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## **Literature Review on A Nation Competitiveness**

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Competitiveness is a relatively new knowledge in economics. The concept of competitiveness has developed rapidly since the 1980s. The aim of this study is to review theories on how to assess a nation competitiveness. This study used literature review encompassing articles, journals, and books in relation to competitiveness. The results of this study show that the scientific approach to measuring and analyzing competitiveness can be conducted using modeling approach, indicator approach, or weighted summation approach. Modeling approach is very complicated and is normally tailor-made to provide answer to particular questions. The indicator approach is prepared to measure the changes over a time period or to make comparisons among industries. Indicators do not play a role in simulating competitiveness directly, but are data sets that reflect competitiveness indirectly. The size of the competitiveness index with a weighting system has been used in global competitiveness report made by the International Institute for Management Development (IMD) and the World Economic Forum (WEF).

**Keywords: Comparative Advantage, Competitive Advantage, Competitiveness, Indicator Approach, Modeling Approach, Weighted Summation Approach**

### **Introduction**

In various literatures, the discussion of competitiveness of a nation is associated with the performance of economy as represented by the national productivity (size of gross domestic product/GDP per capita) and the results of trade. The concept of competitiveness colors the repertoire of economic literature through trade theory and growth theory (Ogreaan, 2010). Competitiveness of a nation is a group of factors, policies, and institutions that have an effect on a country's productivity level (Schwab & Zahidi, 2020). Competitiveness of a nation is the capacity of a nation to deal with the challenges of international market competition and at the same time maintain or even increase its real income (Pahan, 2011).

The prosperity of a nation depends on its productivity-based competitiveness to make the goods and provide services required. Macroeconomic policies, political stability, and legal institutions are needed but insufficient to ensure the economic prosperity of a nation. Competitiveness is embedded in the nation's macroeconomic fundamentals, company sophistication of strategies and operations, and microeconomic environment quality of the business environment in which companies compete.

Understanding of the microeconomic foundation of competitiveness is the basis of national economic policy. (Knight & Cavusgil, 2004) added two new things, namely competitiveness rooted in microeconomic fundamentals, which is shown in the company sophistication and the

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microeconomic business environment quality, and clusters in the global economy, namely the critical period of certain fields that make business activities can be extraordinarily productive and efficient.

National competitiveness is an aggregate of organizational competitiveness within a country. The competitiveness of the organization is contributed by the competitiveness of the individual residents of the country. The competitiveness of an industry in a country is the aggregate of the competitiveness of all sub-systems in the industry which is the industry capacity to deal with the international market competition challenges while maintaining or increasing its real income from primary products and their derivative products. (Esterhuizen, 2008) defined competitiveness as a sector, industry, or company ability to be able to compete successfully, in order to achieve growth sustainability in a global environment as far as the offset costs are lower than the revenues of the resources used.

The discussion of competitiveness is generally carried out with the concepts of two advantages which are comparative and competitive. Comparative advantage is the nation advantage in international trade because of the efficiency of its natural resources, labor, and capital inputs (Van Rooyen et al., 1999). Competitive advantage is an advantage over competitors obtained by providing consumers higher value, either by offering cheaper prices or by delivering more benefits and improved servicing facilities that could give grounds for higher prices (Oxford University Press, 2016).

Competitive advantage can be obtained in several ways, such as better performance of product, improved distribution methods, or more effective advertising. Most types of competitive advantage are difficult to maintain in the longer term because competitors will try to find and offer substitutes over the existing competitive advantage (Oxford University Press, 2016). Competitive advantage can explain how current international trade patterns such as trade barriers, product quality differences, and industrial marketing skills cannot be explained by the concept of comparative advantage (Van Rooyen et al., 1999). The industry competitiveness can be increased through the development of new products, improving the quality of management, and information management (Chaston et al., 2001), and through increasing productivity (Daryanto, 2007).

## **Methods**

This study used literature review encompassing articles, journals, and books in relation to competitiveness.

