

# **Industrial Decentralization Policies and Industrialization in Thailand**

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## **Abstract**

It can be concluded that although, industrial development in Thailand was successful as newly industrial country but the industrial geographical dispersion was fail, we can find that the industrialization of Bangkok metropolis region (BMR) is very high concentration that is one of causes of income disparity and poverty in Thailand. From the study, it found that industrial geographical concentration in BMR and surrounding area were high, even though the Thai Government has attempted to lure businessmen to locate their industries in the periphery or rural area, including moving their industries from the core by using several types of tax incentives, secondary city or growth pole, and supporting the sub regional development. It can conclude that, Thailand has not succeeded in rural industrialization.

**Key Words:** Industrialization, Industrial decentralization, Industrial development policy

## Introduction

The phenomenon of industrial agglomeration and concentration has stimulated renewed interests among economists and economic geographers over the last decade, which related to the regional integration process that have appeared around the world in the second half of the twentieth century, especially on economic integration in Europe and the North American Free Trade Agreement (NAFTA) (Pansuwan, 2009). Many theories and models, with particular emphasis on international trade and new trade theory and, more recently, the 'new economic geography', led by Paul Krugman were used to explain this evidence affected on regional specialization, industrial agglomeration and concentration (Krugman and Venables, 1990; Krugman, 1991).

Spatial concentration of manufacturing always ends up with regional inequalities. This phenomenon is also true in the case of Thailand (Pansuwan and Routray, 2011). In Thailand, industrialization and urbanization have been the major driving forces toward modernization starting in the early 1960s (Panpiemras, 1988; Biggs *et al.*, 1990; IFCT, 1991; World Bank 1993; Cuyvers *et al.* 1997). With the government's objective of putting more emphasis on industrial development, many policies and strategies have been developed and adopted during the past four decades. Thus, the growth pattern of the manufacturing industries in Thailand could be divided into two sub-periods, namely: 1960-85 and 1986 to the present. The purpose of such grouping is to illustrate the growth performance of the different industrialization strategies under these two eras, specifically the import substitution (IS) and export promotion (EP) regimes, and considering also the fact that Thailand had pursued a typical IS industrialization strategy between the early 1960s and the mid-1980s (IFCT 1991; Douangngeune, *et al.* 2005; BOI,2006).

Under the Third Economic and Social Development Plan (1972-1976), manufacturing of products for export was boosted. In fact it was in 1972 that the investment promotion law was revised to include provisions for the granting of more incentives to the exporting industries. Thus, starting from a small base, the quantity of manufactured products for export had rapidly magnified since then. The adoption of the export promotion strategy is still being pursued until the present. Meanwhile, the country's industrial structure has also been diversified towards the

intermediate and capital goods industries. As a result, starting in the late 1980s, investments in the manufacturing of intermediate products such as parts and components of computers, automobiles, and electronics have become very apparent (IFCT, 1991).

The recent history of Thailand's economy could be pictured as having more than a decade of sustained and rapid economic growth beginning in 1985 followed by a severe recession that started in late 1997. During the period of economic boom, the country's average economic growth was more than 7% annually, which was one of the highest rates in the world (Glassman, 2001). When the Thai economy flourished during those past two decades of EP development especially in the industrial sector, Thailand became one of the world's middle income countries in the world (World Bank, 2004).

Despite the success of industrialization over the years, little emphasis has been placed on the dispersion of industries to rural areas, sectoral linkage and economic distribution (Panpiemras, 1988; MOI, 2002). The industrialization policies and strategies focused mainly on the importance of the import substitution and export oriented industries. As a result, most of the industrialization took place in and around the Bangkok Metropolis Region (BMR) as it is the most economically and most efficient location for the import substitution and export oriented industries. The concentration of factories in Bangkok then led to mass migration into the capital ending up with social ills such as the emergence of more slum dwellings, environmental pollution, traffic congestion and income disparities (Hussey, 1993).

This paper therefore aims to focus on the industrial development policies and the factors that influenced the regional pattern of industrial concentration and development in Thailand, based on the new economic geography theory. The purpose of this study is to assess the effectiveness of Thai government policies to disperse manufacturing plants from Bangkok. This article consists of three sections. Firstly, it reviews the macro industrial development policies and programs under the national economic and social development plans (NESDP), investment promotion, regional development and trade policies of the government. Section 2 examines some policies assessment and impact, economic and industrial growth and industrial distribution. Finally, the last section

provides some conclusions about the industrial development policies and their contribution to rural regional development.

## **The Industrial and Regional Development Policies**

Since the World War II, the Thai Government has placed great importance on industrial development (Panpiemras, 1988; IFCT, 1991). The establishment of the Ministry of Industry (MOI) in 1942 was mainly aimed to encourage and monitor the development in this sector, with other government agencies participating directly or indirectly in the formulation of industrial policies. These include, for example, the formulation of development strategies by the National Economic and Social Development Board (NESDB), tax policies by the Ministry of Finance (MOF) and investment promotion by the Board of Investment (BOI) (Sibunruang, 1986; Loha-unchit, 1990).

The First and Second National Economic and Social Development Plans in 1960s for instance stated that the government would reduce its involvement in manufacturing (MOI, 2002). In this connection, the public sector was encouraged to provide private companies with investment incentives and carry on constructing vital infrastructures necessary for industrial development (IFCT, 1991).

The industrialization strategies of the 1960s put more emphasis on the production of goods for the domestic market. Import-substitution industries including assembly plants largely using imported parts and components were fostered. Foreign direct investment (FDI) was also enthusiastically encouraged (Akrasanee, 1977; Reinhardt, 2000; Jansen, 2001). The promotion of the import substitution (IS) strategy helped in making a quick start of the industrialization process. Many foreign manufacturers and assemblers of consumer goods came to invest in Thailand (Hussey, 1993; Glassman 2007). As a result of the IS promotion however, almost all factories were situated in the BMR, since it is where infrastructures and facilities especially the container and commercial port as well as the international airport, which play the key role for the mobilization of raw materials and machineries, are situated (Hussey, 1993).

The production of manufactured goods for export was promoted in the Third and Forth Plans. Thus in 1972, the investment promotion

law was revised to provide more incentives to the exporting industries. Starting from a small base, production of goods for export had since then expanded rapidly (MOI, 2002). Such export promotion (EP) strategy is still being implemented until the present. Along with such development, the country's industrial structure had also diversified towards the intermediate and capital goods industries (IFCT, 1991; Hussey, 1993).

