REGIONAL INDUSTRIAL SPECIALIZATION UNDER DECENTRALIZATION POLICY IN THAILAND

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ABSTRACT

One of the causes of income disparity was spatial concentration of economic activities particularly manufacturing sector. In general for industrial specialization analysis during 2001-09, it is revealed that the major concentration of the country's industrial development had taken place in Bangkok and neighboring provinces It can be concluded that the industrial decentralization and regional development policies of Thailand still need to be improved particularly for promoting industrial development in the country's remote areas for reduced regional inequality.

Keywords: Thailand, Industrialization, Regional Industrial Specialization, Decentralization Policy

INTRODUCTION

Industrialization in Thailand as in other countries, applied extensive protection and other selective incentives to foster the industry and to develop the industry into a structure that would be able to support industrial and technological activities (Reinhardt, 2000; Jansen, 2001). On the other hand, the export promotion (EP) industrialization strategy was adopted since the 1980s with presence of the transnational corporations (TNCs). In conjunction with high export growth which was mainly supported by patronage and consumerism, other motivations such as tax holidays, import-duty drawbacks, subsidized credits and export promotion zones (EPZs) were advanced instead of developing a clear strategy for industrial upgrading (Jansen, 2001; Weiss, 2005).

In Thailand, there have been many different factors that contributed to the rapid growth of the country's economy. Relatively low wages, policy reforms that promote open economy and expand trade, and effective economic management resulted in low inflation and stable exchange rate (Biggs, 1990; IFCT, 1991; Cuyvers, 1997; Lall, 1998). The influx of foreign and domestic investments brought about the rapid growth of the manufacturing sector, especially in the labor-intensive, export-oriented industries, such as those producing clothing, footwear, electronic and consumer appliances. These industries had also benefited from a tremendous expansion of the world trade during the 1980s. As the industry expanded, many Thai nationals previously working in the agriculture sector moved to work in manufacturing that resulted in the slowing down of the growth of the agriculture sector (Tambunlertchai, 1990).

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 (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

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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).

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 of industrialization process of the country in the past have also contributed to the emergence of industries that place less emphasis on the utilization of the local and indigenous resources (Panpiemras, 1988; Biggs, 1990; Pansuwan & Routray, 2011).

Although the Board of Investment (BOI) was established in 1960, there were no specific policies formulated by the government to promote industrial development in terms of geographical areas until the Third Plan (1972-1976). Under this Plan, the government began to emphasize on deconcentration of the industries away from Bangkok (Loha-unchit, 1990; Kaothien & Webster, 1998). In line with such policy, a Revolutionary Decree was issued in October 1972 providing a number of investment incentives for industries operating in the areas that had been designated and promoted as investment zones by the BOI. The incentives include providing such industries with favorable treatment in terms of eased payments of import duties, business taxes and corporate income taxes (BOI, 2006).

Such industrial scenario indicates that the government policy on industrial promotion that prescribed to locate industries in the periphery rather than in the core area has been ineffective. This is in spite of the attempts of the Thai Government to lure investors to situate their industries in the periphery or rural areas including the possible relocation of their industries from the core area, by introducing several types of tax incentives, developing the secondary city or growth pole, and supporting sub-regional development, e.g. establishment of the Eastern Seaboard Development Program (Loha-unchit, 1990; Tienwong, 2004; Pansuwan & Routray, 2011).

OBJECTIVES OF THE STUDY

With the main objective of evaluating the industrial specialization pattern in Thailand through the Decentralization policy.

AGGLOMERATION THEORY

The concept of classical agglomeration theory, which refers to the spatial concentration of people and economic activities, has attracted research interest over extended time a period at least as far back as Alfred Marshall's Principles of Economics, which was first published in 1890 (Bekele & Jackson, 2006). Marshall is usually cited in the relevant literature as the first to acknowledge that the economic productivity of firms and businesses results from the location and proximity of economic agents to each other (Hofe & Chen, 2006). Marshall offers an explanation for the localized concentrations of economic activity using the concept of external economies of scale. Marshall identified three specific sources of agglomeration economies which foster spatial cluster formation through increasing returns to scale in the long run: technological or knowledge spillovers among firms, pooled market for workers with specialized skills, and cost advantages produced by the sharing of industry-specific non-traded inputs and services (Bekele & Jackson, 2006; Hofe & Chen, 2006; Delgado *et al*., 2010).