## **Results**

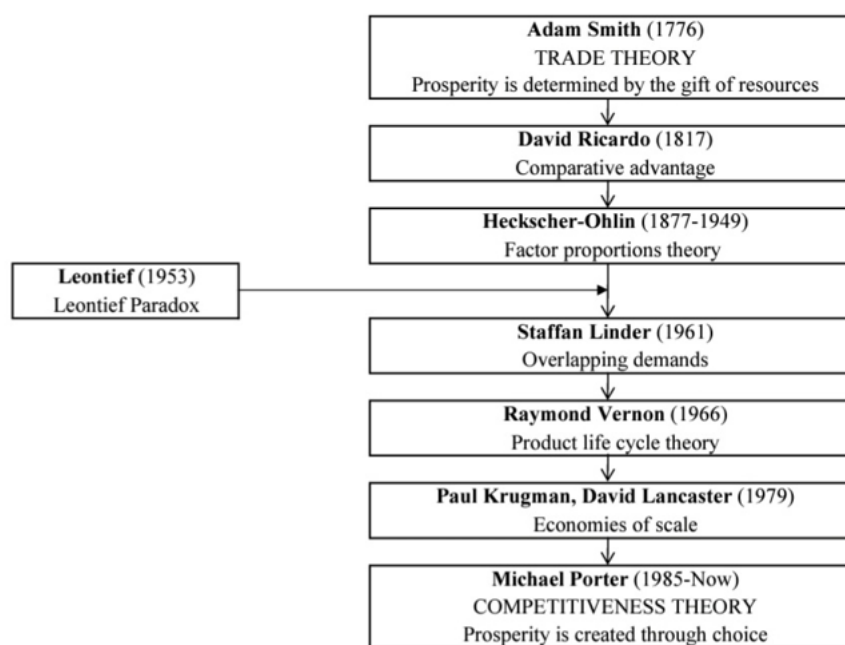
### **Competitiveness Theories**

Competitiveness is a relatively new knowledge in economics. The concept of competitiveness has developed rapidly since the 1980s. However, the basics of this economic concept can be traced to the classical economics of the modern economics fathers for instances Adam Smith, David Ricardo, and the others (Pahan, 2011). The evolution of competitiveness theories as shown in Figure 1. The figure provides a chronological description of the development of the theories of competitiveness and its background since Adam Smith proposed the Trade Theory in 1776 which stated that prosperity is determined by the gift of resources. Several key components of the historical developments of economic thoughts in the domain of competitiveness are displayed in Table 1. The table shows the transformation of competitiveness theory, from the 18th century to the 20th century.

**Table 1. Foundation of Competitiveness Theories**

Theories	Key Concept(s)	Mechanism(s)
<b>Classical Political Economy:</b> <b>Adam Smith (1776)</b> <b>David Ricardo (1817)</b> <b>J.S Mills (1848)</b> <b>J.S Mills (1873)</b>	Market Size/productivity Comparative advantage Infant industries Politics of protection	Specialization, competition International trade Learning-by-doing Income distribution
<b>Neoclassical Models:</b> <b>Ricardian (1817)</b> <b>Heckscher-Ohlin (1919, 1933)</b> <b>Ricardo-Viner (1937)</b> <b>Heckscher-Ohlin-Samuelson (1962)</b> <b>Salter-Swan (1959, 1960)</b>	Technical efficiency Factor-intensity Specific factors Consumer demand Exchange rates	Use of a single key resource Use of more than one resource Use of industry-specific inputs Product preference Non-traded goods, inflation
<b>Challenges to Comparative Advantage</b> <b>Prebisch/Singer (1950)</b> <b>A.O. Hirschman (1958)</b> <b>New Trade theorist</b> <b>Michael Porter (1990), Balassa (1977)</b>	Import-substitution Development strategy Strategic policy Competitive advantage	External terms of trade Inter-industry linkage Rent-shifting, externalities Factor creation, demand signaling

Source: (Masters, 1995)



**Figure 1. Evolution of competitiveness theories**

Source: Adapted from (Esterhuizen, 2008)

The remarkable contribution of the neoclassical model is it successfully recognized the sources to build the comparative advantage and specialization. This explains why an industry in one country can develop profitably, while another industry cannot. The neoclassical model is able to break the learning-by-doing theory, which assumes that experience is the only cause of comparative advantage. The neoclassical model has succeeded in quantifying five main factors in the creation of comparative advantage of an industry in a country, which were efficiency of technology, different industry factor-intensity, specific resources of industry, local demand, and exchange rates (Masters, 1995).