In addition to advancing the export promotion strategy, the policy on dispersing industrial activities to different regions in the country was also prescribed in the Third Plans (Panpiemras, 1988; Tsuneishi, 2005). In fact, the revision of the investment promotion law in 1972 had enabled the BOI to provide more incentives to business firms operating in designated provincial areas (Figure 1). In the same year, the Industrial Estate Authority of Thailand (IEAT) was established as a state enterprise under the MOI to promote the creation of industrial estates (IEs) in different regions of the country (Figure 2). However, even in the late 1970s the industrial estates were still mostly located in provinces near the capital, due to the availability of better infrastructures as well as accessibility to the largest consumer market (Hussey, 1993; IEAT, 2006). Moreover, during the adoption of the Forth Plan, the Industrial Regional Promotion Branch was established as additional incentive for the promotion of rural industrial development in remote areas (MOI, 2002).

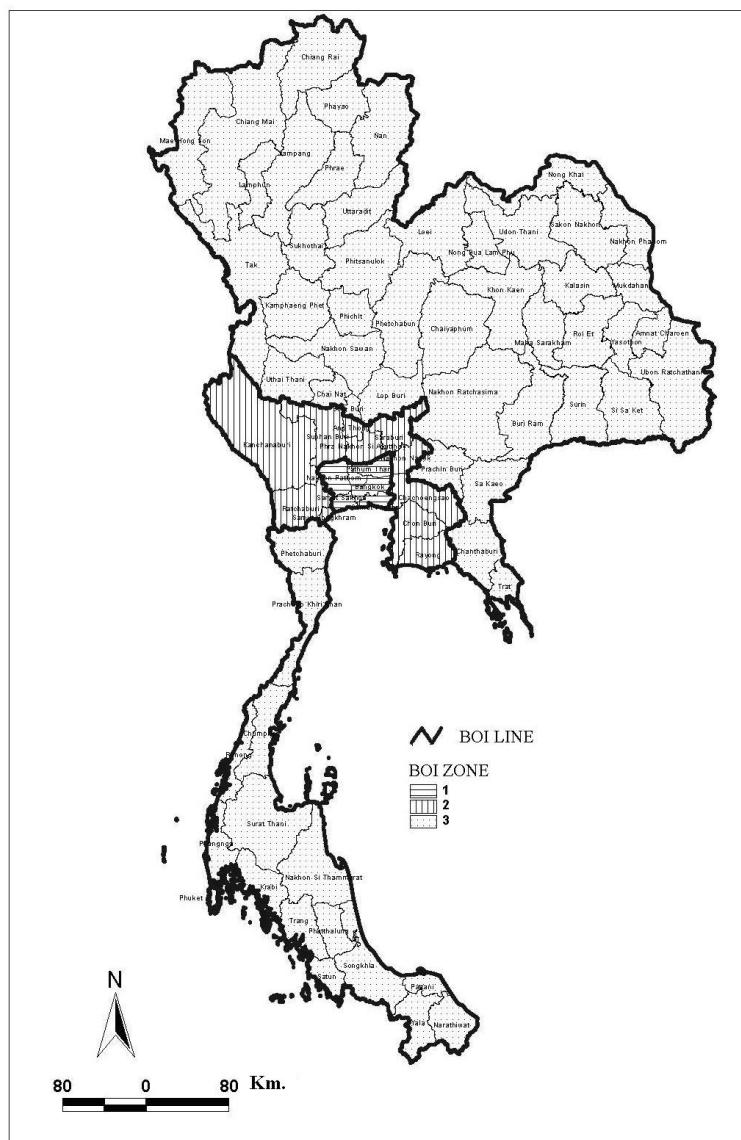
In another development, the structural adjustment program as stipulated in the Fifth Plan, aimed to boost the labor-intensive, resource-based and export-oriented industries. The program was also aimed at gradually phasing out certain inefficient operations through the rationalization of the incentive structures which were earlier formulated (MOI, 2002). In addition, development of small, medium-sized and rural enterprises was also pushed (NESDB, 2007). The Sixth Plan (1987-1991) continued to give priority to export-oriented, small-scale and regional enterprises, while agro-based and "engineering-based" industries especially those that manufacture metal products, machineries, electronics and communication equipment were also specified (MOI, 2002; BOI, 2006).

In the industrial decentralization approach, the Thai Government encouraged the private investors both foreign and domestic, to invest in

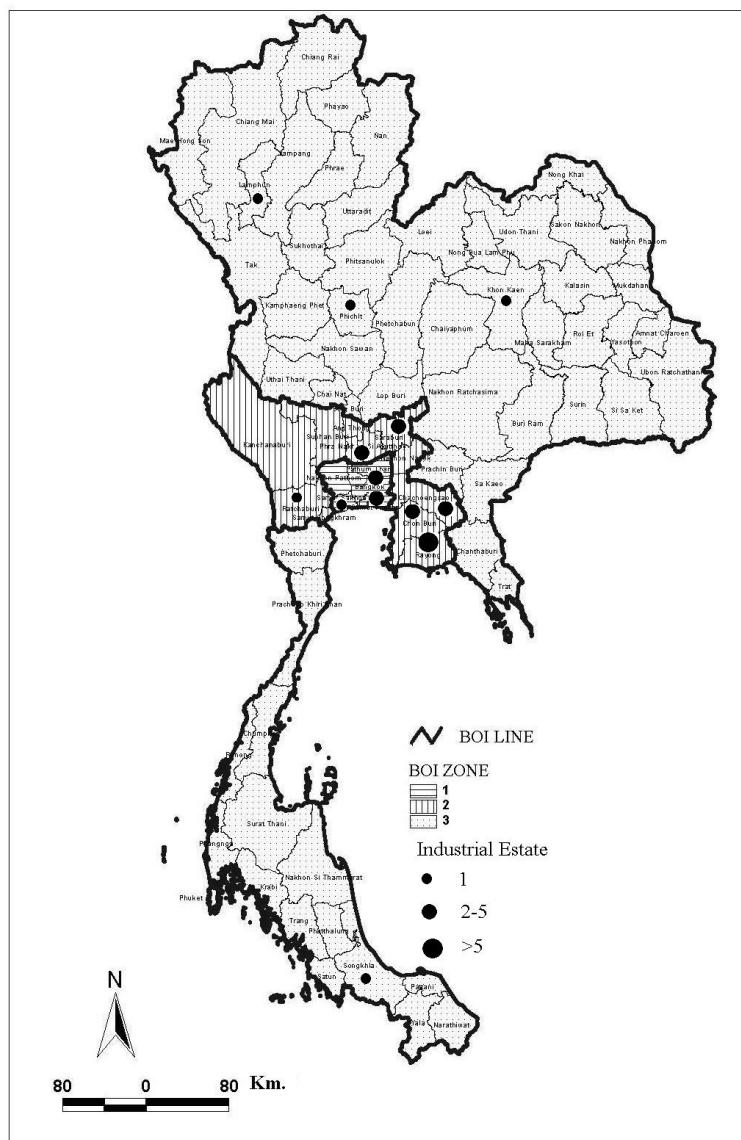
the country's remote areas (Glassman and Sneddon, 2003; Tsuneishi, 2005). This concept was based on the 'growth pole theory'. Thus, in the Fifth and Sixth NESDP, 12 cities (Nakhon Rachasima, Khon Kaen, Ubon Ratchathani, Udon Thani, Nakhon Sawan, Phitsanulok, Chiang Mai, Saraburi, Ratchaburi, Chonburi, Surat Thani, and Songkhla) were selected to serve as secondary cities where contributions to the rural economies and employment could be enhanced (Figure 3). Moreover, the MOI also planned to promote the development of provincial industries in some provinces by providing the necessary infrastructures and facilities support. Dubbed as the 'City of Industrial Development Center', nine (9) provinces were chosen to be involved in the so-called provincial industries, namely: Nakhon Rachasima, Khon Kaen, Nakhon Sawan, Phitsanulok, Chiang Mai, Saraburi, Ratchaburi, Surat Thani and Songkhla (Figure 4) (NESDB, 2007a).