It can be conclude that, early classical agglomeration theorists focus on spatial concentrations of firms, later work on industry agglomeration and clusters bring attention to the different kinds of linkages, including production, service, marketing linkages that exist between industries and the structure of regional business and social networks (Hofe & Chen, 2006 citing from Porter, 2000). Moreover, early agglomeration theorists not only address the central question of how firms benefit from agglomeration economies, but also the implications of agglomeration economies on the spatial patterns of economic activity (Bekele & Jackson, 2006).

Agglomeration economies are given a key position in studies of the location of economic activities in space, for they are considered as a major factor in the location decisions of industries, which attempt to minimize distance, transportation and production costs, obtain cheap labor, and minimize risks (Dicken & Lloyd, 1990). Even though the important role of localization and urbanization economies

on industry location and city formation has been widely discussed, economic advantages may not provide sufficient explanation for the locational choice of industries or the existence of agglomerations. This is because in some cases agglomeration may result from "natural advantages" such as climatic and topographic suitability, proximity to raw materials, and locations with access to natural or manmade transportation routes (Glaeser *et al.,* 1992; Gordon & McCann, 2000). Meanwhile, most empirical studies of agglomeration focus on variables such as the overall employment growth, emerging literature emphasizes the role of new businesses in regional economic growth and development both regional and global level (Amin & Robins, 1990; Scott, 2002; Delgado *et al*., 2010 citing from Glaeser & Kerr, 2009).

In a recent work by Krugman (1991) on a new trade theory, the imperfect competition and scale economies model were combined with location theory, with emphasis on the significance of transport costs. This new theory considered that the relationship with external economies of scale is the key to industrial concentration and the formation of space 'core or center' and 'peripheries' (Martin & Sunley, 1996 citing from Krugman & Venables, 1990; Krugman, 1991). The Krugman's model also suggested that the factories will mostly want to concentrate in one site to realize the economies of scale both in production and transportation (Martin & Sunley, 1996).

'Geographical Economics', which seeks to account for the continued agglomeration of economic activity at regional and national scales, recapitulates early agglomeration theory in its focus on spatial externalities as key drivers of the geographic concentration of industry (Krugman, 1991; Venables, 1996; Fujita & Thisse, 2002). New geographical economists point out that the observed spatial configuration of economic activities is the result of two opposing forces, namely agglomerating (centripetal) forces and dispersion (centrifugal) forces. Agglomerating forces are basically Marshall's externalities that tend to lead to the clustering of economic activity, including labor market pooling, technological spillovers, intermediate goods supply, and market size. Centrifugal or dispersion forces include immobility of labor, increases in land rents and external diseconomies such as congestion and environmental problems that develop with increased concentration (Krugman & Venables, 1996).

THE MACRO INDUSTRIAL AND REGIONAL DEVELOPMENT POLICIES

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 movement of raw materials and machineries, are situated (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 NESDP (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. 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 NESDP, the Industrial Regional Promotion Branch was established as additional incentive for the promotion of rural industrial development in remote areas (MOI, 2002).

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 & Sneddon, 2003; Tsuneishi, 2005). This concept was based on the 'growth pole theory'. Thus, in the Fifth and Sixth NESDP, 12

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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. 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 (NESDB, 2007).

Furthermore, the BOI investment promotion zones were also established in 1987 where all areas except the BMR were designated as promotion zones (IFC, 1991; BOI, 2006). There was also an attempt to cut down on the incentives granted to areas not being advocated such as the BMR (Table 1). 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 ring areas, and was given the greatest amount of tax incentives and promotional privileges (Tsuneishi, 2005; BOI, 2006).

