

Rent-seeking, Industrial Policies and National Innovation Systems in Southeast Asian Economies

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Abstract

This paper seeks to deepen our understanding of the national innovation systems of Southeast Asian economies through formulating a conceptual framework that articulate the industrial policy mechanism, rents and rent-seeking activities that in turn leads to economic growth. The framework was built on the cases of industrialization and development in Southeast Asian economies to provide a context for which is conceptual in orientation and seek to address how industrial policies and rent-seeking activities can induce an environment that supports functioning innovation system. This study suggests a more industrial development strategy that promotes indigenous technologies should be pursued by developing economies such as Malaysia, Thailand and Vietnam to obtain a similar sort of linkages and technology spillover evident in newly industrialized economies of Asia.

Keywords: Industrial Policy, Rents, Rent-seeking, National Innovation System, Development, Southeast Asian economies

1. Introduction

Riding on the back of massive inflows of foreign direct investment (FDI) since the 1970s when many free trade zones were opened in Southeast Asia, economies such as Malaysia, Thailand, Singapore and Vietnam (inflow of FDI since the mid of 1980s) have recorded rapid industrialization since. With heavy emphasis on high technology export-oriented industry, emerging economies in Southeast Asian countries belong to the downstream segment of the global industrial system. These economies have traditionally emphasized on institutions, which facilitates the technology diffusion and industrial development. Export orientation manufacturing became the catalyst of rapid growth with textile, garment, electric and electronics multinationals relocating their labour-intensive stages of assembly in these emerging economies. Along with other high-performing newly industrialized economies (NIEs) of Asia, Southeast Asian economies witnessed considerable success in its drive towards growth and industrialization, mainly fuelled by growth-advancing capital accumulation rents. However, in contrast to the case of NIEs, many Southeast Asian economies, particularly Malaysia and Thailand, found that they had reached a plateau, albeit at different stages of development (see Felker, 2003b). Many multinational corporations (MNCs) had relocated their operations and technological activities from Southeast Asian economies to China and India due to lower labor

costs and the recent advancement of science and technology capabilities (Altenburg, 2006). As is the case of typical industrializing economies racing to acquire innovation rents, emerging Southeast Asian economies have pushed for transformation of their export-oriented manufacturing dependent economy to knowledge-based economy. Among the Southeast developing economies, Singapore has achieved rapid science-based industrial development and technological catch-up.

The emerging Southeast Asian economies witnessed a shift from agriculture and primary commodities dependent to manufacturing based and export driven economies. Those economies which had successfully navigated the export-driven activities to start a growth momentum progress to post-industrial knowledge-based economies. In the current transition to a knowledge-based economy, many Southeast Asian economies attempt to raise national investment to develop their science and technological capacity. From simply a focus on attracting multinationals to generate foreign investment and employment, the state government began to emphasize science and technology activities from the 1990s when various science and technology development projects were launched. Science and technological innovation of these economies has been the subject of study by many researchers. The main motivating reason is that social-economic development depends on the rate at which new technologies are adopted and put into use. Following the pioneering works of Freeman, Lundvall and Nelson on national innovation system (see Freeman, 1987, Lundvall, 1992 and Nelson, 1993), many studies had contributed evidence and insights to describe the performance of science and technological innovation in Southeast Asian economies (see Bezanson et al. 1999, Felker, 1999, Rasiah, 1999, Wong, 1999, Hobday et al., 2001, Intarakumnerd et al., 2002, Intarakumnerd, 2006, Intarakumnerd and Chaminade, 2007 and Asgari and Wong 2007). These studies articulated how well the orientation and adjustment of national institutions is to policy changes on its market exchange rate reforms and consolidation of its state-owned enterprises for learning capabilities building over the decades to reinforce the development of market economy. The studies show that Southeast Asian innovation systems are weak and highly fragmented from the production structure of the economy and experienced minimal progress of industrial technology¹ since the turn of the millennium.

Led by these studies on national innovation system of Southeast Asian economies, there is some sense that science, technology and innovation (STI) policy that planned and organized based on the linear model of innovation, incompetent bureaucracies and lack of complementary investment for innovation highlighted the systemic failure. The prospects for economic development that is based on knowledge were dim without reforming or uprooting the entire institutional structure of governance of innovation system. However, the suggested policy implications from these literatures have been concluded without the full dimensions of rents and rent-seeking behaviors that could had led to ineffectual bureaucracies and complementary

¹ Although the share of manufactured goods for export from high-tech engineering sectors increased over the decades (see Intarakumnerd, 2006 and Asgari and Wong, 2007), it does not reflect the sophistication of science and technological activities in Southeast Asian economies. Many high-tech manufacturing industries in Southeast Asian economies (within the export processing zones) are engaged in labour intensive assembly and low value-added activities and licensed their manufacturing facilities to benefit from the incentives specified by the state. Under the export led policies, MNCs produced large volumes of semiconductors and other components to supply the global market.

investment for innovation and the coordination of industrial policy² of this region that failed to reinforce the development of science and technology.

The studies on national innovation system of Southeast Asian economies may have provided a coherent view on linkages among actors and snapshots of science and technological performance. However, the findings and arguments had led to two major questions, somehow neglected in their analysis, that require further investigation and research.

- (1) According to Khan and Jomo (2000), institutional change and/or structural reform of an economy often lead to the creation of new rents and/or destruction of old rents. Therefore, in the mid of transition to post-industrial knowledge-based economies, does the creation of new rents of Southeast Asian economies promote learning and innovation?
- (2) In the context of Southeast Asian economies, what would be the favorable institutional condition/environment for economic growth and industrial technological development?