The development of rural industries was again emphasized in the Seventh Plan (1992-1996). This time the policy was supported by more concrete measures that included the setting up of a committee on regional development, and providing different incentives which were offered to industries located in different areas of the country. More developed provinces in the regions, such as Chiangmai in the Northern Region, Khon Kaen and Nakorn Ratchasima in the Northeastern Region, and Songkla and Surat Thani in the Southern Region, were then specified as centers for regional development (Tienwong, 2004; NESDB, 2007a). Furthermore, the BOI's promotion zones were also established in 1987 where all areas except the BMR were designated as promotion zones (IFCT, 1991; BOI, 2002). There was also an attempt to cut down on the incentives granted to areas not being advocated such as the BMR. However, since another government revamp took place less than a year later, such plan did not materialize.

Under the new system, the investment promotion areas were grouped into three zones: the BMR as Zone 1; the inner ring areas consisting of Samut Songkhram, Ratchaburi, Kanchanaburi, Suphanburi, Ang Thong, Phra Nakhon Sri Ayutthaya, Chachoengsao, Nakhon Nayok, Saraburi and Chonburi as Zone 2; and Zone 3 comprising the outer ring areas. Designated by the BOI as the investment promotion zone, Zone 3 included all the provinces nationwide except the BMR and the inner



**Fig. 1** Zones Established by Board of Investment of Thailand



**Fig. 2** Location Map of Industrial Estates in Thailand

ring areas, and was given the greatest amount of tax incentives and promotional privileges (BOI, 2006).

An important element in Thailand's industrial development during the 1980s was the development of the Eastern Seaboard (ESB) as the 'new economic zone' (Tienwong, 2002; Tsuneishi, 2005; Glassman, 2007). The ESB program was set up under the Fifth NESDP after the discovery of natural gas in the Gulf of Thailand (IFCT, 1991; Kaothien and Webster, 1998). A gas separation plant was subsequently built in the ESB area. Infrastructures including highways, deep seaports, and industrial estates were also constructed. Specifically, petrochemical and steel plants were set up in the Mab Taput industrial estate in Rayong Province, while light and export industries were being situated in the Laem Chabang industrial estate in Chonburi also along the ESB (Hussey, 1993; MOI, 2002; IEAT, 2006; NESDB, 2007a).

During the Sixth and Seventh Plans, foreign investment projects specifically the intermediate and machinery-related industries had increased, more particularly in the production of electronics as well as automotive parts and components (MOI, 2006). Thus, under such export-oriented industrialization support program, four regions such as the Northern, Northeastern, Western and the Southern regions were designated as the 'new economic zones' following the ESB model (Tsuneishi, 2005). However, all plans were revised after the financial crisis in 1997.

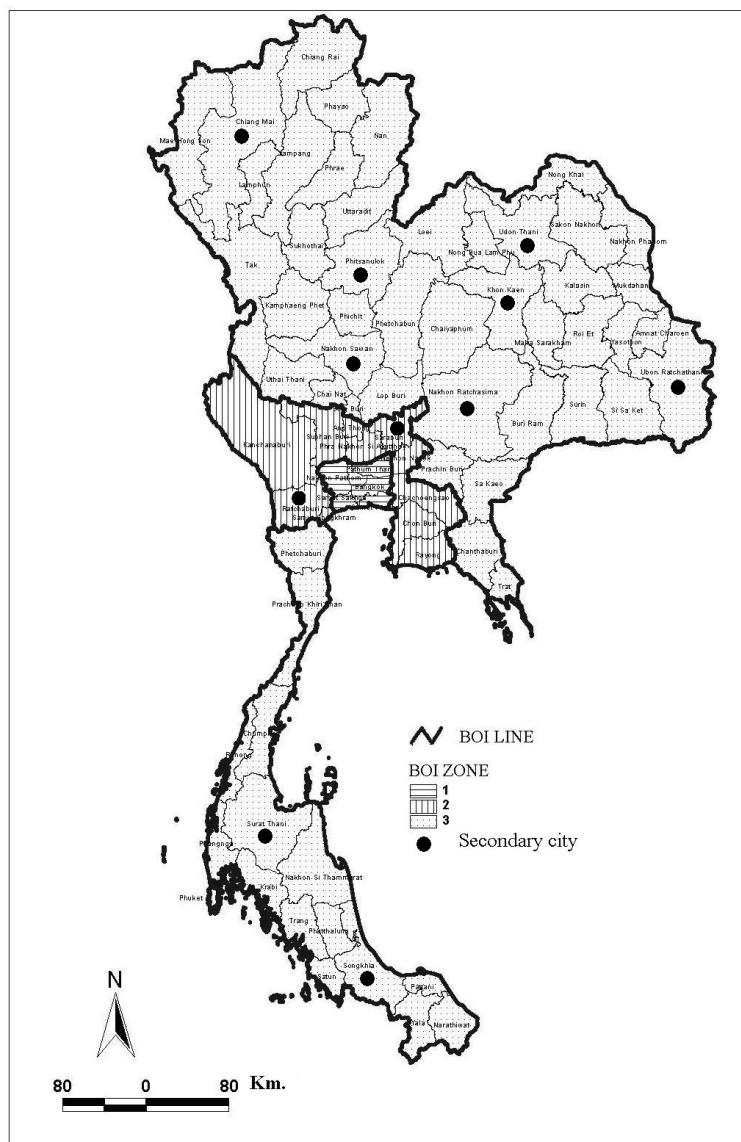
Nonetheless, since several policies were considered important in the previous plans including the promotion of export industries, small-scale and regional industries, these were continued to be emphasized in the Eighth NESDP (BOI, 2006). But it was also during the Eighth Plans that the Thai economy plunged into the worst recession of the post-war period. The country suffered a sharp economic downturn in 1997 and 1998 combined with currency and financial crises (BOI, 2006; NESDB, 2007a). The economic crisis was not foreseen and so with hindsight, many argued that the crisis was the cumulative effect of a number of structural weaknesses although it could have been triggered by a combination of short-term events (Lall, 1998; Glassman, 2001).

