological advancement and real innovations. In this respect Thailand is still lagging in both, the amount of money invested, and the number of research and development professionals (Gil Sander 2011).

Environmental

Thailand is characterized by a strategic location right at the heart of Asia – home to what is regarded today as the largest growing



economic market. It serves as a gateway to Southeast Asia and the Greater Mekong sub-region, where newly emerging markets offer great business potential. Thailand also has long supported economic integration with neighbouring countries.

Between the years 1992 and 1996 Thailand introduced the Seventh Economic and Social Development Plan. Since then, environment protection has become one of the top priorities of the Thai government. Nonetheless, today Thailand faces problems with water and air pollution, soil erosion, deforestation, water scarcity, and hazardous waste issues. [61]

High levels of air pollution in Thailand are the result of industrial growth. Particularly in Bangkok vehicles and factories contribute to air pollution. Some actions have already been taken to reduce damage; the Pollution Control Department and other agencies have developed standards in order to reduce air pollution. Factories and power plants were required to reduce emissions.

The next critical environmental problem is water pollution. Similarly as air pollution, water pollution is most serious in the populous central region, with high levels of industrial and domestic waste water. The government has already introduced some steps in this area in protecting water and continues to invest in wastewater treatment plants. The government is also investigating more effective and modern techniques such as constructed wetlands.

Another challenge in Thailand is the presence of natural disasters, ranging from tsunami in 2004 to the heavy flooding of 2011. The latter had a heavy impact on production in Thailand and on the global supply chain. Climate change also remains a serious problem for the country. The consequences of climate change further increase the risk of extreme weather conditions, natural disasters, droughts and rising sea-levels (United Nations Thailand 2008). Although the Thai government initiated some counter-measures, there are still many open challenges that could persuade foreigners to invest in other countries instead.

Legal

[62] Although Thailand has well-defined investment policies that are focused on liberalization and encouraging free trade, there are some restrictions for foreigners in certain business activities. Foreign enterprises are regulated by the 'Foreign Business Act 1999, BE 2542' (FBA). The activities in which foreign participation are limited, are divided into three groups: List 1 principally concerns land-dealing and agricultural activities; List 2 includes businesses related to national security or safety, or involving culture and art, tradition, folk handicraft, or environment and natural resources; and List 3 contains most other services, including legal and accounting.

While the activities under List 2 and List 3 may be pursued if the foreigner obtains a foreign business license, foreigners cannot engage at all in List 1 activities.

Government promotes especially foreign investments that contribute to the development of technology, skills, and innovation. In order to attract FDI, Thailand established the Board of Investment (BOI). BOI is a government agency that provides incentives for stimulating investment in Thailand. It is empowered to grant a wide range of fiscal and non-fiscal incentives and guarantees to qualified investment projects. In order to help revitalize Thailand's economy, to support the expansion of existing investment and encourage the attraction of new investment into Thailand, the BOI developed several measures to foster investment. These measures were implemented in the form of deregulation, such as foreign majority ownership in industries under the Foreign Business Act, incentives such as tax holidays, and facilitation such as expedited processing of visas and work permits.

While foreign businesses in the manufacturing sector are entitled to 100 percent ownership, market entry is restricted to several industries, and in non BOI-promoted areas foreign equity participation is limited (WTO 2011) in such a way that foreign ownership must not exceed 49 percent. In several industries, market access is further restricted by the application of tariff quotas, import fees and import permits (Shark 2011).

Other government organizations, such as the Department of Ex-



port Promotion and the International Chamber of Commerce, are also available to provide support to foreign investors.

Knowing that FDI has an impact on many areas of the host country, the following chapter presents main economic and ecological variables on which FDI could have an impact.

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SIMILARITIES WITH EURO-MED REGION

If we compare elements of PESTEL analysis of Thailand with Euro-Med states' conditions, we can expose that some elements are very similar. Especially Southern Euro-Med states' faced numerous political crises in the past. Corruption, government instability, and inefficient government bureaucracy are characteristic also for Southern Euro-Med states and have a negative influence on the international capital flows.

Southern Euro-Med states also lack adoption of the latest technologies and the capacity of innovation. As the level of technology, as measured by most relevant indices, remains relatively low in the Southern Euro-Med states, the transfer and diffusion of technology can present a potentially important function of FDI in these countries.

