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February 2014

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Keywords: Foreign Direct Investment, Thailand, Investment Promotion

JEL classification: F21, F23

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Abstract: This paper examines the overall and sectoral economic impact of foreign direct investment (FDI) on the Thai economy using the economic data from 2005-2013. In assessing the overall economic impact, it is found that FDI has contributed positively to Thailand's economic growth. However, when analyzing the sectoral details, the empirical results indicate that FDI has a varying impact on the productive sectors in Thailand. Out of the 9 sub-sectors covered by this study, 5 sub-sectors (manufacturing, construction, financial, wholesale, retail trade, and agriculture) show strong statistically-significant positive effects of FDI on the relevant sector's value-added output. Based on these findings, it is suggested that policy-makers, including the Board of Investment, should aim to promote FDI with special consideration of the sectoral impact that would enable Thailand's FDI promotion policies to be more productive and beneficial for the Thai economy.

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Introduction

Foreign direct investment has been an important element of Thailand's economic development process. Given the growing importance of industrial competitiveness in an increasingly competitive global marketplace and the potential of the relationship between

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FDI and technological upgrading, this paper aims to explore two questions facing Thai policy-makers: (i) What has been the impact of FDI on the economic performance of Thailand? and (ii) How can investment promotion policies support the positive economic impact of FDI? This paper examines the overall impact of FDI and related policies at the macro-level as well as the promotion activities at the micro-level after the 1997 Asian financial crisis in order to synthesize and provide key lessons from the Thai experience on utilizing FDI as a tool for economic development. Conclusions and recommendations are drawn to support the policy-makers in developing and utilizing the FDI strategies in the future.

1. Industrial Development Trends

1.1 Thailand's Macro-economy

Looking over the past 50 years, the Thai economy has undergone drastic economic transformation from a self-sufficient agrarian economy to an industrial-based economy. Puppavesa (1994) found that FDI has contributed significantly to capital formation and represented an increase of foreign capital inflow into Thailand. Before the economic crisis in 1997, Thailand's economic development was considered as a continuous success with an average economic growth rate of nearly 8.0 percent per year from 1960-1996. Despite the world recession of the mid-1980s, Thailand's economy grew at double-digit rates during 1988-1990 and again by over 8.0 percent per year from 1991-1995.

This rapid pre-crisis growth, driven largely by growing FDI inflows and exports, was accompanied by a shift towards manufacturing, with the manufacturing share of total GDP reaching 29.9 percent by 1995, up from 11.6 percent in 1960. Since then, the manufacturing share has grown even greater than the present share at almost 40 percent of GDP. The key challenge now for Thai-based producers is to enhance production capabilities and move up the value-added ladder due to the increase of competition from lower wage countries like China and India. This increasing competitive pressure is expected to continue with the rapid rise of Thailand's neighboring countries such as Myanmar, Laos, Cambodia, and Vietnam. Looking ahead, Thailand's economy will become even more strongly interlinked with the global economy by virtue of its significant reliance upon export-oriented manufacturing industries and international tourism.

As of 2013, approximately 73% of Thailand's GDP resulted from the export of goods and services, a much higher share than the pre-1997 crisis level of 50%. Thailand's international links extend beyond trade and include finance and investment as well. Table 1 summarizes Thailand's balance of payments from 2005-2012. Moreover, when examining FDI inflow by a sectoral basis, it is found that FDI inflow into manufacturing represents the highest share of total FDI inflows. Japanese companies are the largest investors in Thailand in terms of inbound FDI, with over 55% in 2012.

=== Table 1 ===

1.2 Structural Changes in Industry, Policies, and Emerging Challenges

Over the past few decades, the Thai government has shifted from the traditional import-substitution strategy implemented in the 1960s, by imposing tariffs on imports and promoting infant domestic industries with export-oriented policies and creating a more foreign investor friendly economic environment.