With regards to the policies on industrial decentralization and improvement of industrial competitiveness, the Eighth Plans stipulated

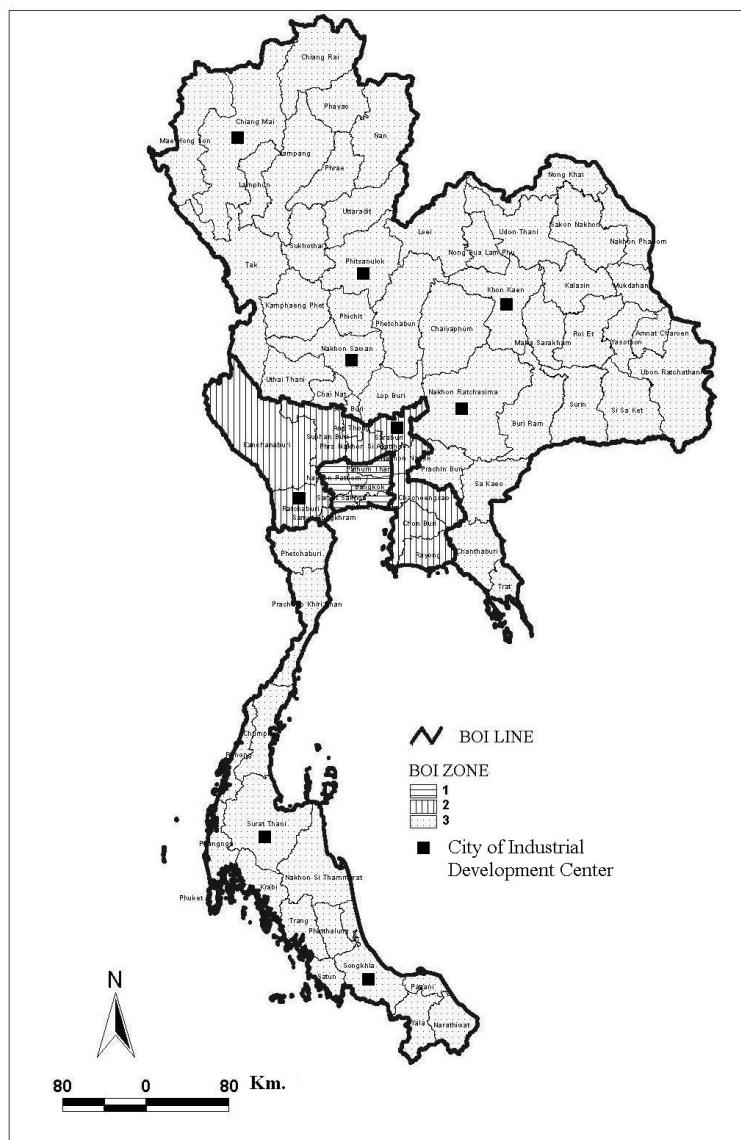
that opportunities for industrial development should be created by setting up special economic zones and tax-free zones along the borders to attract investments and trade within Thailand as well as with the neighboring countries (Tsuneishi, 2005). In addition, in 2000 the BOI also offered additional incentives for enterprises that relocate their factories in Zone 3 or in remote locations (BOI, 2006). Furthermore, the BOI granted corporate income tax exemption for three years on projects being carried out that invest in research and development activities. In fact these projects could import machineries and equipment for R&D activities with tax reduction or to some extent tax exemption for a period of eight years starting from the arrival date of their first shipment. Moreover, twenty two provinces considered as depressed areas were granted special incentives more than the usual privileges provided to other provinces in Zone 3 (BOI, 2006).

The objectives specified in the Ninth Plan (2002-2006), include the promotion of economic stability and sustainability, establishment of a strong national development foundation, establishment of good governance at all levels of the Thai society, reduction of poverty, and empowerment of the people (Tienwong, 2004; BOI, 2006; NESDB, 2007a). Specifically under the industrial development program, enhancement of competitiveness was emphasized. In this regard, major approaches were undertaken such as restructuring of the different production and trade sectors; upgrading the quality of the infrastructures; improvement of productivity through the development of industrial clusters, network in different industrial sectors, and linking agencies in the public and private sectors; development of small and medium enterprises; enhancing cooperation with neighboring countries; improvement of trade negotiation systems; and advancement of science and technology as well as manpower development (MOI, 2006).

In a related development, the Economic Cooperation Strategy (ECS) plan and the Great Mekong Sub-region Economic Cooperation (GMS-EC) program initiated by former Prime Minister Thaksin and the Asian Development Bank (ADB) focused on regional industrial development using the potentials of each region for balanced regional development as well as on strengthening the economic relations and mutual prosperity in the regions (Tsuneishi, 2005; NESDB, 2007c).



**Fig. 3** Location of Secondary Cities in Thailand



**Fig. 4** Location of City of Industrial Development Center in Thailand

As stipulated under such plan and program, the Thai Government intended to boost special economic zones in the border areas. Thus, in the Northern region, Chiang Mai, Chaing Rai, Lamphun, and Lampang were planned to be developed in close collaboration with China, Lao PDR and Myanmar. In addition, Nong Kai, Mukdahan and Nakhon Phanom in the Northeastern region would be established as the gateways to Indochina. With Ubon Ratchathani as the center of the region, Nakhon Ratchasima and Khon Kaen could serve as centers connecting the North and the Eastern Seaboards, and promoting investment links with Indochina. In the Western region, Tak would be developed as the gateway to Myanmar. Lastly, in the Eastern region, Trat would be developed in close collaboration with Cambodia (Figure 5). The plan and program also emphasized that border provinces along the East-West Economic Corridor and the North-South Economic Corridor should be developed as gateways to the Greater Mekong Sub-region (GMS) countries.

The Tenth Plan (2007-2011), which is still being implemented until the present, has the main objective fostering the ‘economic sufficiency’ following the philosophy of King Rama IX of Thailand, His Majesty King Bhumibol Adulyadej. The Plan aimed to promote economic stability and sustainability during the rapidly changing globalization; establish a strong national development foundation; institute good governance at all levels of the Thai society; and reduce poverty and empower the people to cope with the global changes (NESDB, 2007a; UNDP, 2007). In terms of industrial development, enhancing competitiveness is still being emphasized through productivity development. The plan also prescribed that the Thai manufacturing sector should be improved from being low-waged production sector into an innovation-driven industry, and formed into clusters with modern technologies and know-how driven into efficient productivity, while environmental protection through green productivity development is also being highlighted (NESDB, 2007c).