Table 1. Investment Promotion Zones (IPZs) in Thailand (by BOI)

Period	Investment Promotion Zones (IPZs)			
	Zone 1	**Zone 2**	**Zone 3**	**Zone 4**
1978 to 1987	Chiang Mai, Lamphun, Tak	Nakhon Ratchasima, Saraburi.	Khon Kaen	Songkhla
		IEs or promoted industrial zones designated as IPZs.		
1987 to 1989	Bangkok, Samut Prakarn (excluding IEs)	Nakhon Pathom, Nontaburi, Pathum Thani, Samut Sakorn, and IEs in Bangkok & Samut Prakarn	The remaining 67 provinces, designated as IPZs	None
1989 to 2000	Bangkok, Samut Prakarn, Nakhon Pathom, Nontaburi, Pathum Thani Samut Sakorn	Samut Songkarm, Ratchaburi, Kanchanaburi, Suphanburi, Ang Thong, Ayutthaya, Saraburi, Nakhon Nayok, Chonburi and Chachoengsao	The remaining 57 provinces including Laem Chabang and Map Ta Phut Industrial Estates, which are designated as IPZs.	None
Since 2000	Bangkok, Samut Prakarn, Nakhon Pathom, Nontaburi, Pathum Thani & Samut Sakorn	Samut Songkarm, Ratchaburi, Kanchanaburi, Suphanburi, Ang Thong, Ayutthaya, Saraburi, Nakhon Nayok, Chonburi Chachoengsao, Phuket and Rayong	The remaining 58 provinces including: (1) Normal Areas (36 provinces) and (2) Special Areas (22 provinces), and including Laem Chabang and Map Ta Phut Industrial Estates, which are designated as IPZs. Special area including 22 provinces: Amnat Charoen, Buri Ram, Chaiyaphum, Kalasin, Maha Sarakham, Nakhon Phanom, Nan, Narathiwat, Nong Bualamphu, Nong Khai, Pattani, Phayao, Phrae, Roi Et, Sakhon Nakhon, Sathun, Si Sa Ket, Surin, Udon Thani, Ubon Ratchathani, Yasothon and Yala	None

Source: Developed from Biggs et al. (1990) and BOI (2006)

