Industry Clusters, the Economy of Agglomeration, and Competitiveness in Indonesia

Scientific Oration
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Bismillahirrahmanirrahim,

Assalamu'alaikum Warahmatullahi Wabarakatuh

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Respected Associate Dean of Research, Prof. Togar Simatupang

Distinguished Professors and colleagues of SBM ITB

Ladies and Gentlemen

It is my honor to stand here in front of you at this respected forum, SBM ITB Scientific Oration. I personally believe we have started a good culture of sharing and disseminating knowledge to our peers in the form of scientific oration session, just like what we have today. As the frontier of knowledge of business and management in Indonesia, it is important for SBM ITB to stay in front in knowledge development, and this forum is definitely a good start.

Today I would like to deliver a speech entitled "Industry Clusters, the Economy of Agglomeration, and Competitiveness in Indonesia." This is actually a snippet of a dissertation I defended last year. This speech consists of four parts. First, I would like to give a highlight on the Indonesia's current economy as well as its strengths and weaknesses; second, I would introduce the concept of clusters and the economy of agglomeration and the need to implement those theories in Indonesia; third, I would bring a case of cluster competitiveness in automotive and logistics industry in Java; and fourth, I would propose several policy recommendations that may help to improve industrial competitiveness in this nation.

Overview of Indonesian Economy

The Indonesian economy has substantially enjoyed strong and stable growth in the last decade. Various indicators support this claim of Indonesia's strong economic performance. The economy is enjoying a relatively high growth rate compared to other countries; the middle class is growing (74 million); the population is dominated by the youths; and investors are considering Indonesia as a lucrative market for investment from both domestic and foreign sources. Indonesia is also a part of the top 20 economies in the world that form G-20. Compared to other G-20 members, Indonesia has a debt-GDP ratio of 23 percent which is the lowest among all other members.

Those are the happy part of the story. Despite this promising current economic conditions, Indonesia faces serious challenges that may thwart its potential to grow. The Indonesian economy has severe long term problems in terms of infrastructure deficiencies, lack of human capital and institutional corruption. In terms of equal development, In spite of having around 17,000 islands, economic development in Indonesia has been heavily concentrated in Java Island, especially in the capital city of Jakarta and its metropolitan area. As a result of the unbalanced economic development, 60 percent of the money are circulated in Java alone, while the other areas are competing for the remaining 40 percent. Population distribution also has similar pattern. Among its 250 million of population, almost 60 percent of the people reside in Java. Papua and Kalimantan as the top two largest areas in Indonesia only have 2.6 percent and 5.8 percent of the population respectively.

One way to spread development equally throughout the country is by developing several centrals of economic activities in some regions in Indonesia. In the theory of regional economic development, these centrals of economic activities are often referred as growth poles, growth centers, or industry clusters. The idea is basically quite simple, a growth center or an industry cluster might attract other economic activities to come. As a result, the economy grows.

The Indonesian government in the past 10 years actually has been aware of the importance of growth centers to help growing the economy of Indonesia, especially outside Java. For example, the previous administration of President SBY launched its Masterplan for Acceleration and Expansion of Indonesia Economic Development 2011-2025 –*Indonesian*, Masterplan Percepatan

dan Perluasan Ekonomi Indonesia (MP3EI) in 2011 to accelerate national development so that Indonesia can boost its position among the developing economies in the world. As the end result, the Indonesian economy will be competitive.

MP3EI focuses on the development of six economic corridors in Indonesia, where each corridor specifically concentrates on the development of industry clusters built specifically based on local potentials. Each of these six corridors has its own key economic drivers so that investors may look at these corridors and choose the preferred regions that are appropriate to their business interest and specialization.

The current administration of President Joko Widodo (Jokowi) applies similar ingredients to spread the development outside Java. Even though does not specifically mention the name of MP3EI, the idea to be implemented is basically similar. Under his administration, President Jokowi plans to build thirteen industry clusters outside Java. In addition, President Jokowi has goals to build new infrastructure projects such as new roads, highways, airports, railways, ports, and massive transportation system. All of these projects are the manifestation of his "Nawacita" and "tol laut" agenda.