In accordance with its industrial development master plan, the NESDB (2007c) targeted 10 industrial groups to be boosted under the Thai industrial development program in order to make the industries survive in the midst of stiff competition in the world market. These include the petrochemical and plastics, automobile, electronic and electric appliance, steel, textile and wearing apparel, rubber, food

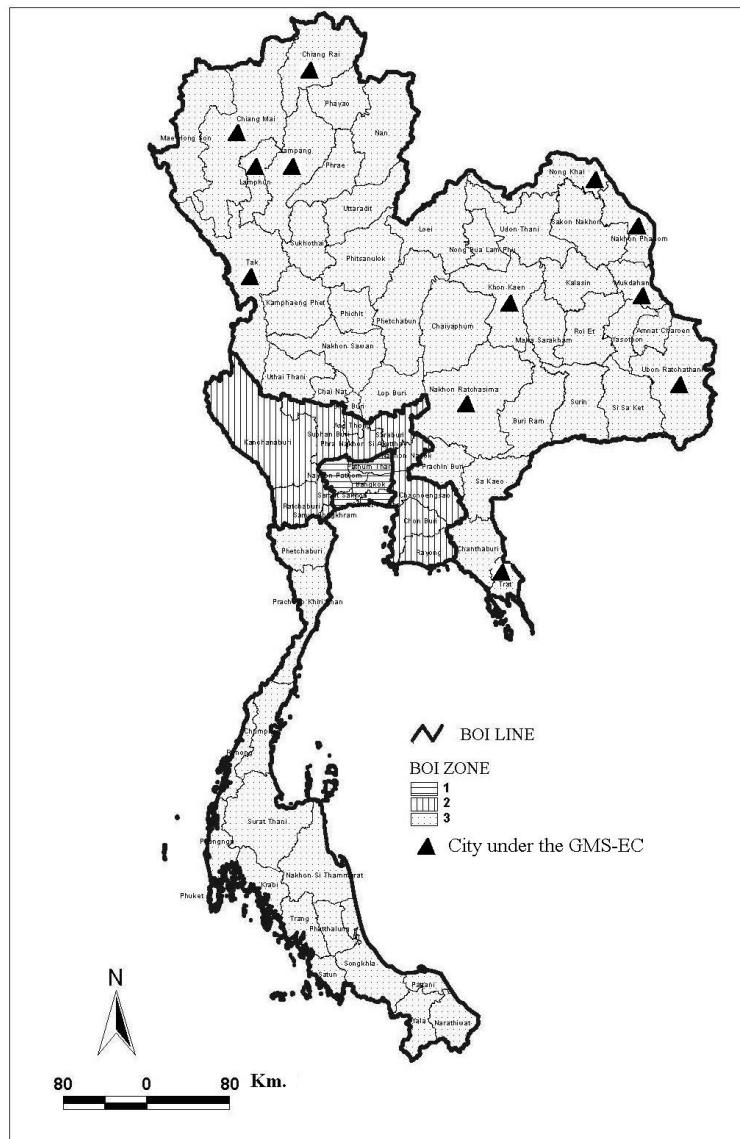
processing, paper, ethanol and bio-plastic industries. Consequently, three (3) regions such as the Eastern, Western and Southern sea boards were specified as the ‘new economic zones’ for the said target industries. Moreover, based on Thaksin’s progressive economic policy towards the GMS, the Thai government has continued to support the concepts of wide-ranging economic zones (Tsuneishi, 2005).

## **Industrialization in Thailand**

During the post war era, the manufacturing sector grew much faster than the other sectors, resulting in the increased importance of the manufacturing sector, especially between 1986 and 1996. As a matter of fact, during the period from 1961 to 1985, the Thai manufacturing output grew at an average annual rate of 9.7% while from 1986 to 1996 the sector attained an annual average growth rate of around 13%. However, at the onset of the financial crisis, the growth of the manufacturing sector has slowed down, dropping to as low as 4.4% per annum.

Considering the past four decades, the growth patterns of the Thai manufacturing sector can be separated into two sub-periods: 1960-85 and 1986 to the present (Kohpaiboon, 2003). The purpose of such segregation is to illustrate the growth performance of the different industrialization strategies between the import substitution and export promotion regimes. As discussed earlier, Thailand pursued a typical IS industrialization strategy between the early 1960s and the mid-1980s. From then on, the industrialization strategy has become more reliant on the EP. The mid-1980s is specifically selected because there has been a noticeable change in the market orientation of manufacturing products since then.

As could be gleaned from various reports, during the first two and a half decades (1960-85), Thailand continuously promoted the IS industrialization strategy. While the government pursued private-sector-led industrialization, the government also offered investment privileges granted by the BOI, such as tariff protection and an escalating tariff structure to encourage local IS manufacturing. However, these policy-induced incentives distorted the domestic incentive structure as the import-substituting industries were more favored over the export-oriented ones. Nevertheless, this strategy also led to the expansion of



**Fig. 5** Cities in Thailand Designated under the Great Mekong Sub-region Economic Cooperation (GMS-EC) ]

private investments and outpouring growth in the IS manufacturing sector.

### **1. The Import-substitution Industrialization Period (1960-85)**

A scenario which could perhaps be applicable only to Thailand could be glimpsed between the 1960s and the mid-1971s, when the growth of the country's manufacturing sector was rapid at an average annual rate of 11.2% (Diagram 1). As a result, the share of the manufacturing sector to the country's GDP also rapidly increased from 11.6% in the 1950s to 14.2% and 18.6% during the 1960s and the first half of the 1970s, respectively (Diagram 2). Although between 1976 and 1985, the trend of the growth of the manufacturing sector seemed to go downhill, it settled at the bottom in 1985. In spite of the average annual growth dropping from 10.4% during the period 1971-75 to 5% in 1981-85, the share of the manufacturing sector in the country's GDP remained more or less the same at around 22% between 1976 and 1985.

It is worthy to note that during the IS industrialization period, the country's industrialization development started with the rapid expansion of the manufacture of textiles and clothing as well as that of transport equipment. Such trend led to the dramatic increased of the share of the manufacturing sector from 1.7% in 1950 to 13.1% from 1976 to 1980. It should also be noted that many import-substitution industries started with easy and very accessible IS opportunities. For example, the textile industries already had a wide range of developed production technologies, from the highly capital intensive, i.e. synthetic fibers to labor intensive inputs, i.e. fabrics. However, the rapid expansion of the Thai textile industry took place in the most labor-intensive segment, i.e. the weaving industry. Similarly, the Thai automotive industry began with the local manufacture of bulky, simple and quasi non-tradable parts, while it was heavily reliant on imports of complicated parts, especially the engines.