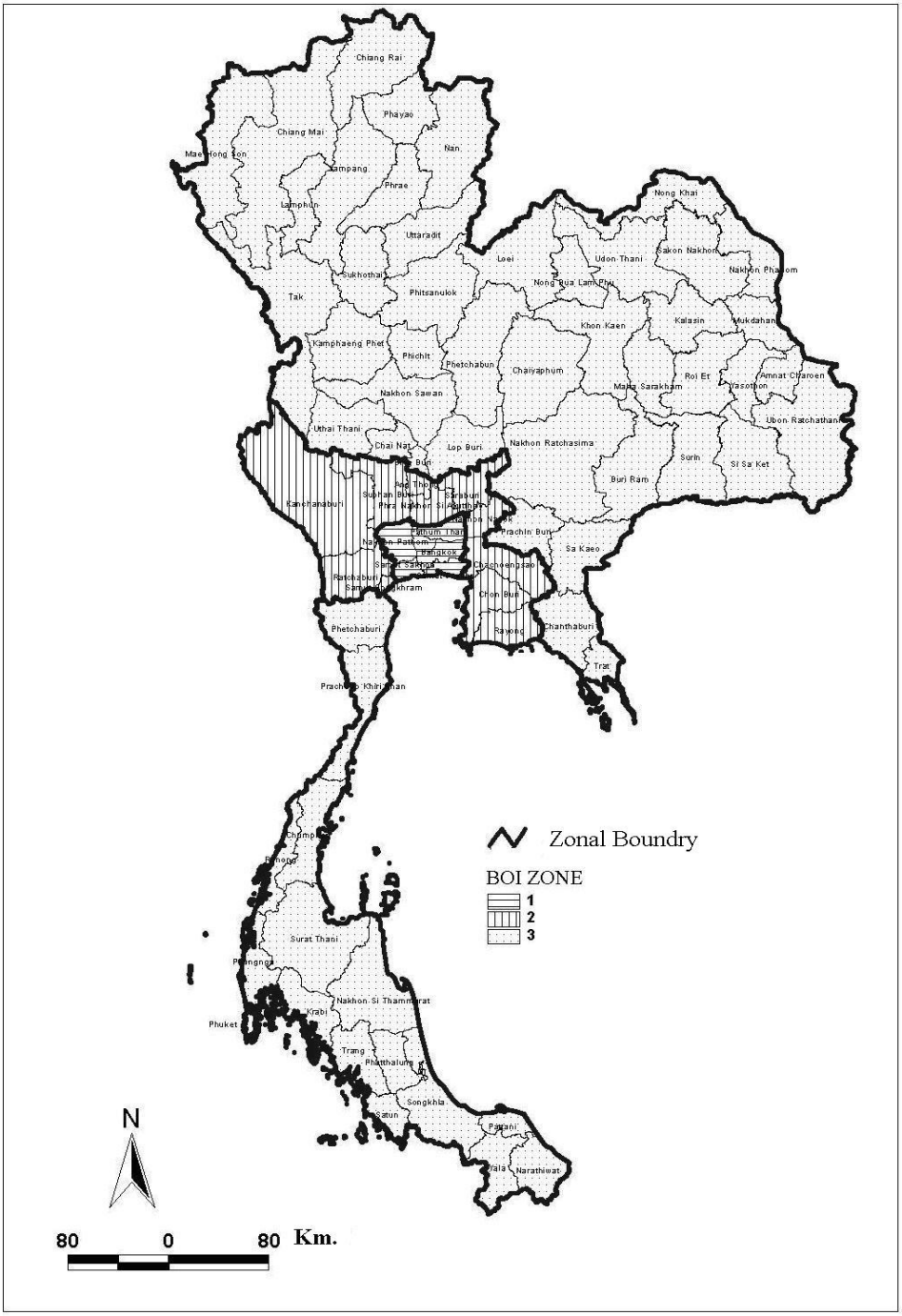

Figure 1. Zones Established by Board of Investment of Thailand

METHODOLOGY

The data set we use is the industrial database provided by the Department of Industrial Work (DIW), Ministry of Industry. It includes data for 76 provinces registered directly by the DIW. The regional specialization indices are the measure of the degree of industrial specialization (or diversification) of a region. Changing in these indices indicate changes in the industrial structure of the region. Location Quotient (LQ), sometimes called coefficient of localization or specialization, is a ratio that approximates the relative position of an activity in an area as compared to the same activity occurring in a broader region. The formula for computing location quotients is defined as:

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$$LQ_i = \frac{A_i}{\sum_{i=1}^{n} A_i} \Big/ \frac{B_i}{\sum_{i=1}^{n} B_i}$$

where:

A_i = the amount of industrial employment in area i

B_i = the measure of total employment in the whole region i

Location quotients can be interpreted by using the following conventions:

1. If LQ>1, this indicates a relative concentration of the activity in area n, compared to the region as a whole.
2. If LQ =1, the area has a share of the activity in accordance with its share of the base.
3. If LQ<1, the area has activity share less than that has been generally, or regionally, found.

INDUSTRIAL DISTRIBUTION IN THAILAND

From the location quotient of regional specialization analysis during 2001 to 2009.In 2001, it was found that 11 of the 19 provinces with specialization in manufacturing industry were located in the core region (Zone1 and 2). In 2009, Samut Sakhon had stilled the highest specialization which however was decreased. Only 10 of the 76 provinces showed an increase in higher specialization, and most of them were located in the core region, especially in the vicinity and inner ring area; Bangkok, Nakhon Pathom, Samut Sakhon, Chon Buri, Phra Nakhon Si Ayutthaya, Ratchaburi, and Rayong where were the important sources of food processing, electronic appliance, auto-mobile and chemical production while 3 of the 58 provinces in the promotional area by BOI showed an increase in specialization, but the magnitude of this increase was very small.

Such industrial concentration precisely implied that there still existed high disparity in terms of the Per Capita Gross Regional Products (GRP) between Bangkok and its vicinities. Specifically in 2009 for example, the highest GRP level was in Bangkok at 329,885 Baht/year while the lowest at 45,766 Baht/year was in the Northeastern region, with a difference of about 7 times. This is in spite of the fact that such GRP level of the Northeastern region was influenced by higher farm income and higher earnings from production in non-agricultural sectors (NESDB, 2009).