The challenge focus to the neoclassical view of comparative advantage emerged in developing countries in the 1950s and in industrialized countries in the 1980s. These challenges

are closely related to the period of rapid changes in production and trade levels, as well as the government's willingness to intervene to support industries that are vulnerable to threats. The responses of developing countries and industrialized countries to these neoclassical challenges are very different. Developing countries respond in the form of import restrictions to reduce their dependence on other countries, while industrial countries encourage exports by providing strategic subsidies to increase their product market share (Pahan, 2011). These understandings are resulted in the development of analytical frameworks that explain competitiveness factors for instances the concept of Revealed Comparative Advantage (RCA) (Balassa, 1977) and the competitive advantage of nations (Porter, 1998).

### **Competitiveness Formulation and Measurement**

The scientific approach to measuring and analyzing competitiveness can be conducted through a qualitative approach and a quantitative approach (Zhang et al., 2009). (Esterhuizen, 2008) and (Zhang et al., 2009) explained about modeling approach and indicator approach, meanwhile (Zhang et al., 2009) also explained about weighted summation approach.

According to (Zhang et al., 2009), based on a qualitative approach and a quantitative approach in assessing competitiveness, there are at least eight main methods of assessing competitiveness that can be used, namely: (1) Value Chain Approach (VCA), (2) Portfolio Matrix Model (PMM), (3) Competence Pyramid Model (CPM), (4) Enterprise Model (EM), (5) Single Indicator Approach (SIA), (6 ) Key Competitiveness Indicators (KCI), (7) Industrial Competitiveness Model (ICM), and (8) Weibull Model (WM).

### **Modeling Approach**

Modeling approach is very complicated. This approach is normally tailor-made to provide answer to particular questions. The modeling approach is always evolving and requires a high investment in research costs (Esterhuizen, 2008). The researchers who provided the modeling approaches commonly used in the assessment of competitiveness are (Porter & Millar, 1985) (the value chain model), (Macmillan & Tampoe, 2001) (the portfolio matrix model), (Walsh & Linton, 2001) (the competency pyramid model), (Hatten & Rosenthal, 1999) (the firm model), and (Weibull, 1951) (the Weibull model).

These various modeling approaches are part of the mainstream Industrial Organization (IO) model which was successfully summarized by (Porter, 1998) into a theory of nation competitive advantage, where prosperity is created through choice. The main components of the nation's competitive advantage model are encompassing : (1) The model of five competitive forces to analyze the industry structure and the company's position in competition, (2) The model of value chain to design the company's value creation process in the value chain in which the company operates, and (3) The model of strategic positioning to determine and take the company's position in the market (the company's leadership over other companies in the same industry through low cost, differentiation, and focus strategies).

The nation (regional) competitiveness model developed by (Porter, 1998), which is the diamond cluster model, comprises input factor conditions (endowment), demand factor conditions, competitive conditions in the context of company (nation) strategy and rivalry, as well as related supporting industries to generate competitive advantage in the form of industrial cluster competitiveness as a derivative of the diamond model (Knight & Cavusgil, 2004).

### **Indicator Approach**

The indicator approach, in the form of index numbers, is prepared to measure the changes over a time period or to make comparisons among industries. Indicators do not play a role in

simulating competitiveness directly, but are data sets that reflect competitiveness indirectly (Masters, 1995); (Zhang et al., 2009).

The quality of the results obtained from the competitiveness indicators depends on the available data quality. The characteristics of data (quality, type, and amount) needed for compiling a competitiveness measure vary widely. (Esterhuizen, 2008) stated that the chosen method to be used is generally determined by the data availability. The formulation of competitiveness is also influenced by the level of depth of research to be carried out. This depth level includes the level of product aggregation (product, sector, or entire economy) and the degree of spatial expansion (company, national, or international).

(Buckley et al., 1988) made a difference in the competitiveness measures in the form of performance measure, competitiveness potential, and competition processes. Performance measure is a comparison among countries, where a country or sector or company is relatively better than its competitors. The measure of competitiveness potential considers the factor availability that can result in excellent performance. The measure of the competition process is usually qualitative by measuring the process of management or how the competitiveness potential is changed into competitiveness performance (Pahan, 2011).