Nevertheless, it should also be noted that in spite of such development, the import-substitution industries did not really contribute significantly to enhanced employment (Diagram 3). Between 1970 and 1985, the manufacturing employment accounted for only 8.2% of the total national employment. Although the employment share of

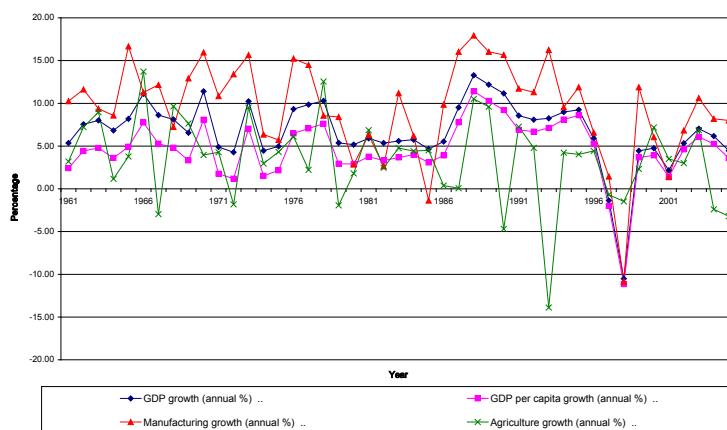
the manufacturing sector increased from 4.5% in 1970 to around 8.4% in 1975, it remained more or less unchanged at this level during the following decade ending in 1985.

## **2. The Export-promotion Industrialization Period (1986-present)**

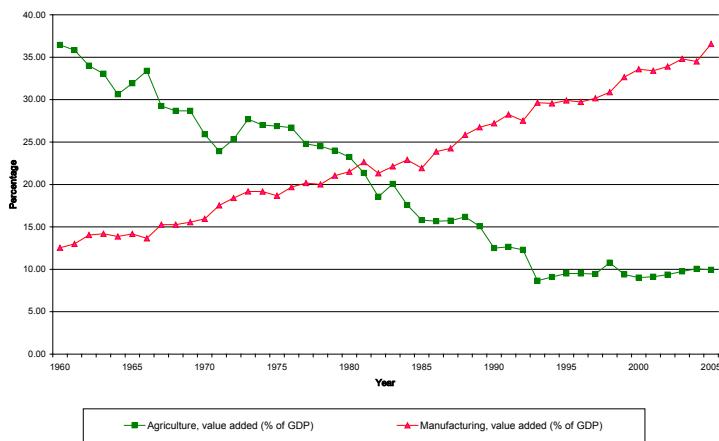
The IS industrialization strategy, which was implemented starting in the early 1960s, made the local manufacturing sector being heavily reliant on imported intermediate goods. In order to gradually lessen the successive deficits in the balance of payment between the late 1970s and the early 1980s, the government shifted from its industrialization strategy towards EP. Although the trade policy regime remained unchanged due to poor fiscal positions and high public foreign debt during the early 1980s, the government implemented the BOI promotion scheme to partly mitigate the adverse impact of input tariffs on the international competitiveness of the export-oriented industries. Under such scheme, the BOI imposed tariff exemptions on imported inputs over and above the usual investment promotion privileges for export-oriented activities.

In the meantime, many East Asian investors were seeking an export base abroad in the mid-1980s, to maintain international competitiveness in their labor-intensive export products. The erosion in their respective home countries' international competitiveness was enhanced by the outcome of wage increases and currency appreciation in the mid-1980s. In addition, the imposition and gradual tightening of quantitative restrictions by developed countries constrained the intensive production of certain labor-intensive exports from these East Asian countries, such as textiles, garments and footwear. In the electronics industry and other durable consumer goods industries, technological innovations allowed these investors to slice up the value chain of their production, relocating their efforts in the labor-intensive segments rather than in the entire industries in order to benefit from cheap labor which is readily available abroad. As a result, manufacturers from Japan and the North East Asian NICs have become actively involved with outward direct investment and have established a regional network to strengthen their international competitiveness. Thailand had been selected by these investors to be their labor intensive export base.

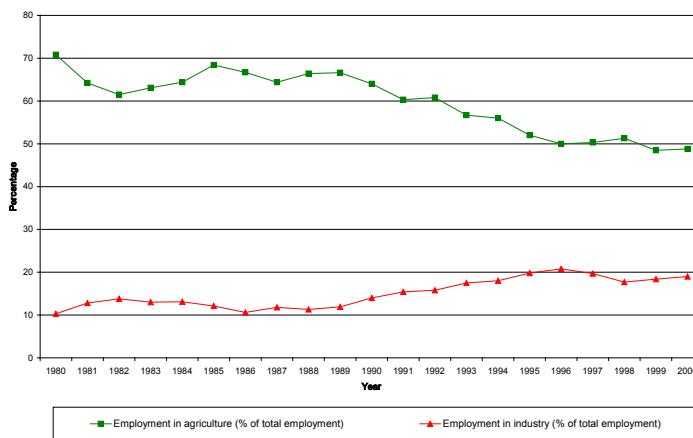
On the other hand, the Thai manufactured products for export also rapidly expanded from 1986 to 1995. In fact, its share in the country's total exports increased from 21.7% during the period 1970-85 to 55.8% and 72.2% in the second half of the 1980s and the 1990s, respectively (Diagram 4). From 2001 to 2003, the manufactured products for export accounted for 75.2% of the country's total exports. This is considering the fact that the country's development in the manufacturing of products for export commenced in late 1970s with the production of several processed food products, especially canned pineapple, canned tuna, frozen chicken as well as traditional labor-intensive manufactured goods, in particular garments. In 2006, the export of Thai manufactured products amounted to Baht 4,315 billion, which constituted mainly machineries and mechanical appliances including computers and computer parts, vehicles and auto accessories, and electrical appliances especially the integrated circuit products, which amounted to Baht 771.19 billion, 382.07 billion and 371.18 billion, respectively (BOT, 2008).