On the other hand there are also some elements in the PESTEL analysis that are valid not just for the Southern Euro-Med but for the whole Euro-Med region. These are especially the threat of terrorism and environmental challenges. Both present a major common challenge in the whole Euro-Med region. The threat of terrorism has been increasing during the last few years and countries tried to protect themselves with numerous preventive actions. Also regarding environmental challenges, there have been many environmental policies adopted by all Euro-Med countries in the last few years. Although examples of good practices are available in the region, environmental degradation still remains a relevant regional risk. Both, in Thailand and also in Euro-Med region pollution increased dramatically in the recent decades, and the responses to it are still insufficient despite national efforts.

TABLE 3 Linear Regression Summary

<i>R</i>	<i>R</i> square	Adj. <i>R</i> square	Std. error of the estimate
0.814	0.662	0.652	63357.24461

NOTES Predictors: Constant, FDI inflow. Dependent Variable: GDP.

[64]

EFFECTS OF FDI IN THAILAND

The following findings are based on a theory that FDI flows influence the fluctuation of selected economic variables (economic growth (GDP), employment, export values, and pollution). The statistical data is from UNCTAD.

Research was built upon the study of five major economic variables gathered for Thailand. The main independent variable is FDI. The starting point for all variables was 1980. SPSS statistical software has been used to run regressions and conduct correlation analyses.

The relationship between FDI and selected economic variables will be analysed using linear regression models. These models will also show the extent to which FDI can have impact on the specified variables. However, prior to modelling we tested whether or not the relationship between the variables is linear and whether or not linear regression might be useful during the analysis. The linearity assumption was checked using a graphical method by constructing a scatter graph. All graphs showed that there is a linear relationship between all variables. With the linear regression model we estimated the strength and statistical significance of the impact of FDI on economic and ecological variables.

The first model presented in tables 3–5 shows the regression output for the economic growth and FDI. The correlation coefficient value (*R*) 0.814 points to the relation of variable FDI inflow with endogenous variable GDP. Adjusted determination coefficient is 0.652, meaning that 65.5 % of variance of endogenous variable can be explained by independent variable. Using the Anova test, we demonstrate the acceptance of the model according to the statistical criteria in table 4.

The Anova test (table 4) proves the existence of a linear depen-



TABLE 4 ANOVA F-test

Item	Sum of squares	df	Mean square	F	Sig.
Regression	251899969777.504	1	251899969777.504	62.753	0.000
Residual	128452494238.718	32	4014140444.960		
Total	380352464016.222	33			

[65]

NOTES Predictors: Constant, FDI inflow. Dependent variable: GDP.

TABLE 5 Coefficients

	Unstandardized coeff.		Std. c.	t	Sig.	95,0% conf. inter. for B	
	B	Std. err.	β			Lower	Upper
(a)	57168.380	16343.404		3.498	0.001	23877.955	90458.806
(b)	23.715	2.994	0.814	7.922	0.000	17.617	29.812

NOTES Row headings are as follows: (a) constant, (b) FDI inflow. Dependent variable: GDP. Collinearity statistics: tolerance 1.000, VIF 1.000.

dence between variables, enabling us to use the linear form of equation in the case concerned.

In table 5 the model is presented along with the *VIF test*. Beta coefficients from table 5 express the relative importance of the independent variable in a standardized form. We found that FDI is the significant predictor and that it has a high impact on the GDP. A multicollinearity test for our model is also presented in table 5. As the tolerance should be > 0.1 (or for VIF statistics it should be < 10) for all included variables, this requirement was fulfilled with the achieved VIF value 1.00. It was hypothesized that FDI increases economic growth. The results show that the hypothesis is supported by an evidence from the estimated coefficient, which is positive. If we compare results with other studies, we find a lot of papers that prove strong contribution of FDI to the economic growth (some of the Borensztein, De Gregorio, and Lee 1995; Agarwal 2000; Pain 2001; 2006; Neuhaus 2006).

With the next model we tested the linear regression with FDI and employment in Thailand. The results are presented in tables 6–8. The correlation coefficient value (R) 0,844 demonstrates the relation of variable FDI with endogenous variable employment. The adjusted determination coefficient is 0,703, meaning that 70.03 % of variance

TABLE 6 Linear Regression Summary

<i>R</i>	<i>R</i> square	Adj. <i>R</i> square	Std. error of the estimate
0.844	0.712	0.703	2628.80741

NOTES Predictors: Constant, FDI inflow. Dependent Variable: Employment.