The role of FDI on the output growth of economies has been analyzed extensively in literature. Traditional growth models as well as endogenous growth models highlight the importance of technology and efficiency improvements in stimulating economic growth, and hence provide the framework to analyze the relationship between FDI and economic growth. These growth models highlight that FDI inflows lead to high output by the recipient economy by increasing investment and/or enhancing labor productivity. FDI inflows augment domestic capital formation and expand the production capacity of the economy. As technological progress is a major factor in endogenous growth models, FDI inflows could have a permanent impact on economic growth through technology transfer, diffusion, and spillover effects. Findlay (1978) postulated that FDI inflows would promote economic growth through technological transfer and knowledge diffusion. In an excellent survey of literature, De Mello (1997) lists two channels through which FDI inflows enhance economic growth: by the adoption of new technology in the production process through capital spillover, and knowledge transfer through labor training and skill acquisition combined with better management practices. However, empirical evidence on these issues remains rather inconclusive. Nair-Reichert and Weinhold (2001) noted that while many studies argue that FDI inflows may have a positive impact on the economic growth of the recipient economy through technological diffusion and capital formation,

others suggest that these positive effects may not be unconditional and they point out the lack of technology transfer and spillover effects.

Generally, macro-economic studies, which examine the link between FDI and growth using aggregate FDI inflows and growth data in a cross-country framework, suggest that FDI inflows positively affect economic growth. Zhang (2001) finds that FDI strongly Granger-cause GDP growth in a sample of 11 countries. However, other studies show inconclusive results. In a sample of 32 countries that includes OECD and non-OECD countries and using a single-country time series regression framework, De Mello (1999) found that the long-term effect of FDI on growth is heterogeneous across countries. This paper does not find firm evidence for the positive effect of FDI on growth in a panel of non-OECD countries. Also, Nair-Reichert and Weinhold (2001) found that FDI on average has a significant positive impact on growth, although the relationship is highly heterogeneous across countries.

Therefore, the policy question for Thailand would be the economic impact of FDI on both the overall economic impact and sectoral development. Thai authorities have been actively promoting FDI over the years. As a major FDI promotion effort, the Thai government passed an Investment Promotion Law in 1977 to establish the Board of Investment (BOI) that is empowered to provide investment incentives for priority areas and remove obstacles faced by private investors. The BOI has since steadily shifted its emphasis from promoting export activities to promoting regional development as well. Wongpit (2006) identified that FDI has achieved a positive impact on Thailand's manufacturing exports to other countries. In addition, FDI is complemented by manufacturing exports from the source countries to Thailand.

2. FDI Trends and Policies

2.1 Trends in FDI and Major Impacts

Decharuk (2009) stated that substantial FDI inflows into Thailand started after the Plaza Accord in 1985 and the subsequent currency appreciation in Japan and the NIEs such as Taiwan, Hong Kong, and Korea. As a result, from 1986 to 1989 Thailand attracted on average close to USD 1 billion per year of net FDI inflows, accounting for around seven percent of private business investment. From 1990 to 1996, FDI hovered around a plateau

of over USD 2 billion per year. During this period, there were substantial FDI flows into large-scale basic industries such as steel and petrochemicals, as well as infrastructure projects. Following the depreciation of the Baht in 1997, FDI inflows have shown a dramatic increase in both Baht and dollar terms, totaling USD 3.6 billion in 1997, USD 5.1 billion in 1998, and USD 3.6 billion in 1999. This growth of FDI in the post-1997 crisis period until the present time has been characterized by a dramatic increase in mergers and acquisitions (M&A) as foreign firms took over Thai companies that faced severe debt and liquidity problems. As is clear in Table 2, the manufacturing sector has consistently been a large recipient of FDI with an increasing share in net FDI inflows. Within the manufacturing sector, the electronics industry relatively consistently attracts a large volume of FDI. Sources of FDI into Thailand have generally been quite diversified, including Japan, the United States, Europe, Taiwan, Hong Kong, and Singapore. Japan has been the largest national source of FDI into Thailand and now represents over 50% of the FDI inflow into the country.

