4th INCOGITE and 2nd HOSPITOUR 2022
"Regenerative Economy, Business & Tourism: Through innovation & Sustainability"
Thursday, November 17th, 2022 – Universitas Pelita Harapan Tangerang

The Trade Competitiveness of the Indonesian Automotive Industry

Pauline H.P.Tan

pauline.henriette@uph.edu

Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang, Indonesia

Abstract. The automotive industry is one of the leading sectors that has a significant contribution to the national economy. The automotive sector has contributed an investment value of IDR 99.16 trillion with a total production capacity of 2.35 million units per year and has absorbed a direct workforce of 38.39 thousand people. From a job creation standpoint, the automotive sector has a far-reaching impact on the more than 1.5 million people working along the industry's value chain. The automotive industry has an essential and strategic role, so it is included in the Making Indonesia 4.0 roadmap, which is prioritized for development in the implementation of industry 4.0. Since 2020, domestically produced motor vehicle products have been able to penetrate the export market to more than 80 countries around the world. On this basis, it is essential for Indonesia to be able to measure the comparative advantage of the Indonesian automotive industry, or to measure the competitiveness of Indonesian automotive products in the world market. This competitiveness measurement uses Revealed Comparative Advantage (RCA), which measures Indonesia's comparative advantage using an index known as the Balassa Index.

Keywords: Revealed Comparative Advantage; competitiveness; automotive sector

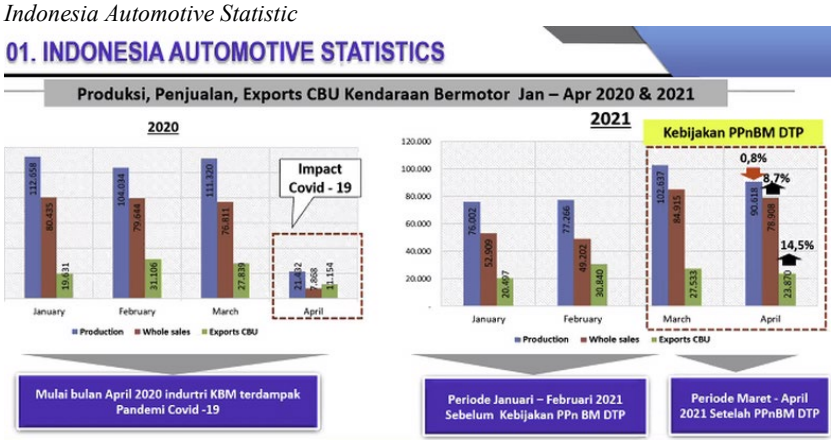
1. Research Background

The automotive industry is one of the leading sectors that significantly contribute to the national economy. Currently, there are 22 four-wheeled or more motor vehicle industry companies in Indonesia. The automotive sector has contributed an investment value of IDR 99.16 trillion with a total production capacity of 2.35 million units per year and absorbed 38.39 thousand direct workers (Ministry of Industry, 2022).

From a job creation standpoint, the automotive sector has a far-reaching impact on the more than 1.5 million people working along the industry's value chain. The automotive industry has an important and strategic role so that it is included in the Making Indonesia 4.0 roadmap, which is prioritized for development in the implementation of industry 4.0. Along with the Making Indonesia 4.0 program, the national motor vehicle industry sector is targeted to become a global player. During this pandemic, the government has carried out various stimuli to be able to increase the production of the automotive industry so that it continues to make a major contribution to the national economy, such as incentives to reduce PPnBM for motorized vehicles in the vehicle segment with a CC below 1500, namely for the sedan and 4x2 categories. This is to encourage the demand side of the automotive industry. Another thing is the holding of the 2021 Indonesia International Motor Show (IIMS) virtual exhibition as a strategic tool in assisting the promotion and sales program for the automotive industry, namely to introduce the latest technology from the automotive industry in the country and the vehicles displayed.

Since 2020, domestically produced motor vehicle products have been able to penetrate the export market to more than 80 countries around the world. Exports of completely built up (CBU) vehicles amounted to 232.17 thousand units or a value of Rp. 41.73 trillion, while shipments of completely knocked down (CKD) vehicles totaled 53.03 thousand sets or a value of Rp. 1.23 trillion, and 61 components. 2 million pieces or IDR 17.52 trillion. In the future, Indonesia will become an export hub for motorized vehicles, both for oil-based vehicles or internal combustion engines (ICE) and electric vehicles or electrical vehicles (EV). One of the automotive 4.0 strategies is to build an ecosystem for the EV industry, starting with mastering the manufacturing capabilities of electric motorcycles, then the manufacturing capabilities of batteries and electric cars in line with global trends.

