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CEPA INDONESIA – SOUTH KOREA AND ITS IMPACT ON THE DEVELOPMENT OF INDONESIA'S ELECTRIC VEHICLE INDUSTRY AND INTERNATIONAL TRADE

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ABSTRACT

The electric vehicle (EV) and EV battery (EVB) industry in Indonesia is in its early stages of development, with key players such as Indonesia Battery Corporation (IBC), an Indonesian-based battery company, and Hyundai, South Korea's largest automotive manufacturer. This research applies the National Competitive Advantage theory to explore the impact of the Indonesia-South Korea Comprehensive Economic Partnership Agreement (IK-CEPA) on this emerging sector. This research examines the impact of the IK-CEPA on Indonesia's nascent electric vehicle (EV) and EV battery (EVB) industry. Key influencers for EV and EVB growth include government incentives, charging infrastructure, green energy adoption, and fluctuating gas prices. Open-ended interviews were conducted with appropriate respondents working in related industry. Findings reveal that current government incentives boost EV adoption, yet the broader EV and EVB sector in Indonesia remains emergent. The IK-CEPA bolsters the industry by fostering economic collaboration between Indonesia and South Korea, attracting significant investments from leading South Korean EV and EVB corporations. However, the industry's advancement is curtailed by inadequate charging infrastructure, particularly outside Jakarta. For widespread EV adoption, consumer concerns such as charging facilities, market variety, and total cost of ownership need addressing. This study advocates for an internalized value chain in Indonesia's EV sector, emphasizing cost efficiency and attracting foreign EV enterprises. Through the IK-CEPA, the mutual benefits of technology exchange, cost reductions, and market accessibility can considerably enhance Indonesia's position in the global EV industry.

Keywords: Economic Partnership, EV Industry, Value Chain.

INTRODUCTION

In December 2020, Indonesia and South Korea forged a significant economic bond through the Comprehensive Economic Partnership Agreement (CEPA), emphasizing a broader economic cooperation. Through CEPA, Indonesia has removed 92% of its tariff lines, while South Korea will remove 85%, while also garnering preferential support for its investments within Indonesia. This is expected to propel important sectors, notable the automotive and technological industries, which are among South Korea's leading industries. Additionally, CEPA will facilitate professional exchanges notably in key areas such as science, technology, robotics, and software engineering, heralding an era of high-tech collaboration between the nations (Nangoy et al., 2020).

The agreement arrives at a critical juncture as the global market sees an uptick in electric vehicle (EV) demand, underpinned by a concerted push towards green energy and reduced carbon emissions. In 2018, the transport sector contributed to 28% of Indonesia's energy sector emissions. Emissions from the transport sector are expected to rise by 53% from 2015 levels by 2030, and nearly double between 2030 and 2060. Achieving net-zero emission will not be possible without addressing fossil fuel combustion in the transport sector (*iesr.org*). With oil reserves waning and environmental impacts of fossil fuels becoming increasingly untenable, EVs are present as one of the technologies for decarbonization of road transportation. Indonesia holds the largest nickel reserve in the world with roughly 22% (Medina, 2023). However, the country lacks a solid

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foundation in EV technology, where South Korea excels. Indonesia's presidential decree No. 55/2019 aims to accelerate the Battery Electric Vehicle (BEV) program, focusing on domestic industry development, incentives, charging infrastructure, EV technical standards, and environmental protection. In 2022, this led to the creation of the Indonesia Battery Corporation (IBC), a holding company under PLN, Antam, Inalum, and Pertamina to enhance strategic mineral commodities' value and explore profitable downstream partnerships. This study aims to examine if there's a link between the South Korea – Indonesia CEPA and the growth of Indonesia's EV and Battery sectors, analyzing trade impacts and assessing the viability of a circular economy model for these industries.

THEORETICAL FRAMEWORK

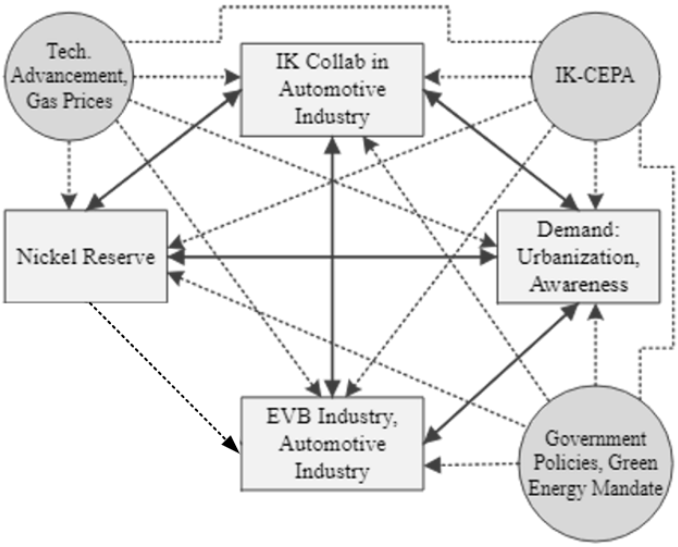
In the framework of national competitive advantage, Porter (1990) asserts that a country's prosperity hinges on productivity, or the output value per input unit. His renowned "Diamond" model outlines four principal determinants: 'Factor Conditions' (the nation's inputs like labor and resources), 'Demand Conditions' (domestic demand for goods and services), 'Related and Supporting Industries' (presence of supplier industries and related industries that are internationally competitive), and 'Firm Strategy, Structure, and Rivalry' (the way companies are created, organized, and managed, as well as the nature of domestic rivalry).