=== Tables 2 & 3 ===

2.2 The FDI Policy Approach

The Thai government has generally taken a very favorable approach towards FDI. Although there have been laws and regulations that limit foreign ownership in certain activities, they have been progressively liberalized over the past decade with an acceleration of this trend with the pending establishment of the ASEAN Economic Community (AEC) by 2015. The following legislation covers the major laws related to the FDI policy in Thailand:

Alien Business Law – This law, enacted in 1972 that restricted majority foreign ownership in certain activities, was amended in 1999. The new law relaxes the limits on foreign participation in several professions such as the law, accounting, advertising, and most types of construction, which have moved from the completely prohibited list to the less restrictive list for businesses in which Thais are not yet ready to compete. It also reduces the previous limits on foreign ownership of firms and the manufacturing of certain products such as cement, pharmaceuticals, alcohol, textiles, garments, and footwear. However, newspaper publishing, farming, and trading in antiques have

become more restricted. Previous restrictions on retail companies and securities brokerages have been relaxed and no longer require special government approval for foreign ownership. However, the relaxation on the retail business has caused a public outcry about the impact that large foreign discount stores may have on the local retail outlets, and the government has been under pressure to review this law accordingly.

BOI Promotion Law - The BOI has been active in undertaking other policy and service measures to stimulate expansion projects by existing investors and new green-field projects, and also to encourage new foreign investment.

2.3 FDI Promotion Activities

According to the Investment Promotion Act B.E. 2520, the Board of Investment is authorized to grant the following tax and non-tax incentives. Firstly, tax incentives can be granted, such as exemption/reduction of import duties on machinery, reduction of import duties for raw or essential materials, exemption of a juristic person's income tax and dividends, a 50 percent reduction of a juristic person's income tax, double deductions for the costs of transportation, electricity, and water supply, an additional 25 percent deduction of the cost of installation or construction of facilities, and exemption of import duty on raw or essential materials for use in production for export. Secondly, non-tax incentives can be granted through permits for foreign nationals to enter the Kingdom for the purpose of studying investment opportunities and permits to bring into the Kingdom skilled workers and experts to work in investment promoted activities, permits to own land, and permits to transfer or remit money abroad in foreign currency. Moreover, the BOI provides guarantees to foreign investors that the State will not nationalize the activity of a promoted person, nor undertake a new activity in competition with a promoted person.

As of September 2013, the following statistics of the BOI are available. Figures 1 and 2 show the number of projects by major foreign shareholders in 2012 and the first nine months of 2013, respectively. Consistent with the overall FDI by origin sources, as shown in Figures 3 and 4, Japanese companies/investors are among the largest recipients of BOI privileges and incentives. Table 4 shows the distribution of BOI privileges during the first 11 months of 2013 compared to the previous year.

=== Table 4, Figures 1-4 ===

3. Empirical Analysis of the FDI Impact in Thailand

This study employs a similar econometric model as Jayawickrama (2005) in assessing the influence of FDI on manufacturing growth. Jayawickrama (2005) studied the case of 14 manufacturing industries in Singapore over 30 years from 1975 to 2004. The study found a positive contemporaneous effect of FDI on the output growth of Singaporean manufacturing industries, whereby a 1 percent increase in FDI tended to increase manufacturing output growth by nearly 0.4 percent. This paper assesses the case of the FDI impact on Thailand.

In this study, the FDI data used is the quarterly inward foreign direct investment into Thailand from 2005-2013, covering 9 sub-sectors of the Thai economy. This paper sets up an econometric model to analyze the sectoral impact of FDI on the sectoral value-added output of the Thai economy as follows:

$$\Delta \text{Sectoral Output}_t = \text{Constant} + \Delta \text{FDI}_t + \Delta \text{Non-FDI}_t + \varepsilon_t$$

The regression used is the Ordinary-Least Square (OLS). Non-FDI variables are domestic investment and employment representing capital and labor inputs into economic production. The variables are in log form. As the all time-series variables have non-stationary characteristics, the regression is run as first-difference. The FDI sectors in this study are (1) All sectors (2) Construction (3) Manufacturing (4) Financial (5) Wholesale and retail trade (4) Financial Sector (5) Wholesale and retail trade(6) Agriculture (7) Transport (8) Electricity (9) Real estate, and (10) Hotel and restaurant. All necessary data is obtained from the CEIC database.