Due to the specific context and conditions in the individual countries, a nation would have distinctive characteristics of rents-seeking behavior for growth enhancing activities and unique routes for industrial development in the development process. A systematic approach to the understanding of the unique process of rent-seeking and its dynamic reinforcing mechanism for industrial development is still severely lacking in the literatures. The study of characteristics of rents and rent-seeking of an economy would be insightful for understanding the structural change of a new techno-economic paradigm that has (not) triggered dynamic self-propagating behavior of innovation in the production of an economy. This paper attempted to provide an arching framework to examine these questions which concerned institutional economics, political science and innovation studies. There are tentative answers to these questions. The purpose of this paper is to add some arguments and extend some research elements to enrich the ongoing studies of NIS in Southeast Asian economies by approaching the major questions above from rent-seeking activities and industrial policy perspectives.

This study attempts to provide a comparative analysis on fast-growing economies in Southeast Asia. Malaysia, Singapore, Thailand and Vietnam (when relevant) are included in this study for their different level of achievement in development. These economies are compared in this study for several reasons. The science and technology development path of these economies have many similarities in their evolution trajectories, technological option and avenue of innovation³ (Hobday *et al.*, 2001 and Doner and Ritchie, 2003). Their science and technology policy evolved from solely supporting technological development in manufacturing industries to strengthening the role of national science and technology institutions to support transformation towards a knowledge-based economy. It would therefore be interesting to compare the extent of rent-seeking behavior for growth and industrial development of these economies.

2. Literature Review

² In our view, in order to provide a concise picture of growth and development, the studies of rents and rent-seeking activities should not be isolated with industrial policy studies.

³ The use of information and communication technologies (ICT) is particularly essential for economic growth in these economies.

National innovation system (NIS) is the classical approach in the stream of evolutionary economics to study the interaction of institutions that determine the rate and direction of science and technology in a country⁴. The economic concepts of creative destruction⁵ and knowledge accumulation⁶ first introduced by Schumpeter are used as the basis for analysis of national innovation system. Work on innovation economics by Nelson (Nelson and Winter, 1982), Freeman (Freeman, 1987), and Lundvall (Lundvall, 1992) used the concepts to explain the dynamism of linkages among agents and structural change of economic system that determine the action of individuals and agents. Freeman (1987, pp. 1) defined national innovation system as “the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies”. The innovation system contains a set of interactions that influence dynamism of knowledge flows (Nelson, 1993). The quantity and quality (the trust built among the institutions and network) of these interactions is an important determinant of economic development.

Jomo and Felker (1999), Felker (2003a,b), and Asgari and Wong (2007) discussed the changes over the period 1960s to 1990s of Malaysian economic structure, and how Malaysia progress from an agriculture and primary commodity dependent economy to a manufacturing based and export driven economy. From a focus on attracting MNCs to generate investment and employment, the Malaysian government began to emphasize on science and technology development from 1986 when the first Industrial Master Plan (IMP) was launched. A tightening labour market spurred the government to launch the science and technology policy since 1990 (Rasiah, 2009). However, the Malaysian science and technology policy had focused on R&D incentives to support the innovation process. No emphasis was given to capacity building and policy to solve the systemic failure, and the supply push method failed to address the systemic problems. Although there are positive signs that the growth of science and technology (as indicated by the number of papers and patents from Wong and Goh, 2010 and Wong et al. 2010) are slowly progressing, the innovation and patent production is still quite small and the growth of learning capabilities is still weak.

According to Intarakumnerd et al. (2002), similar with the case of Malaysia, the growth of Thailand economy and industrial technological development was not mutually reinforced. This is largely attributed to mismatch between the level of structural change in new techno-economic paradigm and development level of NIS. Although the innovation system strategic approaches have been adopted officially by the state to support the science and technological innovation, the implementation of the plan and practices follow the old economic paradigm⁷ and failed to solve their systemic problem (see Intarakumnerd and Chaminade, 2007).

⁴ National innovation system remains an important analytical tool to study how well an economy is doing. Although, there are on-going process of internationalization of national economic development, NIS remains important to understand the specific national institutions, political systems and customs that vary among countries (Lundvall, 1992).

⁵ Innovative entry by entrepreneurs is the source for long-term economic growth. It substitutes the role of established firms that enjoyed monopoly power.

⁶ The development of new knowledge is expected to fuse with related science and technology and later become the basis for the development of new products or multiple potential applications.

⁷ Old economic paradigm refers to neo-classical economic rationale for innovation policy.

According to Wong (1999) and Amsden and Tschang (2003), Singapore adopted a strategy that emphasized government facilitation of multinational corporations (MNCs)-induced technological learning. The strategy involved is to first develop the process capability and then expand the capabilities towards world production frontier. The Singapore science and technology policy have favoured the MNCs that seek to upgrade their manufacturing process capabilities to manufacture new and advanced products in Singapore. This strategy induced technological capability development among the local contract assembly firms contracted by the MNCs. Many public training institutions were established to support the local firms in building technological capability to meet the needs of the MNCs. As the Singapore economy evolves from export-oriented industries toward post-industrial knowledge-based economy, the production of science and technology is becoming vital for development. Science and technology policy can be used to stimulate interaction between universities and the industries to support basic research activities. The Singapore universities paid more attention towards entrepreneurial organizations, and commercializing their research outputs for the market (Koh and Wong, 2005). The role of Singapore universities is now increasingly prominent in stimulating economic growth through commercialization of research outputs and high-technology spin-off (Wong *et al.* 2007). However, the inertia of MNCs-focused export-oriented economy built over the years could be a hindering factor for the economy to leap-frog into an entrepreneurial-knowledge based economy.

The launched of Vietnamese economy reform⁸ witnessed significant economic progress and rapid industrialization. In this early stage of development, the government focused on the provision of basic infrastructure, political stability and security to support labour-intensive manufacturing activities. On the other hand, the government attempts to move Vietnam to the next stage of industrialization with focus given to developing and producing higher value-added products that require higher level of science and technologically intensified operations and strengthening export-based manufacturing and tourism industries. New science and technology policy architecture and strategies were formulated to build a new economic structure. At the current stage of industrial development of Vietnam, a broad range of sophisticated market institutions such as venture capitalists, Intellectual Properties Right (IPR) and the quantity and quality of trust built among the institutions and network is still severely lacking. Despite significant efforts to build linkages among the agents of innovation system, however, these were far more effective in communicating the state's goals to industry and achieved limited success in moving up the science and technological value-chain (see Bezanson et al. 1999).