[66]

TABLE 7 ANOVA F-test

Item	Sum of squares	df	Mean square	<i>F</i>	Sig.
Regression	547279355.295	1	547279355.295	79.194	.000
Residual	221140108.536	32	6910628.392		
Total	768419463.831	33			

NOTES Predictors: Constant, FDI inflow. Dependent variable: Employment.

of endogenous variable can be explained by independent variables.

Using the Anova test in table 7 we demonstrate the acceptance of the model according to the statistical criteria.

The Anova test proves the existence of linear dependence between variables, enabling us to use the linear form of the equation in the case concerned. In table 8 the model is presented. Again beta coefficients from table 8 express the relative importance of the independent variable in standardized form. The results show that FDI reflected country employment. It is shown that the greater is the FDI that flows into Thailand, the higher employment is in the country. The statistical significance of the model and the high value of *R* Square support our hypothesis that FDI effects higher employment. The findings are the same with findings from Yabuchhi (1999), Balcerzak and Żurek (2011), Shaari, Hussain, and Halim (2012), and Habib and Sarwar (2013) which also proved positive correlation between employment and FDI inflows. With the third model we tested the relationship between FDI and export in Thailand.

Data in the model summary (table 9) show high correlation of FDI to export. With the independent variable 70.6 % of variance can be explained.

With the Anova test we proved the existence of linear dependence between variables (table 10).

Results in table 11 show that greater FDI flows into Thailand re-



TABLE 8 Coefficients

	Unstandardized coeff.		Std. c.	<i>t</i>	Sig.	95,0% conf. inter. for <i>B</i>	
	<i>B</i>	Std. err.				Lower	Upper
(a)	28874.443	678.118		42.580	0.000	27493.163	30255.724
(b)	1.105	0.124	0.844	8.899	0.000	0.852	1.358

NOTES Row headings are as follows: (a) constant, (b) FDI inflow. Dependent variable: Employment. Collinearity statistics: tolerance 1.000, VIF 1.000.

TABLE 9 Linear Regression Summary

<i>R</i>	<i>R</i> square	Adj. <i>R</i> square	Std. error of the estimate
0.846a	0.715	0.706	45403.79944

NOTES Predictors: Constant, FDI inflow. Dependent Variable: Export.

sult in raising exports. This supports the findings of Harding and Javorcig (2011) who also proved a positive correlation between FDI and export.

The last model tested the relationship between FDI and air pollution. Here, Carbon Dioxide emissions were chosen as a proxy for air pollution in general. It was expected that an increase of FDI would give a rise to a corresponding increase in CO₂ emissions.

As it can be seen in table 12, the correlation coefficient value (*R*) 0,861 demonstrates the relation of variable FDI with endogenous variable air pollution. Adjusted determination coefficient is 0,733, meaning that 73.3 % of variance of endogenous variable can be explained by the independent variable. With Anova test in table 13 we proved the acceptance of the model according to the statistical criteria.

The results presented in table 14 show that FDI had impact on

TABLE 10 ANOVA F-test

Item	Sum of squares	df	Mean square	<i>F</i>	Sig.
Regression	165411210246.094	1	165411210246.094	80.238	0.000
Residual	65968160123.746	32	2061505003.867		
Total	231379370369.839	33			

NOTES Predictors: Constant, FDI inflow. Dependent variable: Export.

[67]

TABLE 11 Coefficients

	Unstandardized coeff.		Std. c.	t	Sig.	95,0% conf. inter. for B	
	B	Std. err.				Lower	Upper
(a)	10754.291	11712.199		0.918	0.365	- 13102.678	34611.259
(b)	19.217	2.145	0.846	8.958	0.000	14.847	23.587

NOTES Row headings are as follows: (a) constant, (b) FDI inflow. Dependent variable: GDP. Collinearity statistics: tolerance 1.000, VIF 1.000.

TABLE 12 Linear Regression Summary

R	R square	Adj. R square	Std. error of the estimate
0.861	0.742	0.733	0.64053

NOTES Predictors: Constant, FDI inflow. Dependent Variable: Emissions.

pollution in Thailand.