The empirical results are reported in Table 5, and can be summarized as follows. In all sectors it shows that FDI inflow has a positive effect on the Thai economy. The FDI shows a positive impact on the output in the construction sector. The sectoral output indicates a positive effect from FDI in the manufacturing sector. FDI into the financial sector shows a positive impact on the sector's output. FDI in the wholesale and retail trade shows a positive impact on the sector's output. FDI in the agricultural sector in Thailand shows a positive impact on the sector's output. FDI in the transport sector shows a statistically insignificant impact on the sector's output. FDI in the electricity sector shows a statistically insignificant impact on the sector's output. FDI in real estate does not show a

statically significant impact on the sector's output. FDI in the hotel and restaurant sector does not show a statistically significant impact on this sector's output.

With the above findings, we can compare the BOI incentives given to different sectors as shown in Figures 5-8. Thus, BOI investment promotion activities primarily concentrate in the manufacturing sector, whereby FDI into this sector has achieved a positive impact. However, there are other sectors, particularly the service sector, in which the BOI should also focus its efforts. Overall, the BOI should prioritize incentives to the sectors that would maximize economic value-added for the Thai economy. Moreover, policy-makers and the BOI should also strive to promote greater FDI productivity in those sectors in which FDI inflows have not resulted in a positive performance for the Thai economy.

=== Figures 5-8 ===

4. Conclusion and Policy Recommendation

This paper examines and analyzes the overall and sectoral economic impact of foreign direct investment (FDI) on the Thai economy, by using recent economic data from the period 2005-2013. In assessing the overall economic impact, it is found that FDI has contributed positively to Thailand's economic growth. This study shows a clear and consistent result of the positive benefit of foreign direct investment in Thailand. Clearly, much of the manufacturing competitiveness that Thailand has achieved in the past few decades can be attributed to foreign direct investment that has provided much needed capital and technological know-how. However, when analyzing the sectoral value-added details, the results indicate that FDI has a variable impact. Out of the 9 sub-sectors in this study, 5 sub-sectors (manufacturing, construction, financial, wholesale and retail trade, and agriculture) show the strong and statistically-significant positive effect of FDI on these sectors' output. However, the remaining 4 sectors in which FDI does not have a discernable positive impact, require further analytical examination. There could be many reasons, such as over-protective regulatory policies, or a lack of FDI into these sectors to generate a discernible economic impact, etc. Based on these findings, it is suggested that policy-makers should aim to promote further FDI into Thailand, and they should review the

sectoral basis carefully on how to enable Thailand's FDI promotion policies to be more productive and beneficial for the Thai economy.

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Table 1. Balance of Payments in Thailand

	2005	2006	2007	2008	2009	2010	2011	2012 p
Exports (f.o.b.)	109,362	127,941	151,258	175,233	150,819	191,647	219,118	225,875
Imports (f.o.b.)	105,960	114,272	124,618	157,885	118,199	161,897	202,130	219,860
Trade balance	3,402	13,670	26,640	17,348	32,620	29,751	16,989	6,015
Net services	-11,044	-11,354	-10,959	-15,191	-10,724	-19,727	-12,884	-7,485
Current account balance	-7,642	2,315	15,682	2,157	21,896	10,024	4,105	-1,470
Capital account	n.a.	n.a.	n.a.	n.a.	68	245	-41	234
Financial account	6,974	8,106	-1,649	12,633	-2,601	24,809	-621	14,142
Net errors & omissions	6,090	2,320	3,070	9,902	4,764	-3,753	-2,229	-7,642
Overall balance	5,422	12,742	17,102	24,693	24,127	31,324	1,214	5,265