There are many commonalities of arguments from these studies on national innovation system of Southeast Asian economies. Most of these works broadly resorted to three identical arguments in order to conclude with a negative verdict on the coordination and organization of national innovation system of Southeast Asian economies.

- (1) The main problem of Southeast Asian innovation system was in its dynamic inefficiency and inability supporting mechanism to promote and advance innovation in long term. Southeast Asian economies' effort to build innovation system often focuses on supply-push side approach. STI policy was planned and organized based on the linear model of innovation approach that assumes basic research activities from universities and research

⁸ "Doi Moi" policy was established in 1986 to tailor their institutional system in response to socialist-based market-oriented economy. A series of policies were endorsed to rationalize prices of their commodities, restore property rights, and build conducive environment for businesses.

institutions as the core sources of the innovation process. While private firms and industries are assumed to be the mere users of the research outputs, the universities and research institutions has always been given support from the state.

- (2) From these series of works, we observe that science, technology and innovation policy were lacking in sense of purpose and highly fragmented from the production structure of the economy. This is largely attributed to the growing “bureaucratic culture” and “lack of political will” the gradually developed within the national institutions.
- (3) The inability of the firms in Southeast Asian economies to move-up the value chain of technology is largely due to the combination of scarce supply of engineers, R&D scientists and technicians, low basic and applied R&D investment and the reluctance of qualified scientists and engineers from abroad to return home.

From this argument, it is tempting for many STI policy scholars to call for major institutional reforms in order to address the systemic problems. Following policy implications were most pronounced in the literatures.

- (1) In order to establish a well-functioning innovation system, the state should first be competent in developing interaction and trusts among actors. STI policy should be organized based on chain-linked model of innovation approach that regards innovation and development of science and technology require interaction among institutions such as relationship between the state, industries and universities, and feedback between science, technology, engineering, manufacturing and marketing.
- (2) Some argued that bureaucracies should be insulated from the political pressure, particularly from the vested interest group in order to channel the national productive rents to the best deals.
- (3) Investments in R&D, education and training are among the important factors to promote growth that is based on knowledge economy.

To date, a number of studies have attempted to study the development of science and technology of Southeast Asian economies, the dimension of rent-seeking behaviors has remained undiscovered. The literature shows little work, if any, has focused the perspective of rents and rent-seeking in the industrial technological development. Most of the related studies described only the rationale of linkages among actors in NIS. In addition, there are many conflicting views on whether the current growth of Asian science and technology is sustainable. These gaps remain in the literature.

By this consideration, this study attempts to expand the work on NIS in Southeast Asian economies. We propose a model that articulates the rent-seeking behavior that in response to the coordination of industrial policy and changing political and economic climate of a country. This paper explores these issues and suggests how industrial policies, rents and rent-seeking activities can induce environment that supports a functioning innovation system that in turn leads to economic growth. Our incorporation has implications for national innovation systems theory and for public policy.

3. Rents, Rent-seeking and Industrial Policy

According to Khan and Jomo (2000, pg. 5), the term rent is used to explain “incomes that are above normal in a competitive market”. Rent-seeking describes “activities that seek to create, maintain or change of rights and institutions on which rents are based”. While some rents such as monopoly rent may suggest welfare lost and may lead to allocative inefficiency in the market, productive rents such as rent for infant industries, Schumpeterian rent and learning rent may suggest exploitation of growth and development opportunities. Khan (2000a) discussed how institutions and economic phenomenon and conditions shaped rent seeking activities and whether these activities create value-enhancing or –reducing outcomes for society.

During the process of institutional change and/or structural reform of an economy, new interdependencies among actors in an innovation system will replace the old ones. The new form of interdependence is vital to establish a new governance structure (or new rational procedures) in response to new production system of an economy. The government⁹ plays an important role as a manager in an institutional matrix, directing the pool of investments and entrepreneurial talents into productive venues by reducing profitable opportunities in those unproductive areas (Chang, 2003). This scheme is used by Schumpeter to describe the nature of creative destruction¹⁰, a process in which the old system is replaced by a new one (see Vecchi, 1995, Shuman and Rosenau, 1978 and Perez, 2002). As revealed by many examples and case studies, Schumpeter proved that innovation is the force that drives growth of economies and the source of recurring economic recessions. According to Chang (2003), structural change will lead to deterioration in certain groups’ absolute and relative powers and positions as a result of the asset specificity and other sources of factor immobility. While these vested interest groups resist the changes, others who could make benefits from the new economic paradigm may take countermeasures. The dynamism of economic development may suffer if the government fails to manage the conflicts between these interest groups. This conflictual problem may lead to reluctance of potential investors to commit their resources in specific investments¹¹.

Another analytical element that determine the action of individuals and agents in which always found missing in NIS of Southeast Asia studies is the ability of the state to employ industrial policy to exploit growth and development opportunities¹². Chang (2003, pp. 113) defined industrial policy as a policy designed to organize, coordinate and affect particular industries to “achieve outcome that are perceived by the state to be efficient for the economy as a whole”. Industrial policy attempts “to change the economic structure over and beyond what the market is able to do by inducing the private sector agents into new activities that they do not have interest in entering under free market situation” (Chang, 2003, pg. 313). The efforts are directed towards particular industries, firms, regions, groups in the labour market (Landesmann, 1992). These efforts provide an avenue for firms or industries to capture learning, monitoring and Schumpeterian rents for their own benefits¹³. In many newly industrialized economies, science

⁹ The role of the state in an institutional matrix is explained in detail by Chang (2003).

¹⁰ The concept of creative destruction is written by Nietzsche and popularized by Schumpeter.