The ideas of spreading the economic development of Indonesia through industry clusters, as well as to improve our economy to be more competitive in the region highlight this study. This study attempts to answer the following research questions: (1) Does the Indonesia have the right ingredients for its industry clusters to develop economic competitiveness? and (2) What strategies are needed to create a competitive environment among domestic firms in Indonesia's industry clusters?

In answering those questions, this study draws from the evolution of literatures from the agglomeration economy and growth centers to the theory of industry clusters. Sets of research methodology from in-depth interview, location quotients (LQ), shift-share analysis, and econometric models were applied to measure competitiveness of clusters in several industries in Indonesia.

Clusters and the Economy of Agglomeration

The theory of industry cluster has root far back to the 1920s when Marshall introduced the concept of agglomeration economy (1920). In the agglomeration economy, Marshall emphasized

the benefits of firms or industries can gain when they locate in proximity from one to another. The benefits will be gained ultimately when proximity reduces transport costs. This is in line with Alfred Weber's (1929) notion that there are benefits of cost savings that accrue to a producer strictly as the direct result of increased spatial concentration of production within a single plant or across multiple plants in a given industry in a given geographic location.

Marshall (1920) emphasized three different types of transport costs—the costs of moving goods, people, and ideas—that can be reduced by industrial agglomeration. First, Marshall argued that firms will locate near suppliers or customers to save shipping costs. Second, he developed a theory of labor market pooling to explain clustering. Finally, he began the theory of intellectual spillovers by arguing that in agglomerations, firms locate near one another to learn and to speed their rate of innovation. This is the practice we have seen in Silicon Valley, Boston route 128, or the research triangle among Durham, Raleigh, and Chapel-Hill in North Carolina.

Previous research has classified agglomeration economies into either localization economies or urbanization economies (Feldman 2000). Localization economies are external to a firm but internal to an industry within a geographic area. On the other side, urbanization economies are effects associated with city size or density. This research will focus on agglomeration economies related to localization economies.

Agglomeration economies work effectively in developing countries with poor infrastructure, centralized institutions, and a heavy role of the central government (Porter 1996). The reason is that in developing economies, economic development is induced by government policy, and not by the underlying economics. Governments in developing economies tend to concentrate industries in certain location to attain the benefits of agglomeration economies.

The theory then evolved to growth pole theory. Historically, works on growth poles originated from the seminal work of Perroux in 1955. In his definition, Perroux does not limit the notion of growth pole by a key industry to a certain localized geographical area. This notion can also work in a national economy. In this theory, production, consumption, capital, population do not spread evenly in a nation or economic region. These factors tend to concentrate in growth poles.

Generally there are two categories of growth poles: spontaneous and induced growth poles. Spontaneous growth poles grow without the benefit of explicit policy, while induced growth

poles attempt to promote growth by using policy (Hansen 1975). In viewing of these two categories in public policy perspective, the growth pole literature tends to focus more on induced growth poles rather than on spontaneous growth centers.

The theories of agglomeration economy and growth poles then evolved to industry cluster theory, and there is no bigger name in this area than Michael Porter, whose cluster theory has become the standard for policy makers to promote national, regional, and local competitiveness, innovation and growth (Martin and Sunley 2003, Swords 2013). If growth pole theory mostly discusses how a center of growth can create economic spillover effects to its environment, industry cluster theory also discusses the relationship among government, industry, and other elements of the clusters.

According to Porter (1990), industry clusters are geographic concentrations of interconnected companies, specialized suppliers and service providers, firms in related industries, and associated institutions (such as universities, standard agencies, and trade associations) in particular fields that compete but also cooperate. Most industry cluster participants do not compete directly because they serve different industry segments. In this respect, they share many commonalities and opportunities, and encounter many shared constraints and hindrances to productivity.