Source: Bank of Thailand

Table 2. FDI Inflow by Sector

	2008	2009	2010	2011	2012 p
Agriculture, forestry and fishing	9	7	6	1	6
Mining and quarrying	-2	641	419	239	-45
Manufacturing	4,891	2,412	4,623	5,859	3,910
Electricity	200	222	-56	57	58
Construction	-34	1	27	-78	-141
Wholesale and retail trade	132	345	-59	767	982
Transportation and storage	450	118	-132	237	39
Accommodation and food service activities	-51	46	114	-11	11
Financial and insurance activities	1,766	274	2,280	-1,192	1,957
Real estate activities	1,203	768	984	1,072	1,093
Others	-17	19	905	2,049	2,826
Total	8,547	4,853	9,112	8,999	10,697

Source: Bank of Thailand

Table 3. FDI Inflow by Country/Region

	2008	2009	2010	2011	2012 p
ASEAN	942	1,463	1,237	565	-90
EU	671	993	1,128	663	1,971
Middle East	54	65	-6	8	12
Australia	85	63	88	108	147
Bahamas	-6	-577	-24	0	1
Bermuda	41	58	-19	27	-9
British Virgin Islands	-12	1,078	101	530	245
Cayman Islands	1,119	250	269	881	-544
China	16	25	707	319	566
Hong Kong	1,017	-48	-130	551	395
India	-102	9	-1	39	37
Japan	3,195	1,362	3,355	934	5,800
Liechtenstein	3	-52	0	2	6
Mauritius	348	125	226	362	-88
New Zealand	1	3	3	7	5
Panama	-208	89	-53	10	4
Russia	16	12	21	8	57
Samoa	499	34	38	154	-59
South Korea	100	110	177	237	353
Switzerland	455	76	158	490	474
Taiwan	-28	44	4	84	166
United States	166	-491	1,039	1,073	874
Others	176	160	791	1,947	372
Total	8,547	4,853	9,112	8,999	10,697

Source: Bank of Thailand

Table 4. Distribution of BOI Privileges

	Number of project			Investment value (billion Baht)		
	2012	2013	% Change	2012	2013	% Change
Zone 1	489	515	5	115	88	-23
Bangkok	218	276	27	16	23	45
Vicinity	271	239	-12	99	66	-34
Zone 2	914	699	-24	529	353	-33
Rayong	236	241	2	197	156	-21
Others	678	458	-32	332	197	-41
Zone 3	402	386	-4	105	167	58
36 Provinces	339	334	-2	94	155	65
23 Provinces	63	52	-18	11	12	5
Others	72	96	33	116	183	59
Total	1,877	1,696	-10	864	791	-9

Note: Data is for the first 11 months of 2012 and 2013, respectively.