¹¹ Specific investment refers to investment in specific knowledge or new equipments that embodied latest technology (see Amsden, 2001).

¹² This ability includes projects and/or policy execution skills in public sector.

¹³ The development of an economy depends on the ability of the state to build and manage organizations and institutional mechanism of collective entrepreneurship to exploit growth and development opportunities. Industrial policy was used in many industrialized countries to drive and incentivize agents in innovation system to capture productive rents. The focal point of institutions for industrial development is the following: an interventionist state,

and technology policies are always integrated with industrial development plans to favour promising industries to move-up the production value chain and develop industrial science and technology. According to Chang (2006), the development of industrial science and technology may suffer if the state fails to systematically organize and plan their industrial policy. Therefore, science and technology policies without the element of industrial planning will lose their sense of purpose and will be fragmented from the production structure of the economy.

Among others, maintain low interests to stimulate investment and high interests rate to encourage the people to save, protect infant industries from foreign competition in the local market and impose free trade to meet the needs of import for industrialization, undervalue exchange rates to push for export and overvalue exchange rates to minimize the cost of foreign debt repayment and direct investment toward long-term ventures are some state intervention efforts¹⁴ mean to develop local-owned industries (see Amsden, 1989 and 2001). The investors would start to commit their resources in industrial activities of an economy once they witnessed the industrial development potentials and the competencies of salaried managers and engineers in an economy.

4. Rents, Industrial Policy and Development in Southeast Asian Economies

According to Amsden (1989), the three facets of growth in late industrializing economies are:

- (1) Short-run macroeconomic policies to sustain the level the desired level of economic activities
- (2) The dynamics between growth and productivity that drive industrialization
- (3) Entrepreneurial activities relating to diversification of new industries

This section discusses these facets of growth in the selected Southeast Asian economies. There are identical commonalities in term of catching-up strategies in Southeast Asian economies during the early industrialization. Industrial policies of late industrializing economies such as South Korea and Taiwan have traditionally placed emphasis on entrepreneurial infrastructure and development of local-owned manufacturing industries, while FDI leveraging countries like Singapore, Malaysia, Thailand and Vietnam have traditionally emphasized on institutions that facilitates the operation of MNCs and spillover of technology between the MNCs and its local subsidiaries firms (Felker, 2003a,b, Jomo, 2004 and Jomo, 2007). Trade is championed by these countries as a mean to increase manufacturing outputs and employment that would subsequently improve income distribution. Economic Development Board (EDB) of Singapore, Malaysia Industrial Development Authority (MIDA) of Malaysia and Board of Investment (BOI) of Thailand were established to act as a one-stop centre for potential investors in manufacturing industries. The virtue of promiscuity policy-making style in the early 1960s was vital to trigger a broad-based growth momentum (Vietor, 2007). These agencies offered generous incentives, tax relief and subsidized investment loans to attract potential investors to invest in manufacturing activities in their respective economy. The incentives have attracted the leading international firms to locate their investments in their economies, due to the process that favored outsourcing

large diversified business groups, supply of salaried managers and engineers and well-educated labours (see Chandler, 1977 and Amsden, 1989).

¹⁴ The intervention of the government in market is vital for development because of too few specific assets developed in developing economies to compete at world market (Amsden, 2001).

of labor-intensive industries that used simple technology and required little skill. An expanding capital/ labour ratio was regarded as the immediate source of growth¹⁵ that would subsequently lead to political/economic stability and improvement of the income distribution. The plan worked well until the mid 1980s when other lower-wage Asian economies (China and Vietnam) began to emerge as competitors. Many Southeast Asian economies, particularly Malaysia and Thailand have been facing a trend slowdown in industrial value added owing to slow technological upgrading in the face of rising competition from China and Vietnam and lack of development of productive local-owned firms/organizations (the national champion firms). Vietnam embarked on its catching up strategy, using labour-intensive manufacturing activities to start its growth momentum since the early 1990s.

Singapore, Malaysia and Thailand had successfully triggered their growth momentum in the 1970s and diversified their investment for more industrial activities. They established government linked companies (GLCs), government's holdings (GHs) and government supported locally owned firms in key industries, concurrently offered supports and incentives for foreign multinationals to set-up manufacturing operations and service centers. GLCs and GHs were established to facilitate economic development in specific sectors, sectors in which required huge capital investment and protection such as transportations, utilities and automobile industries. To move up the value-chain of locally owned organizations, respective government practiced a state protection strategy, and mobilized resources targeted at selected local firms to build technology capabilities, particularly during the infant stage of industrial development. Some subsidized entrepreneurs were generalists and/or rentiers¹⁶, who had limited entrepreneurial abilities and devoted to moneymaking in any industries if the opportunity arouses (Rock, 2000, Jomo, 2007 and Gomez, 2009). Over the years, these economies witnessed a restructure into dual economy practices. On one hand, in tariff-free export processing zones resides MNCs manufacturing industries for export, on the other hand, protected, less competitive, and government-subsidized local-owned firms producing for the domestic market.

These economies have been experiencing changes in production and social structure, institutional and technological capabilities and international competitiveness since they entered to knowledge based¹⁷ -with the rapid globalization process of the world economy¹⁸. Their investment policies were revised since after 1997-98 Asian financial crisis to relax foreign ownership restrictions and local-content requirements, subscribed the WTO's Trade-related Investment Measures (TRIMS). Unlike industrial policy of Taiwan and South Korea that was tailored to ensure strong institutional support fostering locally integrated national owned industries, these economies position their national competitiveness towards an embrace of FDI-led integration into globalization of production through MNCs' international operations (see Felker, 2003a,b). On one hand, these economies witnessed the emergence of many new service sectors like banking and telecommunications and foreign state-of-the-art assembly plants (including foreign-designed

¹⁵ Katz (2007) provided a conceptual framework on structural change and economic development.