Firms within clusters may cooperate in research and development activities, product development, or producer-supplier relationship. They can get the benefits of clusters in terms of cost saving, access to labor pool, and proximity of location. Firms in industry clusters also benefit from low transaction and transportation costs, as well as economies of scale, and lead to gaining competitive advantage (Krugman 1991). These cost savings may explain why existing clusters tend to grow and create labor market specialization (Depner and Bathelt 2005).

The conceptual diagram of the industry cluster theory follows the diamond model from Porter (1990) that conceptualizes factors that influence a country's competitive performance in international markets. The diamond model also captures the national and regional environment for competition, which is necessary for increasing productivity. The diamond addresses the information, incentives, competitive pressures, and access to supporting firms, institutions, infrastructure, and pool of insight and skill in a location that support productivity and productivity growth in particular fields (Porter 1990).

The theory of industry clusters advocates new, constructive, and actionable roles for government and business in the pursuit of competitiveness and prosperity. In this sense, the differentiation of the role of government between *laissez-faire* and government intervention are obsolete (Porter 1990).This statement implies that governments must strive to create an environment that supports rising productivity. This role implies a minimalist government role in some areas (e.g., trade barriers, pricing) and an activist role in others (e.g., ensuring vigorous competition, providing high-quality education and training). Governments must strive to improve the business environment; it must not limit competition or ease standards for safety and environmental impact (Porter 1990).

Industry cluster theory also suggests new roles for firms and government to enhance the supply of appropriately trained personnel, the quality and appropriateness of local university research activities, the creation of specialized physical infrastructure, and the supply of information (Porter 2000). Firms also have a role in attracting suppliers and other related service businesses so that cooperation among firms can be manifested. With respect to government relations, firms need to reinforce an open, constructive dialogue that can replace self-serving lobbying or paternalism that is commonly practiced. In order to increase productivity, it is essential for government and firms to build dialogue and to cooperate removing obstacles, reducing inefficiencies, and developing appropriate inputs, information, and infrastructure.

Highlight of Industrialization in Indonesia

Industrialization in Indonesia actually has started during the Dutch colonial period, especially after the Dutch introduced the cultivation system in the 1830s (Marijan 2007). However, modern industrialization started when President Suharto took power in 1965. At that time, the New Order government changed the Indonesian economy from an agriculture economy to an industrial economy.

As a result of the economic structural change of the 1960s, the share of the agriculture sector in the Indonesian GDP dropped drastically from 52.4 percent in 1965 to 15.2 percent in 2003 (Bird and Hill 2006, Marijan 2007). In contrast, the contribution to the manufacturing sector to the GDP rose sharply from 14.1 percent in 1965 to 45.1 in 2003.

In terms of industrial policy, Indonesia is considered to start having an active industrial policy after the beginning of the New Order era of General Suharto in 1966 (Marijan 2007, Aswicahyono et al. 2013, Naude 2013). Since then, the industrial development in Indonesia can be divided into four phases (Aswicahyono et al. 2013). The first phase is the rapid industrialization period following the major political and economic changes of 1966-1967. The principal driver of this rapid industrialization era is import substitution.

The second phase was the 1970s when there was a shift towards a more diversified industrial structure, away from the earlier dominance of simple consumer goods and resource processing (Aswicahyono et al. 2013, Naude 2013). The government also intended to shift industries to have more export orientation. As a result, major labor-intensive industries such as textiles, garments, and footwear grew rapidly and became the major drivers of this export growth. This phase was often called as the oil boom era as government gained more revenue from the increasing oil price (Marijan 2007).

The third phase of industrialization was in the 1980s as Indonesia became a significant industrial exporter (Aswicahyono et al. 2013, Naude 2013). The 1980s was also a crucial period in the Indonesian economic history. In the early 1980s, the decline of oil prices in the international market has triggered a major reassessment of Indonesia's trade and industrial policy. In this period, technocrats dominated the policy makers, and they advocated a more liberal political economy agenda (Aswicahyono 2013). This agenda includes reduced protection, a more open posture toward foreign investment, and simplified export procedures (Soesastro and Basri 2005).