A single indicator-based measure of competitiveness which is often utilized in competitiveness research is the revealed comparative advantage (RCA) approach (Balassa, 1977); (Van Rooyen et al., 1999); Ferto and Hubbard, 2003; Arisman, 2002), and its variants such as relative trade advantage (RTA) (Fertö & Hubbard, 2003); (Esterhuizen, 2008), and revealed competitiveness (RC) (Esterhuizen, 2008). Other single index approaches used to measure competitiveness such as stated by (1) Edwards (1989) (Real exchange rate), (2) (Nabi & Luthria, 2002) (Foreign investment), (3) (Henderson, 2004) (Growth share matrix), and (Hadi & Mardianto, 2004) and (Rifin, 2010) (constant market share analysis), (4) (Nabi & Luthria, 2002) (Export performance), (5) (Nabi & Luthria, 2002) (Labor cost unit), (6) (Esterhuizen, 2008) (Comparison of production costs), and (7) (Kirsten et al., 1998) (Domestic resource costs).

RCA is used to determine the strengths and weaknesses of a sector in a country. The use of the RCA index was popularized by (Balassa, 1977). The RCA of a product is stated as the ratio of the product share in global trade. If the index has a bigger value than its combined value, the country is examined to have an open comparative advantage for that product. If the value is lower than the combined value, the country is examined to have no comparative advantage for that product (Esterhuizen, 2008).

The use of the Balassa index to assess various sectors' strengths and weaknesses has been used by academicians and policy makers (Esterhuizen, 2008). (Porter, 1998) uses the Balassa index to identify the strength of a nation's sector in determining the nation's competitive advantage. There are many examples of the use of the Balassa index in research on the agricultural product competitiveness, including palm oil of Indonesia (Arisman, 2002), agri-food products in Hungary (Fertö & Hubbard, 2003), canned tuna products in Thailand (Kijboonchoo & Kalayanakupt, 2003), agricultural products in Hawaii (Cai et al., 2007), rice products in Brazil (Wander et al., 2008), and agricultural products in India (Shinoj & Mathur, 2008).

### **Weighted Summation Approach**

Competitiveness is a relative measure that must always be compared with a basic value. For example, market share assessment should always be linked to market size (Esterhuizen, 2008). The measurement of competitiveness will be less meaningful without any reference to these basic values. The limitations of the single competitiveness indicator approach have led to the development of a key competitiveness index, which consists of a set of indicators using a particular weighting method. (Jansen, 1992) stated that the weighted summation method uses multiple attributes which are considered as fair variables.

The size of the competitiveness index with a weighting system has been used in global competitiveness report made by the International Institute for Management Development (IMD, 2021) and the World Economic Forum (Schwab & Zahidi, 2020). The competitiveness index is based on a set of variables. Some of these variables are subjective and the basis of its assumptions is questionable, because most of them are based on comments from business executives. These weaknesses are continuously improved and have resulted in increasingly complex weighting of sub-indexes through the creation of competitiveness scorecards (Pahan, 2011).

The IMD and WEF competitiveness reports have different perspectives. IMD mentions competitiveness as the nation ability to make added value and increase the nation's prosperity (IMD, 2021), which implies that a nation's Gross Domestic Product (GDP) and also productivity may be treated as a proxy for competitiveness. On the other hand, WEF defines competitiveness as the national economy ability to attain a sustainable high level of economic growth. This can be measured from the annual change in GDP per capita (Schwab & Zahidi, 2020).

Although the competitiveness definitions of IMD and WEF are different, the determinants of competitiveness of both are relatively the same. IMD promotes four groups of competitiveness which are government efficiency, business efficiency, economic performance, and infrastructure efficiency, all of which consist of 330 criteria (IMD, 2021). WEF uses 12 pillars of competitiveness which are institutions, infrastructure, macroeconomic environment, health and basic education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technology readiness, market size, business sophistication, and innovation with a total of 110 indicators (Schwab & Zahidi, 2020).