Source: Board of Investment, Thailand

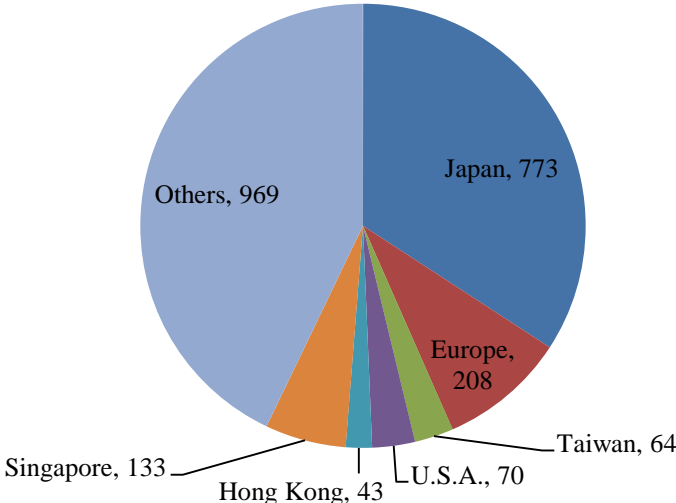
Table 5. OLS Results by Sector

Sectors	All	Construction	Manufacturing	Financial	Wholesale	Agriculture	Transport	Electricity	Real Estate	Hotel etc
ΔFDI	0.60** (0.26)	0.22** (0.09)	1.15*** (0.33)	0.07* (0.04)	0.22** (0.10)	-137.31* (69.85)	-1.16 (0.68)	214 (1091)	384 (405)	1.03 (0.64)
ΔCapital	0.69 (0.48)	0.33*** (0.01)	111.51*** (37.09)	0.03*** (0.01)	39.92*** (13.63)	6.57 (5.74)	0.13*** (0.04)	-0.7 (0.85)	0.13 (0.12)	0.03 (0.03)
ΔLabor	-18.4 (18.78)	0.48 (0.63)	0.58** (0.26)	-62.06 (40.78)	-0.26*** (0.08)	0.82*** (0.26)	0.04*** (0.01)	0.11*** (0.03)	0.03*** (0.01)	8.03 (11.13)
Constant	33,289** (16100)	-86 (215)	7924 (9284)	1,985* (1070)	4,746* (2637)	177 (8989)	991 (1350)	57.22*** (19.57)	-109.24 (93.37)	2,267* (1129)
Number of observations	33	33	33	33	33	33	33	33	33	33
R-squared	0.383	0.991	0.537	0.469	0.551	0.297	0.552	0.382	0.243	0.111
Adjusted R-squared	0.320	0.990	0.490	0.414	0.505	0.224	0.488	0.318	0.193	0.019
S.E. of regression	8.6.E+04	1.2.E+03	5.2.E+04	5.9.E+03	1.5.E+04	5.0.E+04	7.5.E+03	6.0.E+03	2.3.E+03	6.2.E+03
Sum squared resid	2.2.E+11	4.4.E+07	7.8.E+10	1.0.E+09	6.3.E+09	7.3.E+10	1.6.E+09	1.1.E+09	1.6.E+08	1.1.E+09
Log likelihood	-419.653	-279.497	-402.995	-331.438	-361.355	-401.805	-338.612	-331.937	-300.537	-332.717
F-statistic	6.013	1008.812	11.229	8.540	11.864	4.082	8.636	5.985	4.822	1.202
Prob(F-statistic)	0.003	0.000	0.000	0.000	0.000	0.016	0.000	0.003	0.015	0.327
Mean dependent var	3.7.E+04	8.4.E+02	1.0.E+04	2.5.E+03	3.1.E+03	7.0.E+03	2.5.E+03	1.3.E+03	5.5.E+02	2.8.E+03
S.D. dependent var	1.0.E+05	1.2.E+04	7.3.E+04	7.8.E+03	2.1.E+04	5.7.E+04	1.1.E+04	7.3.E+03	2.5.E+03	6.2.E+03
Akaike info criterion	25.676	17.182	24.666	20.330	22.143	24.594	20.825	20.360	18.396	20.407
Schwarz criterion	25.857	17.363	24.848	20.511	22.324	24.776	21.052	20.541	18.532	20.588
Hannan-Quinn criter.	25.737	17.243	24.727	20.391	22.204	24.655	20.901	20.421	18.442	20.468
Durbin-Watson stat	2.366	2.833	2.542	2.175	2.409	2.888	2.489	1.964	2.618	2.918

Note: ***, **, and * show 1%, 5%, and 10% significance, respectively.

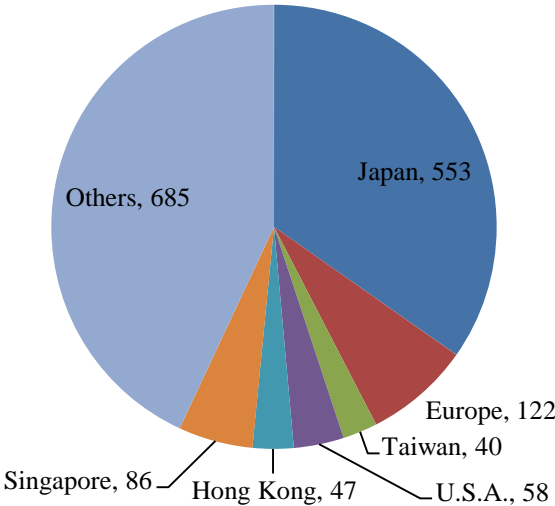
Source: CEIC database, calculated by the author