¹⁶ Unlike South Korea, most subsidized entrepreneurs were salaried professionals (see Amsden, 1989) and required to use the rents created by the state effectively to generate wealth and better prospect for the country.

¹⁷ According to Amsden and Chu (2003), at this stage of development, it requires national entities to invest in the specific assets to develop high technology industries that would eventually lead to globalization in the form of outward FDI.

¹⁸ Similar changes took place in many Latin American economies (see Katz, 2000, 2001 and 2007).

production organizations), on the other hand, many locally owned firms reduced their degree of diversification of industrial, manufacturing type of activities.

This section seeks to deepen our understanding of the national innovation systems of Southeast Asian economies through selective implications from their coordination of industrial policy and the creation of rents and rent-seeking behaviors in these economies.

4.1 The Industrial Policies of South East Asian Economies

In what follows we draw selective implications about industrial policies in the selected Southeast Asian economies due to a neglect of few production capacities and capabilities issues in the current literature of NIS. This paper briefly broach following 2 points:

- (1) Interaction between the ministry of trade and industry and the ministry of science and technology
- (2) Export focus and local-content policy

Seeking to emulate science and technology policy trusts in South Korea, Ministry of Science and Technology in the respective economies was appointed to craft, coordinate, manage and execute any tactical approaches to attain the missions anticipated in the respective economies' (to achieve a self-sufficient industrialized nation) strategic trusts. A number of measures were established to formulate a growth-oriented science and technology policy. While Ministry of Trade and Industry is assigned to coordinate and manage tactical approaches to attract manufacturing FDIs, the role of Ministry of Science and Technology is mainly to advance the national individuals' techno-entrepreneurial energy and support research activities from the public universities and government linked organizations to address the lack of economic dynamism. However these tactical approaches were often lacked in communication, coordination and corroboration with the projects and the series of tactical approaches for industrial policy of Ministry of Trade and Industry. According to Felker (2003a), the nominal role of Ministry of Science and Technology in coordinating and executing a coherent science, technology and innovation policy for the entire government body had little influence on other ministries and agencies and operated with minimal contributions from the private sector. In many cases, government and public university research laboratories reluctant to develop industrial clientele due to allocations of lucrative funding from the government. Many research results that developed from the public laboratories were highly fragmented from the industrial needs often lacking in sense of purpose with the production structure of the economy. Although there is a conscious focus on industrial development in science and technology policy, the ability to organize collective mechanism to manage effective organizations and institutions needed for collective entrepreneurship was poorly developed.

From simply a focus on attracting multinationals to generate investment and employment, Singapore, Malaysia and Thailand began to emphasize training and technology development since the mid 1980s. A tightening labour market led the government the opportunity to launch technological upgrading policies since 1990. Some criteria for new manufacturing FDI were enforced, such as a minimum requirement for local contents or more value-added in the manufacturing activities, a minimum requirement of local workforces in managerial positions or any activities that would benefit to industrial development. Many export processing zones were

established to offer an avenue and conducive environment for advanced and the newly emerging Northeast Asia economies that sought to relocate their semi labor-intensive manufacturing industries due to raising comparative production costs, tightening labor markets and stricter environment restrictions entailed from the developed countries (Felker, 2003a, Felker and Jomo, 2003 and Felker and Jomo, 2007a,b). A set of incentives and science and technology institutions evolved with an attempt to facilitate the export-oriented industries in the Export Processing Zones (EPZ) and other specific assets which may add value to raw labour forces in existing manufacturing activities. The incentives and infrastructure managed to influence the MNCs to advance Southeast Asian economies' position in the regional division of semi labour in manufacturing and attract MNCs to locate their advanced production assembly operations and R&D activities in this region (Doner and Ritchie, 2003 and Felker and Jomo, 2003 and Jomo, 2004).

However, science, technology and innovation in most Southeast Asian economies have always been recognized by the policy makers as a "function" that can be easily transferred from one activities to another rather than a "process" for indigenous development (Wang, et al., 2007). Singapore emerged as a state-directed export-oriented industrial hub. Seeking to meet the anticipated niches, the government of Singapore has been aggressively working on R&D infrastructures and indigenous technological capability that could offer services those addressing operating problems that multinationals typically encountered in other Southeast Asian economies (Amsden and Tschang, 2003).

Against this investment and technological promotion many Southeast Asian economies faced severe economic crises over the periods 1997-98 (when the contagion from speculative attacks on the baht paralyzed Malaysia's financial sector), 2000-2001 (world electronics slumps) and 2008-2010 (as the world largest economy contracted from a serious meltdown in the real estate and banking sectors). Malaysia and Thailand, have in addition, been facing a trend slowdown in industrial value added owing to slow technological upgrading in the face of rising competition from China and Vietnam (see Rasiah and Wong, 2009). The governments of Malaysia and Thailand took a measure to relax the conditions for FDI, allowing wholly foreign owned firms that were required to export a minimum percentage of output to trade half of their output locally. A local content requirements or sub-contracting mandates are relaxed to avoid damage of reputation as a friendly foreign investment host. In addition, the new revised labour policy allows the MNCs to employ expatriates and foreign unskilled labour to address the shortage of skilled labour and keep wages for unskilled labour from rising. This policy has hindered the transformation from labour intensive manufacturing to skill-intensive production technologies. According to Lall (1995), Jomo (2004 and 2007a), Felker and Jomo (2007a) and Chandran and Wong (2011), renewed multinational corporations-dominated export dependent economy and recent liberalization of capital market have some worrying features, including:

- (1) The declining of green-field (investment for production capacity) foreign direct investments in this region while the increasing brown-field investments (with a high proportion consisting of merger and acquisitions (M&A) activities) might risk returning to pre-1997 crisis vulnerabilities of the financial sector.
- (2) Growth of foreign dominated export involved relatively low value-added production. Cheap labor imports to supply the demand of these industries would delay the development of industrial technologies.