The fourth phase of Indonesian industrialization was the period of economic crisis, between 1998 to the present. Due to the Asian economic crisis, in 1998 Indonesia's economic growth slumped to minus 13 percent, while it was on average around 7 percent in previous years (Marijan 2007). In this crisis period, Indonesia received assistance from the IMF and the World Bank, and as suggested by those agencies, the Indonesian government has continued to implement the liberal economic policy to remove market constraints such as reducing subsidies and privatizing state-owned enterprises (Marijan 2007). As a consequence, the role of government in the economy has been reduced and the private sector has gained a more significant role in the economy.

Measuring Cluster Competitiveness

In the study, actually measure cluster competitiveness in automotive and logistics clusters in Java. Java is critical to the Indonesian economy, because it has become the central of development for seven decades. Java has become the economic, social, and political center of Indonesia. Almost all automotive and logistics clusters in Indonesia are located in Java, especially in Jakarta and its metropolitan region. Automotive clusters were selected because this sector has been dominating our manufacturing industry in the past three decades, while logistics clusters were chosen because there is a concern on the high logistics costs in this country.

I employ both qualitative and quantitative methods in this study. The qualitative part involved interviews of the stakeholders of industry clusters in Indonesia. The stakeholders consist of top-level government officials in the area of economy and industry; practitioners who run their businesses in industry clusters; academicians whose research interests are in the area of economic development, industrial policy, and supply chain management; and local government leaders who have industry clusters in their area of authority.

The quantitative analysis consists of three parts: (1) a descriptive analysis of industry and cluster-specific location quotients in the Java corridor; (2) a shift-share and analysis of industry and cluster-specific location quotients in the Java corridor; (3) and econometric analysis of the shift share results drawing from shift-share results from all city regions in Indonesia.

The qualitative analysis finds that there is no coordination among stakeholders in clusters such as among national government officials, between national and local governments, or between government and industries. There is a severe problem of infrastructure as said by Ministry of Finance that *"The main problem that hinders the development of clusters in this country is the lack of infrastructure. Clusters need sufficient roads, highways, easy access to ports and airports, railroads, and many more."*

The location quotients in the quantitative part finds there is a declining concentration of industries in both automotive and logistics clusters in Java. The shift-share analysis indicates that there is a declining competitiveness in both industry clusters, while the econometric models found several significant variables to develop cluster competitiveness such as cluster employment, productivity, university enrollment, poverty rate, income per capita, herfindahl index and the existence of ports.

Based on the results of this study, there are some policies that can be recommended to develop industry clusters in Indonesia, especially in Java economic region. Those policy recommendations are divided into three main areas: policies about the role of government in providing basic infrastructure, cluster policies and economic development, and human capital and workforce development.

Taking a Step Forward

Distinguished Faculties and Colleagues,

In the last part of my speech, allow me in this respectable forum to emphasize the importance of research and studies of policies at SBM ITB. The research I am highlighting today is just an example of how business and policy studies are interconnected and inseparable. As we all notice the social collaboration in triple helix model involves academics, businesses, and governments – and an additional of community in the expanded model, Quadro Helix. Since its initial development 12 years ago, SBM ITB has operated in social science landscape and it is in line with policy studies which assesses the interaction of social stakeholders such as government, business, academics, and society.

I humbly propose the idea of a new center at SBM ITB that has policy nuance to complement the existing two centers we already have now, Center for Innovation, Entrepreneurship, & Leadership (CIEL) and Center of Knowledge for Business Competitiveness (CK4BC). I believe an addition of Center of Policy Studies and Economic Competitiveness would be benefiting SBM ITB to help providing sound research in shaping policy in this country.

Some of the renowned schools in the world already have a specific center for conducting research in policy. Harvard Kennedy Schools has Ash Center for Democratic Governance and Innovation, Stanford Graduate School of Business has Stanford Institute for Innovation in Developing Economies and National University of Singapore has the Asian Competitiveness Institute. I realize this seems like a far-stretched goal for us now, but it is still worth to think about.

Wassalamu'alaikum Wr. Wb