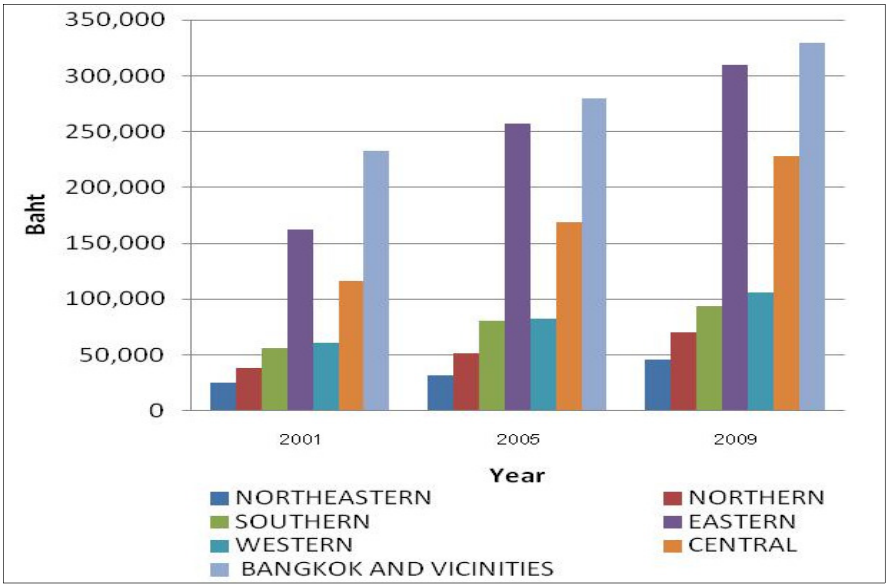

Figure 2. Gross Regional Product Per Capita, by region 2001 - 2009

Table 2. Location Quotients of Regional Industrial Specialization during 2001-09

Province	Region	BOI Zone	2001	2005	2009
Bangkok	Central	1	1.58	1.49	1.78
Nakhon Pathom	Central	1	2.85	2.36	2.88
Nonthaburi	Central	1	1.91	1.13	1.40
Pathum Thani	Central	1	7.79	4.91	4.15
Samut Prakan	Central	1	8.64	6.10	7.58
Samut Sakhon	Central	1	9.68	8.24	10.86
Ang Thong	Central	2	0.45	0.42	0.50
Chachoengsao	Central	2	3.39	4.20	3.26
Chon Buri	Central	2	2.71	3.26	3.26
Kanchanaburi	Central	2	0.75	0.57	0.66
Nakhon Nayok	Central	2	0.48	0.55	0.39
Phra Nakhon Si Ayutthaya	Central	2	3.96	4.27	4.38
Phuket	South	2	0.76	0.38	0.36
Ratchaburi	Central	2	1.37	1.09	1.13
Rayong	Central	2	2.68	4.08	3.68
Samut Songkhram	Central	2	0.72	0.81	0.77
Saraburi	Central	2	2.91	1.79	2.34
Suphan Buri	Central	2	0.38	0.39	0.42
Amnat Charoen	Northeast	3	0.11	0.08	0.11
Buri Ram	Northeast	3	0.09	0.17	0.15
Chai Nat	Central	3	0.45	0.35	0.50
Chaiyaphum	Northeast	3	0.22	0.60	0.68
Chanthaburi	Central	3	0.32	0.33	0.43
Chiang Mai	North	3	0.61	0.46	0.43
Chiang Rai	North	3	0.22	0.14	0.18
Chumphon	South	3	0.70	0.47	0.47
Kalasin	Northeast	3	0.48	0.34	0.30
Kamphaeng Phet	North	3	0.33	0.17	0.21
Khon Kaen	Northeast	3	0.56	0.54	0.50
Krabi	South	3	0.39	0.41	0.29
Lampang	North	3	1.76	0.71	0.56
Lamphun	North	3	0.68	1.49	1.73
Loei	Northeast	3	0.14	0.13	0.13
Lop Buri	Central	3	0.70	0.79	0.94
Mae Hong Son	North	3	0.16	0.06	0.05
Maha Sarakham	Northeast	3	0.22	0.26	0.24
Mukdahan	Northeast	3	0.25	0.14	0.14
Nakhon Phanom	Northeast	3	0.22	0.13	0.09