Figure 1. Number of Projects by Major Foreign Shareholders in 2012



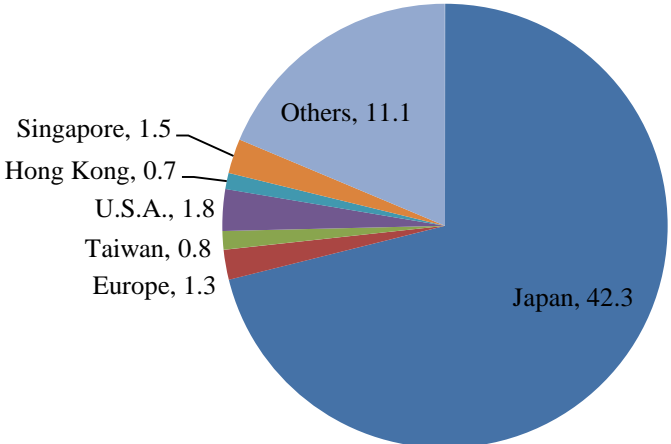
Source: Board of Investment, Thailand

Figure 2. Number of Projects by Major Foreign Shareholders in 2013 (Jan-Sep)



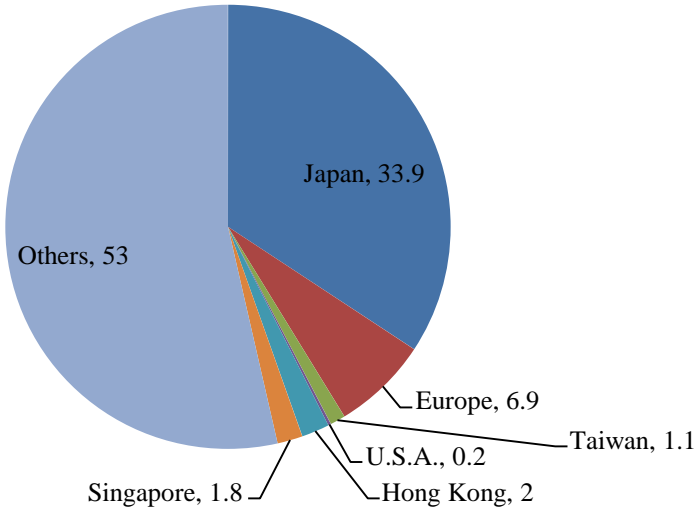
Source: Board of Investment, Thailand

Figure 3. Registered Capital by Major Foreign Shareholders in 2012



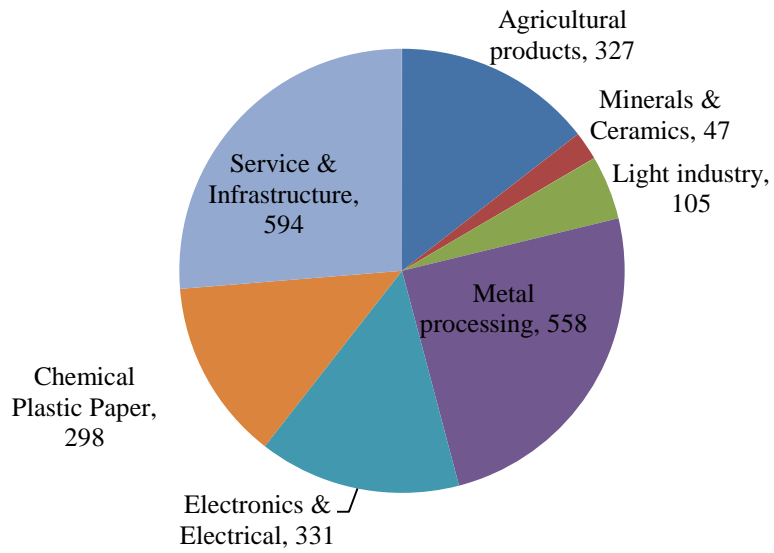
Source: Board of Investment, Thailand

Figure 4. Registered Capital by Major Foreign Shareholders in 2013 (Jan-Sep)