- (3) The production structure of MNCs dependent economy provides a weak foundation for industrialization due to few technological linkages to the national economy. The established free trade zones generated low linkages and spillover effect to the local economy.
- (4) The ongoing technological promotions may result in favored of multinationals and local business in M&A activities and hampering the growth of local owned productive firms that might able to learn to obtained high-growth niches.
- (5) Reliance heavily on electronics manufactured products to drive exports market.

While many Southeast Asian economies like Thailand and Malaysia working on recent liberalization of capital market in response to rising competition from China and Vietnam, Singapore has thoroughly revamping and streamlining its institutions to subsidize learning in production system. Singapore has sought to invest in science-based industrial sectors and local owned production organizations to diversify from MNCs' manufacturing dependent economy to reduce the reliance on FDI for growth and development. To emulate science and technology policy trusts of Taiwan, the Singaporean government invested in the R&D and universities' techno-entrepreneurial activities necessary for nationally owned firms to enter promising high-technology industries. Many nationally owned firms were driven to invest in professional management and engineering talents and hired experienced managers and engineers from abroad¹⁹ to advance their manufacturing and services activities.

The above observations suggest a "more import-substitution cum export activities" industrialization strategy to be pursued for Southeast Asian economies' industrial policy to obtain a similar sort of linkages and technology spillover evident in Taiwan and South Korea. The industries that experience progress (although some could be modest) and spillovers to the local economy were local-owned productive organizations, where the government had systematically intervened the production²⁰ and market. Siam Cement Group of Thailand and Sime Darby Bhd. of Malaysia represent the "selected winners" group that managed to diversify vertically their industrial activities and spillover to the respective economy. Globetronics Bhd. of Malaysia was established in 1991 with venture capital fund provided by Malaysia Technology Development Corporation (MTDC) had managed to offer high value-added services to many multinational firms (see Tidd and Brocklehurst, 1999). The major activities of Globetronics include IC assembly, electroplating services and post-fabrication semiconductors' testing and packaging.

Despite some controversy over Scomi Group Bhd. of Malaysia as a beneficiary of patron-client network, its monorail business and technology development has been impressive. Scomi Engineering (formerly Mtrans, a bus manufacturer), a subsidiary of Scomi Group, took over the monorail's construction project in Kuala Lumpur from Hitachi Ltd in 1997 and managed to assemble monorail rolling stock locally. Scomi Engineering devoted its 20 percent of its revenue into R&D to advance domestically and globally their production scope and organization capabilities (StarBizweek, 2010 a,b). Their latest generation monorail with eight-car configuration was designed to carry more passengers in one trip in which comparable with other

¹⁹ By contrast, Thailand and Malaysia maintained tight and selective immigration policies.

²⁰ The goal for this intervention was to promote the indigenous technological capabilities in manufacturing industries.

rail technologies but at a lower construction cost. They won a RM 1.8billion bid in 2008 to build a monorail project in Mumbai. Scomi Engineering is now bidding monorail projects in Hanoi and Sao Paulo.

These cases suggest that domestic ownership or firms that were selected as winners (where national entities matter for development) capture higher value-added activities and its diversification spillovers to local economy.

4.2 Rents and Rent-seeking Behaviors in Southeast Asian Economies

This sub-section focuses on rents and rent-seeking behavior in Southeast Asian economies. It takes a close look at the differences in rents and rent-seeking behavior between successful catch-up economies (Singapore) and so called “less successful developing economies” (Malaysia, Thailand and Vietnam).

There are number of rents and rent-seeking activities engaged with a critical role in development of capitalism in the selected Southeast Asian economies. Many rents created by the states were not only useful for maintaining political stability, but for firms to obtain rights for primitive accumulation and learning of technology. Industrial policy mechanisms of Southeast Asian economies were first structured to implement import-substitution industrialization practices during the 1960s. Rents for learning were created using state subsidies to support locally own firms’ manufacturing activities. Then, in the 1970s, industrial policies were crafted to attract FDI for industrialization. Schumpeterian rents were created to embrace multinationals demand on tax compliance and IPR protection. Singapore, Malaysia and Thailand adopted a judicious mix of policy intervention, on one hand, managing multinational corporations-dominated export policies, on the other hand, intervening and regulating certain local owned private sectoral activities or domestic market production. To keep the social fabric together, political stability and development, these economies focused on targeted intervention, created transfer rents for redistribution in the forms like jobs in public sector or government-link companies or subsidized loans primarily tapped from rich natural resources and taxes from business sector. Multinationals was insulated from domestic redistribution (Khan, 2000b).

During the early catching-up period, the states in Southeast Asian economies recognized the importance of growth of large locally-owned business that necessary for the catching-up economies to enter the global production chain in medium and high-technological industries. Typically, a lot of powerful groups (the business elites) and other interest groups during catching-up period were given access to natural resources rents and other transfer type of rents supporting primitive accumulation to advance domestically and globally their production scale and scope and organization capabilities²¹. Many business elites had taken the front seat in upgrading to national large-scale organizations and some of the firms managed to diversify horizontally and/or vertically their industrial activities²² and spillover to other domestic productive sectors (Amsden, 2001).

²¹ Some state interventions have advanced primitive accumulation, diversification of industrial activities. See Hasan and Jomo (2000) for the case of Malaysia.

²² Some economists studying South Africa’s development suggested that South African economy should emulate Malaysian industrial policy to address their development issues (from the discussion with Dave Kaplan in 2009). However, using Malaysian industrial policy as a guide for industrial development may provide only a minimal

In Southeast Asian economies, there is no clear distinction or division of labour between politicians and bureaucrats. Both politicians and bureaucrats engage heavily in politics and play a role in policy-making process. The dominant role of politicians in articulating broad interests of unorganized individuals is apparent in Southeast Asian economies, while bureaucrats is a subordinate policy executors, focus on interests of organized clienteles and seeking solutions and agreements on defined problems²³. But in most cases, they behaved necessary overlapping of functions for getting their respective tasks done. In addition, for the case of Thailand, business elites were running their own political factions to gain bargaining power for subsidies, franchises and licenses (Khan, 2000b). Many business elite groups who pioneered the early industrialization had joined the rank of privileged rent-seekers in their respective economy²⁴ and often sought not to engage in rent-seeking contests among themselves to avoid stalemate ends.