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Nakhon Ratchasima	Northeast	3	0.65	0.83	0.81
Nakhon Sawan	North	3	0.39	0.40	0.37
Nakhon Si Thammarat	South	3	0.33	0.22	0.24
Nan	North	3	0.28	0.12	0.10
Narathiwat	South	3	0.22	0.10	0.08
Nong Bua Lam Phu	Northeast	3	0.19	0.12	0.18
Nong Khai	Northeast	3	0.20	0.12	0.12
Pattani	South	3	0.43	0.29	0.18
Phangnga	South	3	0.31	0.35	0.33
Phatthalung	South	3	0.16	0.14	0.15
Phayao	North	3	0.24	0.16	0.18
Phetchabun	North	3	0.14	0.34	0.36
Phetchaburi	Central	3	1.37	0.79	0.77
Phichit	North	3	0.28	0.28	0.26
Phitsanulok	North	3	0.35	0.71	0.19
Phrae	North	3	0.42	0.43	0.53
Prachin Buri	Central	3	2.31	2.67	2.92
Prachuap Khiri Khan	Central	3	1.07	0.90	0.75
Ranong	South	3	1.19	0.50	0.47
Roi Et	Northeast	3	0.21	0.15	0.13
Sa Kaeo	Central	3	0.30	0.20	0.26
Sakon NaKhon	Northeast	3	0.11	0.11	0.10
Satun	South	3	0.34	0.26	0.21
Si Sa Ket	Northeast	3	0.04	0.07	0.07
Sing Buri	Central	3	0.92	0.90	1.07
Songkhla	South	3	1.20	1.09	0.87
Sukhothai	North	3	0.23	0.21	0.21
Surat Thani	South	3	0.65	0.48	0.42
Surin	Northeast	3	0.06	0.10	0.11
Tak	North	3	1.39	1.49	1.55
Trang	South	3	0.88	0.57	0.46
Trat	Central	3	0.47	0.32	0.34
Ubon Ratchathani	Northeast	3	0.14	0.19	0.16
Udon Thani	Northeast	3	0.36	0.29	0.24
Uthai Thani	North	3	0.28	0.22	0.20
Uttaradit	North	3	0.33	0.22	0.24
Yala	South	3	0.42	0.27	0.16
Yasothon	Northeast	3	0.15	0.16	0.13

DISCUSSION

Based on the foregoing, it can also be concluded that almost one half of the total manufacturing employment in Thailand is concentrated in Bangkok and its adjacent provinces or in the so-called

'core area', where the major types of manufacturing industries located are the textile, wearing apparel and leather industries; paper and printing industries; and metal, machinery and electronics 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 automobile industries are situated.

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 & 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 & Barua, 1996 citing Elizondo & Krugman, 1992).

In case of Thailand, it has also been noted that the comparative advantages of locating factories in the BMR could be lost over time in favor of the service industries in terms of higher wages, price of land and environmental pollution. As a matter of fact, these factors explain the reasons and the tendency of most industries to relocate their factories to the vicinity of the BMR as well as to some areas in Zone 2 particularly in the ESB or to the central region specifically in Phra Nakhon Si Ayutthaya Province, where the electronic industries have already concentrated.

Finally, it can be conclude that, the findings in this section strongly reconfirm the result of the analysis of the geographical concentration of the industry sector, most of industries import raw materials were located in the BMR and ESB such as the chemical products, electronic and the metal products industries, and that most of the products of such industries were also exported to the world market. Therefore the BMR and ESB areas were defined as 'core or center' based on the New Economic Geography theory as found in other countries (Martin & Sunley, 1996 citing from Krugman, 1991; Krugman & Venables, 1990).

CONCLUSION

It can therefore be concluded that although 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. However, achievements from promoting an investment could not be demonstrated only by providing the necessary facilities but support from agencies concerned are also necessary. Therefore, the government should clear their target areas for industrial promotion based on industrial location factors and poverty alleviation in rural remote areas, especially in the Northeast. Therefore, the special promotion zone should be establishment.

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