Figure 1
Indonesia Automotive Statistic



Source: Otomotif Kompas (2021)

On this basis, it is important for Indonesia to be able to measure the comparative advantage of the Indonesian automotive industry, or to measure the competitiveness of Indonesian automotive products in the world market. This competitiveness measurement uses Revealed Comparative Advantage (RCA), which measures Indonesia's comparative advantage using an index known as the Balassa Index.

2. Literature Review

Nagy and Jambor (2018) analyze the global Revealed Comparative Advantage (RCA).

car trading and the duration and stability of the Balassa index by applying the Markov transition probability matrix and the Kaplan-Meier survival function. The data used is global car exports at the HS6 level for 1997-2016. The result is that the characteristics of global automotive trade, it turns out that China, USA, Japan and Germany are the largest auto manufacturers, but the top exporters are Germany, Japan and Canada in the study period, and together account for 40% of all exported products, however, provide 71% concentration. It was also found that the most traded/exported automotive products are vehicles with internal combustion-only spark ignition (1500-300cm3) (870323) globally, accounting for more than 40% of all vehicle exports between 1997 and 2016. Index calculation results Balassa pointed out that Spain and Japan had the highest profit ratio across all analyzed periods among the world's largest auto exporters.

Tampubolon, J (2019) performs calculations by selecting products included in the analysis using a two-step approach. The position of the Indonesian manufacturing sector is calculated by making a limited selection of the top 250 export products (out of 1,259 products in 4-digit HS). As a competitive sector (RCA>1) reflects the sector's position as the top 10 exports, based on its share (export value). This approach also provides new indications of Indonesian exports in the Chinese market, especially after the implementation of the ASEAN-China Free Trade Agreement in 2010.

Bezic and Galovic (2015) examined the international trade performance of the automotive sector from 21 European OECD Member countries. During 2014 and 2015, the international competitiveness of the OECD European automotive industry showed positive signs. The growing demand for vehicles boosts supply leading to better trading performance. Its basic objective is to measure the performance of international trade in the automotive industry

from OECD member countries. The main results of the paper show that international competitiveness is detected by measuring, evaluating the automotive industry especially in foreign markets, recommendations and proposals to achieve a higher level of international trade.

Soyyigit and Yavuzalan (2020) examine competitive forces in international trade, which is one of the most desirable target countries in today's globalized world. Thus, the importance of international competitiveness which has become a fundamental issue since the emergence of international economic theory is increasing for various products. Within this scope, it is very important to analyze the product groups in which countries have comparative advantages from past to present in order to detect problems and determine the existing situation. In this context, with reference to the importance of the state in the existing global structure, investigation of Turkey's comparative advantage in motor vehicle production is the subject of this study. The Revealed Comparative Advantage (RCA) index, which was first proposed by Liesner and later developed by Balassa, was used to determine Turkey's comparative advantage in motor vehicle production from 1989 to 2016. The findings indicate the existence of new competitors in the automotive sector and that Iran's competitiveness and Eastern

European countries will determine the medium and long term position of the Turkish auto industry in the global market.

Vosta and Kocourek (2020) state that the automotive industry is one of the fastest growing industries, a significant employer and investor in research and development, and also one of the most important sectors of the EU economy. However, the sector has recently gone through a series of structural changes and territorial transfers. Precisely for this reason, it seems important to examine the competitiveness of the auto industry at the national level, analyze long-term trends across the EU, and incorporate them into global context. This article uses the standard method of statistical analysis of indexes to reveal symmetric comparative advantage to detect the characterizing trend shape and long-term development of the automotive industry in Europe. Researchers point to a substantial shift in production and exports from traditional Western European automakers in favor of the new European Union member states, but also from the United States and Canada supports fast-growing emerging developing countries in the South and Southeast Asia and in Latin America. A brief outline of the European Commission's response to these changes in the European automotive industry in the form of the CARS 2020 Action Plan.

3. Research Method

The concept of competitiveness as a comparative advantage was introduced by the theory of comparative advantage by David Ricardo in 1817 through his book On the Principles of Political Economy and Taxation, known as the Ricardian Model. However, comparative advantage was first stated by Robert Torrens in 1815 in an essay published in Corn Laws.