Unlike the case of South Korea (see Chang, 1991), rent-seekers (excluding the case of Singapore) often do not have to demonstrate their ability to run productive organization efficiently to gain bureaucratic favors in any monopoly rights or protection. The allocation of rents was depended on political bargaining power. Industrial policies were bias towards large firms and/or a few privileged business elites²⁵ are evident in these economies, particularly Malaysia and Thailand (Khan, 2000b, Jomo and Gomez, 2000, Rock, 2000 and Gomez, 2009). In addition, industrial policy-making was spread across an array of government ministries and agencies. Inadequate coordination and overlapping jurisdiction²⁶ among these ministries and agencies on industrial promotion schemes and ventures not only hindered the potential rent-seekers (latecomers) to obtain productive rents to develop their organizations, but also weaken the collective decision on performance monitoring strategy to ensure learning of rents-recipient firms (the business elite groups). The lack of effective and systematic performance monitoring to ensure that rents-recipients did learned to move-up the ladder technological chain partly explains the varied value-enhancing outcomes of rent-seeking activities between the newly industrialized economies (South Korea, Taiwan and Singapore) and Southeast Asian economies.

The local privileged elite groups often engaged in seeking monopoly rights over exploitation of natural resources and to gain access to essential commodities such as water and fuel. This type of sector requires short period of learning and may not requires learning rents for successful implementation (Khan, 2000b). In order to generate economic growth and development opportunities, these groups were often invited by their state government to invest in physical infrastructures and real-estate, while consistently positions the local economy towards an embrace of FDI-led integration into globalization of production through MNCs' international

impact (or mixed at best) on their economy due to vulnerabilities of African state in deciding on what method of "selecting the winner" or of creating the value-enhancing rents to obtain a similar sort of linkages and multiplier effects evident in Malaysia.

²³ Muramatsu and Krauss (1984) and Carboni (2008) explained the distinctions between the role of politicians and the role of bureaucrats in policy-making process in developed countries such as Japan and Italy.

²⁴ Therefore, it is almost impossible to insulate the bureaucratic decisions from the political pressure or from any particular vested interest group. In addition, many performing government-linked organizations require bureaucratic favors to acquire learning rents to move-up the technological ladder.

²⁵ The allocation of rents was operated according to reputation and trust, some termed it as cronyism.

²⁶ According to Rock (2000), there are multiple agencies in Thailand controlled access to numerous permits and licenses. They were routinely blocked each other efforts due to concerns of excess capacity of the opponents.

operations for industrialization. With this institutional arrangement, the state has constantly offer Schumpeterian rents in manufacturing sectors and sometimes bigger rents in high technological industries to multinationals. The existing locally owned large firms rarely compete in those technologically advanced manufacturing industries, technologies deem strategic by the states. This largely due to resistance of old patron-client ties between the business elite group and the cabinet ministers to invest in risky and long periods of learning high-technological sectors (Jomo and Gomez, 2000 and Rock, 2000). This reluctance of national large business organizations to allocate their resources²⁷ in technologically advanced manufacturing industries that would lead to significant complementary investments in high technologies hindered multiplier effects on their respective economy and higher level of growth.

Rent-seeking in Singapore²⁸ during the catching-up phase was largely attributed to the state. Capitalist-led rent seeking that having the ability to influence the state evident in other Southeast Asian economies was not significant in contributing to industrial performance. The state did not faced any political resistance from the losers (rent-recipients who failed to perform the given tasks). In addition, the state-officials of Singapore are value-maximizers who are able to adapt their resources and tactical approaches to changing opportunities and constraints in the market. This phenomenon differentiated Singapore significantly in term of successful creation of value-enhancing rents than the others. Rent-seekers often required to demonstrate their ability to run productive organization efficiently to gain bureaucratic favors in any rights or protection. As Amsden (1991, pg. 284) argued, “the more subsidy allocation is disciplined and monitored, the faster the growth”.

5. Conclusion

This paper has sought to explain the states’ interventions in the Southeast Asian economies and the rents thus created, the unique process of rent-seeking and the dynamic reinforcing industrial policy mechanism for industrial development. Figure 1 illustrates some generic interface of industrial policy mechanism and type of rents in Southeast Asian economies. To promote industrialization during the early catching-up period, many Southeast Asian economies pursued an import substitution strategy to encourage production for their domestic market. The upper left quadrant (A) of Figure 1 represents most economies in Southeast Asia during the catching-up period. The strategy was unable to develop their economies largely attributed to poor redistribution planning and insufficient value-enhancing rents that could induce learning of firms for technological development. The states then move toward export-oriented multinationals-led industrialization with proper redistribution planning and allocation/coordination of value-enhancing rents for both foreign and domestic investors (see the lower right quadrant, (C)). The expanding capital/ labour ratio in which regarded as the immediate source of growth had successfully triggered their growth momentum in the 1970s and diversified their investment for more industrial activities. The plan worked well until the mid 1980s when other lower-wage Asian economies began to emerge as competitors. Singapore has then progressively streamlining its institutions to subsidize learning to advance its locally own productive organizations (quadrant D). Quadrant B covers the economies that moved from import-substitution strategy

²⁷ This includes investing in managerial and technological capabilities.