The weight of the assessment of each pillar or group in determining the nation's competitiveness index in the IMD and WEF reports has an arbitrary difference (Pahan, 2011). The IMD report consists of hard data in the form of published statistical indicators and soft data in the form of survey data collected from business executives. Due to the more volatile nature of soft data, IMD assigns a weight to hard data of two-thirds and to soft data of one-third (IMD, 2021). The WEF report uses a slightly different weighting, which differentiate the country development stages based on the size of GDP.

### **Business and Economic Environmental Constraints**

In this era of rapid information change, multiple forms of global competition are disseminating in all directions resulted in a more complex environmental turbulence, more contradictory paradoxes, inconsistencies, and other dilemmas (Zuhal, 2010). The development of the competitiveness of an industry in a country must be able to respond to various external changes as appropriate, quick, and efficient as possible to achieve a competitive advantage that can sustain.

(Sloman, 2006) stated that complexity is a natural by-product of dramatic changes in the economic environment. Price uncertainty and problems of transmitting market information (price and market preferences), resource constraints, rapidly changing technological life cycles, and increasing international competition, made a big leap in the transformation of managerial decision-making. Economic environmental constraints affect business activities in the context of competitive advantage in the industry economic and business environment in a country.

The development of industry competitiveness in a country is determined by the status of environment constraints of economic and business that can be depicted from competitiveness cube of the International Institute for Management Development (IMD) in the form of four major measurable competitiveness factors, namely: (1) Efficiency of government, (2) Efficiency of businesses, (3) Performance of economy, and (4) Efficiency of infrastructure (IMD, 2021). The competitiveness cube illustrates how the interaction among business, government, society, and

the formation of competitive advantage at the national level in an effort to increase the nation's competitiveness.

The development of an industry competitiveness in a country is determined by the status of environment constraints of economic and business that can also be depicted from the Global Competitiveness Index (GCI) of World Economic Forum in the form of 12 competitiveness pillars, namely institutions, infrastructure, macroeconomics environment, health and basic education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. These pillars are categorized into three sub-indexes, namely: (1) the basic requirements sub-index that is the main contributor to a factor-driven economy, (2) the efficiency enhancers sub-index that is the main contributor to a efficiency-driven economy, and (3) the innovation and sophistication factors sub-index that is the main contributor to an innovation-driven economy.

The basic requirements sub-index covers the first to fourth pillars, namely institutions, infrastructure, macroeconomic environment, as well as health and basic education. The efficiency enhancers sub-index covers the fifth to tenth pillars, namely higher education and training, goods market efficiency, labor market efficiency, financial market development, technology readiness, and market size. The innovation and sophistication factors sub-index covers the eleventh and twelfth pillars, namely business sophistication and innovation.

According to (Garelli, 2002), in addition to the four competitiveness factors, in the competitiveness cube theory there are four competitive enabling environments which are usually formed from traditions, history, or value systems rooted in the operation mode of a country, namely attractiveness versus aggressiveness, proximity versus globality, assets versus processes, and individual risk taking versus social cohesiveness.

Government efficiency is a range of indicators for efficient public finance, fiscal, macroeconomic, business regulations/legislation (Zuhal, 2010). The most transparent business efficiency for the business world is productivity (Zuhal, 2010). (Krugman, 1991) stated that national productivity is another name for competitive advantage. Productivity is a main component of competitive advantage, since it is the key to efficiency that explains with limited resources a company or country can produces how much.

The company productivity of certain industry in a country is a result of mathematical operation where the number of products produced as numerator and the production factors (raw materials, labor, and money) as denominator, which also shows the added value of the company. The dominant aspects in assessing the business efficiency status are mainly related to: (1) Labor relations (Zuhal, 2010), (2) Eco-friendly industry aspects (Zen et al., 2005); (Barbier, 2009) and industrial standardization (Laurance et al., 2010), and (3) Development of downstream industries (Wahid, 2007).

The most visible economic performance is GDP growth. The other economic performance assessment variables are international trade, foreign direct investment (FDI), and the opening of job opportunities (Zuhal, 2010). Indicators of infrastructure efficiency are reviews of physical infrastructure, technology, research and development (R&D), health, and education (Zuhal, 2010). With exception of physical infrastructure, the other four indicators are invisible and have long-term impacts (20-25 years) (Pahan, 2011).