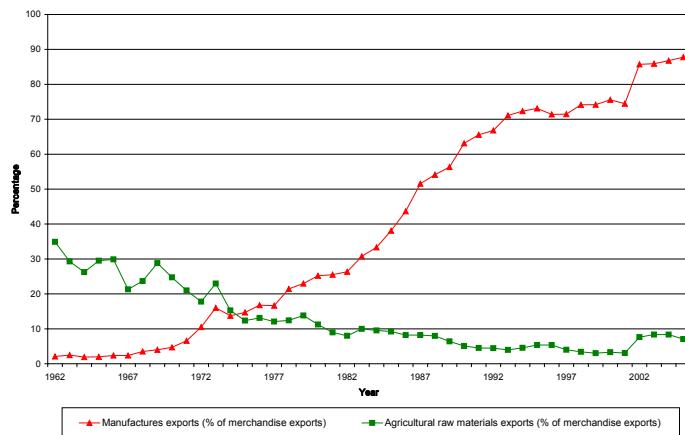
**Diagram 1:** Thailand's Economic Growth, GDP per Capita, Agriculture and Manufacturing Growth in 1961-2005



**Diagram 2:** Structural Change in the Thai Economy: GDP Share, 1960-2005



**Diagram 3:** Structural Change in the Thai Economy: Employment Share, 1960-2000



**Diagram 4:** Structural Change in the Thai Economy: Export Share, 1962-2006

The labor-intensive manufacturing industries such as those that manufacture clothing, footwear, leather products, furniture, toys, jewels and gems, and electronics also had an impressive growth record. Their total share increased from 17.4% in the 1970s to 28.7% and 31.2% in the second half of the 1980s and the 1990s, respectively. However after 1995, further diversification of the export mix took place in the country when Thailand became an increasing attractive location for assembly activities, especially in electronics within the broader category of machinery and transport equipment. This resulted in the increased importance of manufacturing such products for export during the period from 1995 to the present. In contrast, exports of labor-intensive and resource based products, have become relatively less important, compared with the high-tech manufacturing industries (Diagram 5 and 6).

The expansion of such labor-intensive manufactured products not only meant increased importance for the sector in terms of export earnings but also in terms of employment absorption. As a matter of fact, its employment share increased to 13.6% and 15.1% in 1991-95 and 1996-2000, respectively, from around 8.0% during the period 1970-85. Nevertheless, its performance in terms of national employment

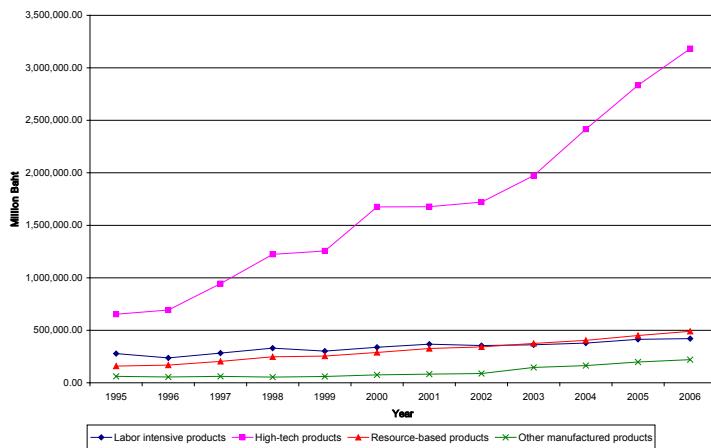
absorption seemed to be far from satisfactory sharing only around 10% of the overall national employment, while more than 50% of the employed workers still remained in the agricultural sector.

Following up on this development, there appeared certain slowdown in the growth of the manufacturing of products for export in 1996-68. From the average annual growth rate of 23.2% during the period 1991-5, this declined to 0% between 1996 and 1998. This could be mainly due to the upward trend of the real wage rate and the successive appreciation of the real exchange rate (RER), especially in the early 1990s, leading to the deterioration of the competitiveness of the manufacturing sector while such export slowdown resulted in a decline in the growth of manufacturing outputs from 12% in 1995 to less than 2.0% in 1997, and further to a negative growth rate of -11.0% in 1998. Although the dramatic currency depreciation during the onset of the crisis could have served as the catalyst for a boom in manufacturing products for export, the exporters of manufactured products were restrained by the credit crunch in the financial sector. Exporters especially the high import-content manufacturers, could not access adequate funds to acquire the necessary imported input materials. Devaluation led to increased costs in US Dollars of the import intermediates so that the exporters needed additional operating funds to buy such intermediates. The credit crunch in the financial sector therefore had retarded the growth of the Thai manufacturing exports. The growth of the manufacturing export has however, regained starting in 1999, with annual growth rate of 10% in 1999-2003, while the manufacturing output grew by 8.0% a year during the same period.

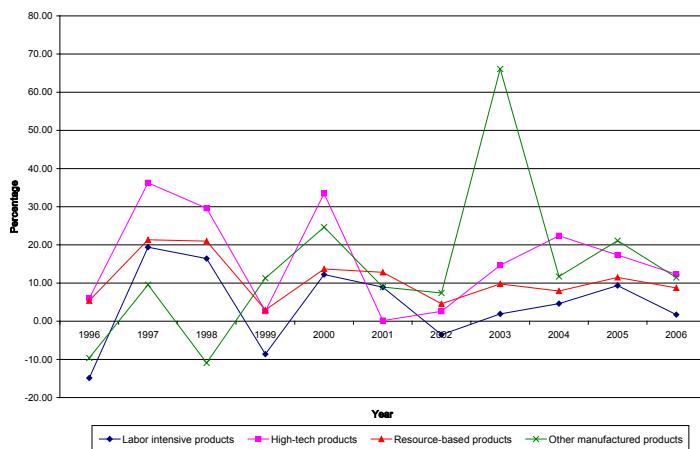
## **Industrial Distribution**

The data set used in this study was obtained from the industrial database provided by the Department of Industrial Work (DIW), Ministry of Industry. The data set includes data for 76 provinces where the manufacturing sectors are registered directly by the DIW. The timeline used is 1996-2005, which covers the pre- and post-financial crisis periods.

In terms of the geographical distribution of workers in the manufacturing sector by region between 1996 and 2005, Table 1



**Diagram 5:** Manufacturing of Export Products Classified by Product Group, 1995-2006



**Diagram 6:** Growth Rate of the Export Products Manufacturing Sector Classified by Product Group, 1995-2006

showed that there have been significant changes in the geographical distribution of workers. Currently, Zone 2 has been the new location for Thai manufacturing base as it is the target for new industrial development promotion and for the new site of factories relocated from the BMR, while Zone 1 still has high concentration of the manufacturing industries. In 2005, the employment rate in Zone 2 increased to 23.63% of the total manufacturing employment from 18.15% in 1996. Zone 2 had about 372 thousand manufacturing employees during the same period. The employment rate in Zone 1 including the BMR remained high although the employment rate grew slightly slower. In fact, Bangkok's share which reduced from 21.70% to 14.41% of the total manufacturing employment of whole country had a negative growth rate of around -0.72%, whilst its vicinity showed positive growth rates such as Samut Prakan and Samut Sakhon with escalating employment well above 151 and 94 thousand, respectively in terms of manufacturing employment. Among the 3 zones, Zone 2 and Zone 3 presented above average annual growth rate, especially in Zone 2 with Chonburi and Rayong as the center of the petro-chemical and auto-mobile industries as well as other businesses in the eastern region of Thailand. Zone 2 recorded very high positive growth rates (more than 2 times of the nation's) which are also directly related to its GRP growth. On the other hand, the employment share in Zone 3 or the remote areas was still stable at approximately 28.6%, in spite of the industrial decentralization policy which has been prescribed since the early 1970s.