²⁸ The snapshots of Singapore’s case on value-enhancing rent outcomes is concluded principally from Wong (1999), Amsden and Chang (2003), Feng et al. (2004), Koh and Wong (2005) and Wong and He (2005).

towards export-oriented multinationals-led industrialization but failed to coordinate value-enhancing rents for redistribution and development. Philippines and many Latin American economies could probably clusters in this category. Philippines pursued the regional industrialization pattern in early 1970s to attract export-oriented FDI. However, unlike Thailand and Malaysia, Philippines failed to nurture the growth of export production. The government then started loosened restrictions (also evident in many Latin American economies) on foreign investors and allowed foreign-majority ownership of many finance and construction companies. In 2000, the state opens its banking and power industries to full foreign ownership (see Hutchcroft, 2000 and Felker and Jomo, 2003). The ongoing liberalization of capital and other domestic market may result only in favored of multinationals productive activities and hampering the growth of local owned firms that might able to learn to obtained high-growth niches.

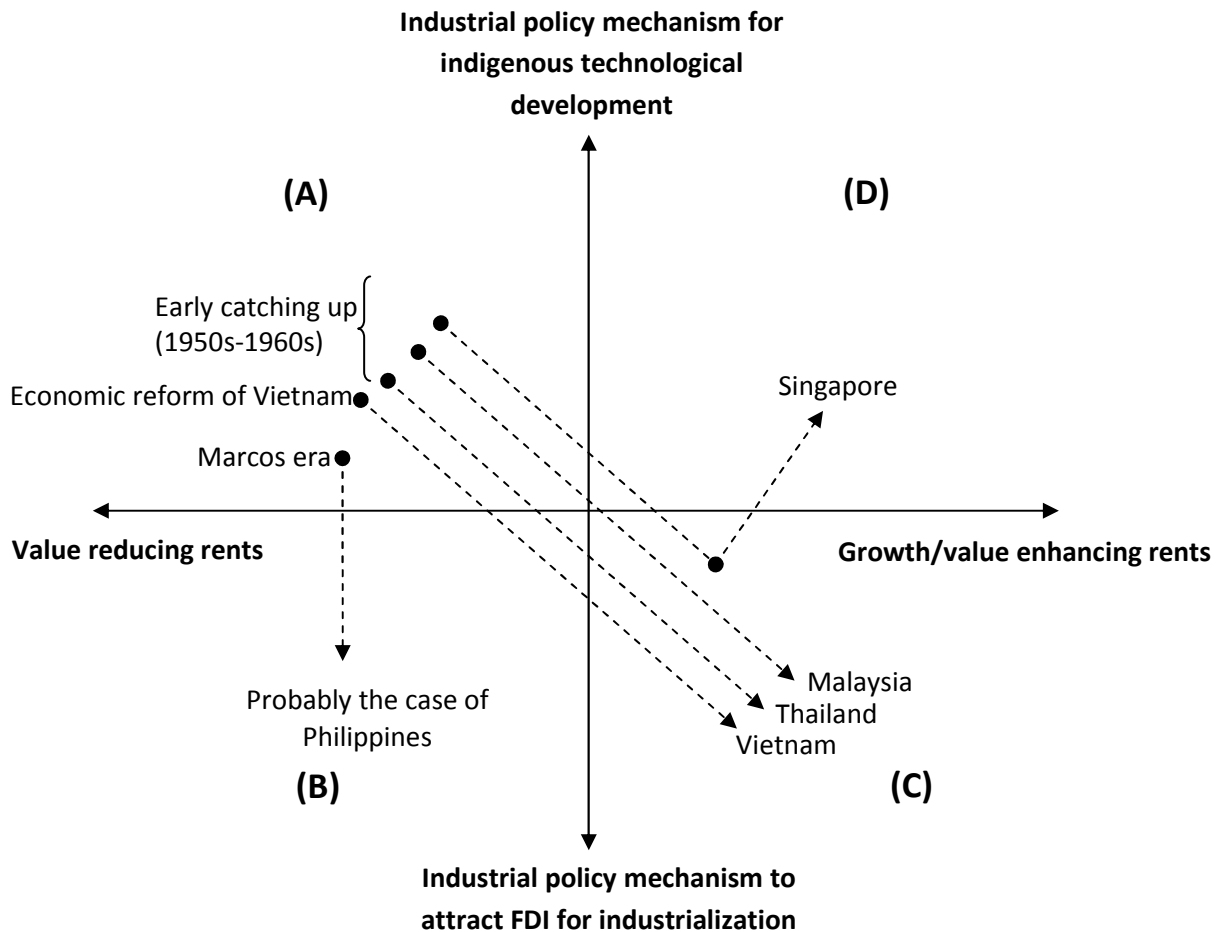


Figure 1: The interface of industrial policy mechanism and rents

This study suggests a more industrial development strategy that promotes indigenous firms to be pursued to obtain a similar sort of linkages and technology spillover evident in Taiwan and South Korea. A new set of institutions that shaped value-enhancing rents (particularly rents for

learning) and rent-seeking to acquire, adapt and master technology is crucial to ensure the successful implementation of new industrial policy. The role of rents and rent-seeking behavior in economic development provide lessons to the less developed countries like Vietnam²⁹.

Historical realities could be far more complicated than above general propositions suggest. Nevertheless, the differences on how economies learned can be recognized as variations on the theoretical framework proposed above. More study is needed to understand on how institutions and economic phenomenon had shaped the creation of rents and rent-seeking activities and whether these activities promote learning (an important element of NIS study) for sectoral or technological development and create value-enhancing outcomes for society. It is noteworthy for future research to dwell into issues of governance, management of rents and industrial policy mechanism that promote indigenous technology capabilities and functioning innovation system.

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²⁹ We observed that Vietnamese innovation system is operated under much the same institutional arrangement as the other Southeast Asian economies. Unless the policy environment changes significantly, it is argued that the development path for Vietnam may face similar opportunities, needs and problems like the other Southeast Asian economies.

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Acknowledgements: I would like to express my greatest gratitude to Apiwat Ratanawaraha, Jorge Katz and Ajit Singh, discussions with whom were most helpful to write this paper. The financial support from International Development Research Centre (IDRC) to support this research project is gratefully acknowledged.