The competitiveness enabling environment provides options for countries to establish bilateral relations with other countries. Traditionally, competitiveness has been linked to a country's attack power through exports and investment. Japan, Germany, and South Korea are examples of countries that prioritize attack power by relying on exports and investment in other countries in the world. Countries such as Singapore and Indonesia prioritize attractiveness to bring investors into the country (Pahan, 2011). Attack power generates income for the home

country of investment but does not always create job vacancies. The attractiveness of creating job vacancies in the host country of investment does not always generate income because of the incentives that must be provided (Garelli, 2002).

As a member of the countries in the world, the industry in a country is dealing with the domestic economy and globality. The domestic economy generates added value by getting closer to the final customer. The economy of globality means that company operates internationally (outside its own countries), so it is assumed that producers do not need to be close to final consumers because the advantage is obtained from comparative advantage in world markets through reduced operating costs (Garelli, 2002).

Countries manage their competitive enabling environment through dependence on assets or processes. Rich countries with plenty of land, labor and natural assets, for instances Brazil, Russia, India, and Indonesia, are not always competitive in reality. Resource-poor countries, for instances Singapore, Japan, and Switzerland, which rely more on the transformation process and have been export-oriented from the beginning, are in fact more competitive than countries that rely on asset exploitation (Garelli, 2002).

The fourth force that makes up a country's competitive enabling environment is the differences between systems that promote personal risk or shared risk. The Anglo-Saxon individual concept is described by stresses on risk, deregulation, privatization, and personal responsibility through a minimum approach to the system of welfare. Contrary, the Europe Continent model counts mainly on social consensus, tend to egalitarian approach to responsibility and a broad welfare system. The models competed each other for decades, and now the Anglo-Saxon model was finally eliminated (Garelli, 2002).

Competitiveness management should be carried out both systemically and systematically. "Systemically" refers to that the relation among the components of competitiveness is as significant as the understanding of the components themselves. For instance, when concentrating on improving infrastructure, this is not only about making airports, railroads, railways, ports, and so on. This should be also about connecting of all these facilities as one integrated value-added logistical system using the most updated technologies. "Systematically" refers to that a strategy of competitiveness requires to be coherent over time. Business can be adjusted to most adverse conditions as if the regulations make sense and are clearly stated. Some countries, for instances Malaysia or China, tend to be more restrictive in their business regulations. Since these two countries have been consistent, businesses could be able to fit in. Other country, for instance India, have alternated priorities and objectives contributing much confusion and distrust in communities of businesses (Garelli, 2002).

## **Conclusion**

Competitiveness is a relatively new knowledge in economics. The concept of competitiveness has developed rapidly since the 1980s. However, the basics of this economic concept can be traced to the classical economics.

The scientific approach to measuring and analyzing competitiveness can be conducted through qualitative and quantitative approaches, namely modeling approach, indicator approach, and weighted summation approach.

Modeling approach is very complicated. This approach is normally tailor-made to provide answer to questions. The modeling approach is always evolving and requires a high investment in research costs. The modeling approaches usually utilized in the evaluation of competitiveness are the value chain model, the portfolio matrix model, the competency pyramid model, the firm model, and the Weibull model.



The indicator approach, in the form of index numbers, is prepared to measure the changes over a time or to make comparisons among industries. Indicators do not play a role in simulating competitiveness directly but are data sets that reflect competitiveness indirectly. The quality of the results obtained from the competitiveness indicators depends on the available data quality. The characteristics of data (quality, type, and amount) needed for compiling a competitiveness measure vary widely. The chosen method to be used is generally determined by the data availability. The formulation of competitiveness is also influenced by the level of depth of research to be carried out.

Competitiveness is a relative measure that must always be compared with a basic value. The measurement of competitiveness will be less meaningful without any reference to these basic values. The limitations of the single competitiveness indicator approach have led to the development of a key competitiveness index, which consists of a set of indicators using a particular weighting method. The size of the competitiveness index with a weighting system has been used in global competitiveness report made by the International Institute for Management Development (IMD) and the World Economic Forum (WEF).

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