Finally from 1996 to 2005, there seems to have been a shift in the manufacturing employment. The shift appears to form from the industrial core to the inner ring area, even though the BMR still occupied 47.73% of the total manufacturing employment. It should be noted that the relocation of factories during the late 1990s and the early 2000s corresponded closely to the rise and collapse of the bubble economy. In the early 1990s, financial institutions had increased their loans for investment in stocks and real estate, especially in the BMR following the deregulation and liberalization of the financial sector in Thailand. As a result, the prices of stocks and real estate increased remarkably and their respective capital gains brought huge wealth to the investors. However, when the bubble economy collapsed in 1997 with a drastic

fall in the prices of stocks and real estate under the so called 'Tom Yam Kung Disease', the Thai economy entered into a recession. Indeed, the financial crisis was also associated with the rise and fall of the geographical concentration of the manufacturing industries in the BMR. Moreover, it should also be considered that Thai policy makers planned to enhance the promotion of Zone 2 as the new target industrial cluster area.

**Table 1** Change in the Distribution of Industrial Workers by BOI Zone

Zone	1996		2005		Growth 1996-2005	Growth rate (%)
	Number	% Share	Number	% Share		
1	1,352,470	54.83	1,656,697	47.73	304,227	2.50
2	447,693	18.15	819,984	23.63	372,291	9.24
3	666,494	27.02	994,104	28.64	327,610	5.46
Nation	2,466,657	100.00	3,470,785	100.00	1,004,128	4.52

Source: Calculated from DIW (2007)

## Discussion

It is also obvious that almost one half of the total manufacturing employment in Thailand has been concentrated in Bangkok and its adjacent provinces or the so-called 'core area'. The major types of manufacturing industries located in the core area are the textile, wearing apparel and leather industries; paper and printing industries; and metal, machinery and electronic industries. On the other hand, the manufacturing industries that dominate in the periphery or rural areas are the wood and furniture industries; basic agro industries; food; beverages and tobacco industries; and non-metallic mineral products industries. Meanwhile, the high technology or capital intensive industries are found in the special economic zone (SEZ) such as in the eastern seaboard (ESB) where the petrochemical and auto-mobile industries are located.

Many factors that have contributed to the industrial concentration both IS and EP period in the BMR and ESB are associated with location decision and policy factors, considering that industrial location plays the key factor for the industries' operation performance. The BMR has been chosen by many enterprises due to its domestic market with a population of more than 10 million, and the availability of transportation and logistics facilities for accessing raw materials and exporting goods to the world market. In the BMR area, infrastructures and facilities such as water supply, electricity and communication systems are well developed and accessible. Moreover, labor productivity could be higher in the BMR because of trained and educated labor force. The BMR and its surrounding provinces also have sufficient ground-water potentials. Thus, agglomeration economies can reduce their operations and overhead costs when their factories are situated in the BMR and its vicinity (Pansuwan and Routray, 2011).

However, the comparative advantages of situating factories in BMR tend to be lost over time in favor of the service industries in terms of higher wages, land price and environmental pollution. These factors explained the tendency to relocate most of the factories to the vicinity of the BMR and some areas in Zone 2 particularly in the ESB and the central region specifically in Phra Nakhon Si Ayutthaya Province where electronic industries have now concentrated (Pansuwan and Routray, 2011).

In addition to the problems of congestion and pollution resulting from the intense concentration of industrial activities in the BMR, it is sad to note that the impacts of industrialization have not been widely and evenly spread to the other regions. Many provinces outside the BMR still depend heavily on agriculture-related activities where incomes remain limited and where technologies have not been advanced. The imbalanced and bias industrialization process of the country in the past has also contributed to the emergence of industries that place less emphasis on the utilization of the local and indigenous resources.

There are two main reasons given by Myrdal that could lead to industrial concentration phenomena. Firstly, the spread effects becoming stronger and secondly, the role of the government which tend to interfere and influence the market forces (Das and Barua, 1996 citing Myrdal,

1970). Moreover, Elizondo and Krugman established the relationship between regional disparities and trade policy regime, citing that in a country which follows a restrictive and inward looking policy, internal trade compensates for the meager size of its foreign trade. This leads to the concentration of production and trading activities in large metropolitan cities where there are more development-related and manpower training activities, more infrastructures, and very active financial transactions and marketing (Das and Barua, 1996 citing Elizondo and Krugman, 1992).

## **Conclusion**

Thailand has been quite successful in terms of industrial promotion and increasing the per capita income. Currently, Thailand is the 3<sup>rd</sup> most attractive business locations in Asia and the Pacific from the point of view of the transnational corporations (TNCs). This could be mainly due to the efficiency of the macro policies related to industrial promotion while the promotional incentives and the rapidly declining monopoly of the state-owned companies since 1960s, helped in creating new industries and firms with sizes much larger than most of the country's traditional firms. The founders of such firms are typically those formerly engaged in merchandise and trading businesses, particularly the importers as well as the domestic distributors. Foreign firms also quickly came to Thailand either to establish their affiliates or to join the local firms in establishing various joint-venture industries. In recent years, Thailand had prescribed target industrial development policies which could transform Thailand's manufacturing structure into an innovative-driven industry. While the ECS plan has also been working successfully with the neighboring countries, Thailand has continued to demonstrate the highest industrialization growth within the GMS.

Meanwhile, industrial development in Thailand is successful but the country has failed in terms of industrial distribution. In fact, the very high magnitude of industrial concentration in the BMR could be one of the causes of economic disparity between BMR and the rural areas, and to some extent poverty in Thailand. As a consequence, the government has recently attempted to correct this geographical imbalance of industrialization in the country by putting more emphasis on rural industrial development and declaring that the rural industries are to

become the centerpiece for the country's overall future industrialization. As this change in the policy direction has been made only recently, there are still insufficient policy instruments and inadequate understanding of the problem to effectively implement the policy of industrial dispersion. Moreover, an effective institutional machinery to adequately support this new policy still does not exist.

### **Acknowledgements**

This research was made possible with financial support from the Faculty of Arts, Silpakorn University.

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