The most popular measure of competitiveness used is Revealed Comparative Advantage (RCA), which measures comparative advantage. Balassa uses to measure the comparative advantage of a country by compiling an index known as the Balassa Index. This index identifies whether a country has a demonstrable comparative advantage but does not determine the origin of the comparative advantage. This definition has undergone revisions and modifications so that the use of RCA as a measure of comparative advantage varies, such as at the global, sub-global/regional or bilateral level between two countries as trading partners.

This index is considered the most appropriate for use in dissertation research because: (i) the response modifies RCA measurements which are more comprehensive and advanced so that they are more acceptable 3; (ii) the Response index in practice is more used because it reduces the impact of distortion 4 ; and (iii) despite having weaknesses5, various studies have used this method with satisfactory results because it is easy to obtain data and operationalize it (Burhan, Sri, 2021)

The export performance of a product from a country is measured by calculating the share of a product's export value to a country's total exports compared to the share of the product's value in world trade. (Ministry of Trade, 2022). The index response formula is:

$$\text{RCA} = \frac{X_{ij}/X_{it}}{X_{nj}/X_{nt}} \qquad \text{…….. 1}$$

Where:
X_i =Indonesian Export; $X_{j=}Otomotif$; $t \quad = Group\ of\ product$; $n \quad = a\ group\ of\ country$.

In theoretical models, comparative advantage is expressed in relative prices evaluated in the absence of trade. Since these are not observed, in practice, we measure comparative advantage indirectly. Revealed comparative advantage indices (RCA) use the trade pattern to identify the sectors in which an economy has a comparative advantage, by comparing the country of interests trade profile with the world average. The definition of RCA index is defined as the ratio of two shares. The numerator is the share of a country's total exports of the commodity of interest in its total exports. The denominator is the share of world exports of the same commodity in total world exports. Range of values: Takes a value between 0 and +∞. A country is said to have a revealed comparative advantage if the value exceeds unity.

References

Badan Pusat Statistik (2022). Ekonomi dan Perdagangan. https://www.bps.go.id/statictable/2019/02/27/2031/ekspor-kendaraan-bermotor-roda-empat-atau-lebih-menurut-negara-tujuan-utama-2012-2021.html

Bezic and Galovic (2015). TRADE PERFORMANCE IN THE AUTOMOTIVE INDUSTRY OF THE EUROPEAN OECD MEMBER COUNTRIES, JEL classification: F10, F14, L62

Burhan, Sri Yusnita (2021). KAJIAN REVEALED COMPARATIVE ADVANTAGE (RCA) DAN TRADE SPECIALIZATION INDEX (TSP) INDONESIA DAN THAILAND, Laporan Penelitian, Universitas Trilogi Jakarta.

Kemendag (2022). Kementrian Perdagangan RI. https://www.kemendag.go.id/addon/rca/

Kementrian Perindustrian RI (2022). Industri Otomotif Jadi Sektor Andalan Ekonomi Nasional https://www.kemenperin.go.id/artikel/22297/Menperin:-Industri-Otomotif-Jadi-Sektor-Andalan-Ekonomi-Nasional. 19 September 2022.

Nagy and Jambor (2018). COMPETITIVENESS IN GLOBAL TRADE: THE CASE OF THE AUTOMOBILE INDUSTRY, ECONOMIC ANNALS, Volume LXIII, No. 218 / July – September 2018 UDC: 3.33 ISSN: 0013-3264

Otomotif Kompas (2022). Ekspor Otomotif Januari April naik 35-67 persen; https://otomotif.kompas.com/read/2021/06/11/154100515/ekspor-otomotif-januari-april-naik-35-67-persen

Soyyigit and Yavuzalan (2020). An Investigation of Turkey's Competitiveness on Different Products Groups in Automotive Sector via Revealed Comparative Advantage Index. Eurasian Economic Perspectives pp 125–140

Tampubolon, J (2019). RCA Analysis with Selected Products to Enhance Prediction Power of Competitiveness, Jurnal Ekonomi dan Studi Pembangunan, 11 (2), 2019 ISSN 2086-1575 E-ISSN 2502-7115

Vosta and Kocourek (2020). Competitiveness of the European Automobile Industry in the Global Context. Politics in Central Europe (ISSN: 1801-3422) Vol. 13, No. 1 DOI: 10.1515/pce-2016-0023