The more FDI flows into a country, the higher is the risk of pollution. The same was concluded also by Grimes and Kento (2003), Liu, Pan, and Chen (2006), and Wu (2006), who proved that FDI is worsening the environment. As FDI generates more output it can also generate more pollution, but many studies show that technological spill over effects from FDI and crowding out less efficient firms because of FDI could improve overall energy efficiency (Eskeland and Harrison 2002). Economic policy in Thailand should therefore take actions in the direction that FDI will be beneficial also to the environment.

Regarding the fact that Euro-Med states face the same environmental challenges as Thailand, we can conclude that also Euro-Med countries should take actions that will protect environment when it comes to the inward FDI. Positive correlation between FDI and

TABLE 13 ANOVA F-test

Item	Sum of squares	df	Mean square	F	Sig.
Regression	34.207	1	34.207	83.374	0.000
Residual	11.898	29	0.410		
Total	46.105	30			

NOTES Predictors: Constant, FDI inflow. Dependent variable: Emissions.



TABLE 14 Coefficients

	Unstandardized coeff.		Std. coeff.	<i>t</i>	Sig.
	<i>B</i>	Std. err.	β		
(a)	1.289	0.173		7.458	0.000
(b)	0.000	0.000	0.861	9.131	0.000

[69]

NOTES Row headings are as follows: (a) constant, (b) FDI inflow. Dependent variable: Emissions.

GDP growth could encourage Southern Euro-Med states for attracting more FDI. Positive influence of FDI on economic growth was shown already in many other studies, therefore one of the important factors for strengthening economic position of the Euro-Med region could also be international capital flows.

CONCLUSION

According to our PESTEL analysis Thailand has well-defined investment policies with focus on encouraging free trade and liberalization. Especially foreign investments that contribute to the development of technology, skills and innovation, are actively promoted by the government. Despite some negative characteristics such as political instability and high level of corruption, Thailand is among the most attractive investment locations according to international surveys.

The Thai government established resources for supporting and assisting foreign investors. Through the Board of Investment (BOI), the government offers a range of support services, tax incentives and import duty concessions to an extensive list of businesses that are regarded as priority or promoted industries. In addition, companies promoted by the BOI, receive permission to bring in foreign workers, own land and take or remit foreign currency abroad. In addition, foreign businesses in the manufacturing sector are entitled to 100 percent ownership.

Thailand is characterized by a large pool of cost-effective labour that can make products competitive in the global marketplace. With its strategic location, modern transport facilities, good infrastructure for foreign investors and upgraded communications and IT net-

[70]

work Thailand ensures optimum business and living conditions for investors. But on the other side, in terms of technological progress, Thailand lacks adoption of the latest technologies and the capacity of innovation. Furthermore, the quality of R&D is also rather poor. One of the most important barriers to foreign investment is the protection of several local industries and the local workforce, as well as weak protection of intellectual property (IP). Counterfeited products are sold across the nation and IP rights are enforced ineffectively. Furthermore, on-going climate change and pollution also threaten the environmental business environment in Thailand. If overcoming the mentioned challenges, the main goals of the Thai government in the next years, Thailand will become even more attractive for FDI.

Regarding the analysis of selected economic and environmental effects of FDI, the influence of FDI on economic growth, employment and export in Thailand was found to be significant. Findings are consistent with economic theory and the original hypothesis. As all estimated coefficients were statistically significant, we can conclude that economic policy, FDI inflows and other elements seem to worked in synergetic relationship in Thailand in the past. According to the PESTEL analysis, the finding that FDI increases the pollution was also expected. Thailand has a lot of environmental challenges to overcome and as FDI can be beneficial also to the environment, the Thai government should take actions that will support such investments.

As there are similarities within environmental, political and technological conditions between Thailand and Euro-Med states, some similar conclusions can be suggested also for Euro-Med states. In order to attract more FDI that will bring positive effects to the host economy, Euro-Med states should improve their political conditions (more efficient government bureaucracy, government stability etc.) and offer appropriate conditions for FDI to improve technology and innovation. Regarding the fact that a lot of FDI has negative effect on the environment, Euro-Med states also have to pay attention to the fact that the attracted FDI is environmentally friendly.



AUTHORS' CONTRIBUTIONS

Authors researched the economy of Thailand and analysed possibilities for foreign direct investments in Thailand. For analysing determinants of FDI in Thailand PESTEL analysis was used. Another added value of the article presents the definition of some similarities between Thailand and Euro-Med states. [71]

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