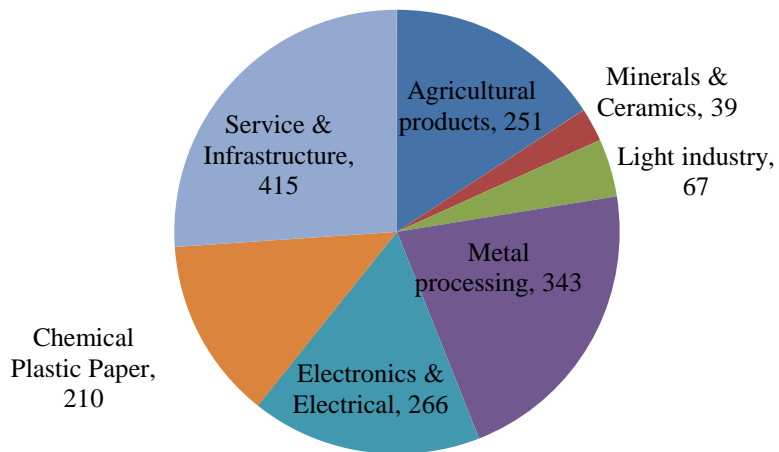
Source: Board of Investment, Thailand

Figure 5. Number of Projects by Sector in 2012



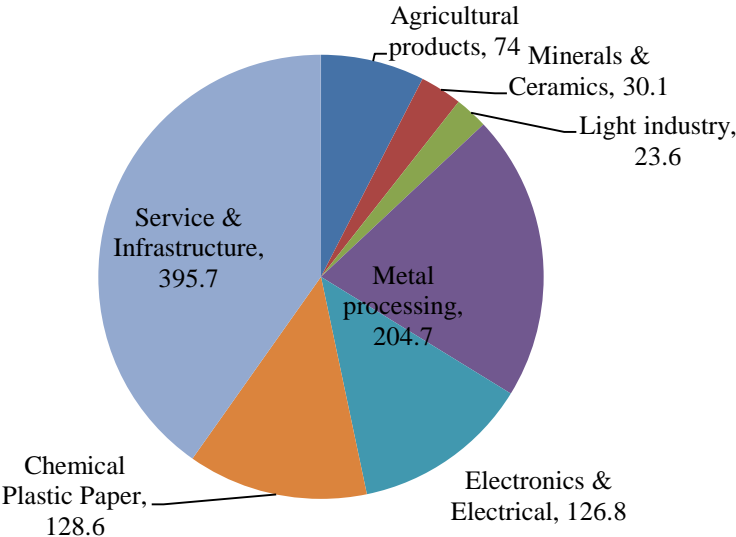
Source: Board of Investment, Thailand

Figure 6. Number of Projects by Sector in 2013 (Jan-Sep)



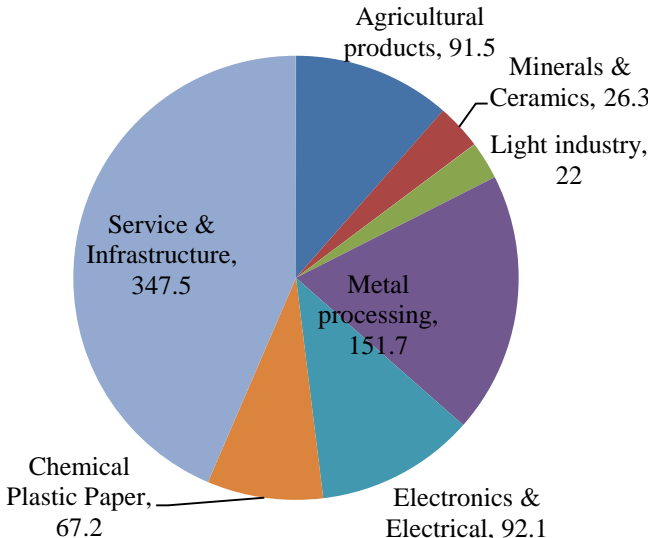
Source: Board of Investment, Thailand

Figure 7. Total Investment by Sector in 2012



Source: Board of Investment, Thailand

Figure 8. Total Investment by Sector in 2013 (Jan-Sep)



Source: Board of Investment, Thailand