Beyond these determinants, Porter enhances his model with two exogenous variables: 'Chance' and 'Government'. 'Chance' refers to unanticipated events beyond the control of firms and governments such as sudden technological innovations or shifts in global markets that can radically alter a nation's competitive standing. On the other hand, 'Government' plays a deliberate role, influencing the diamond's elements via regulation, subsidies, and other policy measures. These factors collectively forge the dynamic and intricate ecosystem that underpins national competitive advantage.

The diamond model offers insights into how domestic factors can create competitive advantage but may neglect the impact of international dynamics like foreign investments and multinational activities. One of the most common criticisms of the Diamond model is that the model overemphasizes domestic industry and overlooks the globalized market context (Vlados, 2019). This oversight could be significant in evaluating agreements like the IK-CEPA. Rugman (1992) criticizes Porter's model for overemphasizing the importance of a firm's domestic base in a global economy, nothing that multinational companies might not rely on strong national foundations. Dunning (1992; 1993) adds that foreign direct investment is essential for competitive advantage and proposes that international factors, like those seen in the IK-CEPA require a revised framework that incorporates transnational influences on a nation's competitiveness.

To evaluate the impact of the Comprehensive Economic Partnership Agreement between Indonesia and South Korea (IK-CEPA) on Indonesia's electric vehicle industry, Dunning's extended version of the Diamond Model is employed as shown in Figure 1.

Figure 1
Dunning's Completed System Implemented to this Research



This extended model augments Porter's original four determinants with the inclusion of government, chance, and transnational business activity, offering an "internationalized", and more comprehensive framework for analysis (Dunning, 1993).

1. Factor Condition
   Indonesia with 22% of the world's nickel reserves (Medina, 2023), lacks EV technology expertise, a gap that the IK-CEPA aims to fill through technology transfer and market access, potentially boosting its factor conditions.
2. Related and Supporting Industries
   South Korea has a well-developed EV ecosystem, including advanced battery technologies, which can be crucial for Indonesia's growth in this sector. The partnership allows not just for trading of goods but also paves the way for knowledge and technology sharing, fostering growth in related industries like the EV battery industry, and battery recycling for secondary nickel in the future.
3. Demand Condition
   The domestic demand for EVs in South Korea is mature, driving innovation in EV and EVB technology. In contrast, Indonesia has a burgeoning demand, primarily influenced by environmental awareness and government policies. The IK-CEPA, by facilitating market access, could amplify consumer demand in Indonesia by making Korean-made EVs more affordable, further fueling the local EV an EVB industry.
4. Firm Strategy, Structure, and Rivalry
   While South Korean firms in the EV sector are market leaders with global strategies such as Hyundai Motor Company, Indonesian firms are mostly followers and are regional in their outlook. The IK-CEPA could help Indonesian firms collaborate with Korean counterparts, allowing for a mix of strategies aimed at both global and regional markets.
5. Role of Government
   Both Indonesian and South Korean governments are pushing for a green energy revolution such as the Net Zero mandate. Governmental policies and incentives, as part of the IK-CEPA, can act as catalysts for industry growth, particularly in Indonesia, where the industry is in its infancy.
6. Role of Chance
   Rising gas prices serve as a key unforeseen event that can significantly impact the competitive landscape of the electric vehicle industry. While not directly related to the IK-CEPA, the agreement's flexibility and adaptability equip both countries to

capitalize on such shifts in market conditions, including making the electric vehicle sector more attractive as an alternative to traditional ICE vehicles.

7. Transnational Business Activities
   South Korean investments and technological inputs into Indonesia's electric vehicle sector, facilitated by the IK-CEPA, constitute a significant external determinant that influences the competitive dynamics in this industry. For example, South-Korea's largest chemical company LG Chem will partner with IBC with a total investment up to US$ 17 billion which would help advance Indonesia's EVB industry (PWC, 2021).

This multi-faceted analysis allows for a nuanced understanding of the various elements that contribute to Indonesia's emerging competitive advantage in the EV industry, particularly in the context of its economic partnership with South Korea. Building upon the framework of the Diamond Model, the subsequent paragraph will discuss the role of economic cooperation in forging strategic international alliances and enhancing the trade dynamics.

International Economic Cooperation involves strategic partnerships among countries to achieve shared economic goals such as trade agreements, investment partnerships, and joint development projects aimed at enhancing growth, addressing global challenges like poverty and environmental sustainability, and promoting stability. These efforts often lead to increased trade and investment, technological advancements, resource access, and stronger political ties (CFA Institute, 2021). The objectives of economic cooperation include boosting trade, lowering trade barriers, improving efficiency and stability, fostering sustainable development, spurring innovation, and enhancing diplomatic relations (Klement, 2021). Such cooperation, rooted in mutually beneficial agreements, is critical for a country's growth, development, and adaptation to scientific and technological progress, with a recent focus on enhancing international trade to improve national welfare through commodities that offer comparative and competitive advantages (Klement, 2021).

While the Diamond model and economic cooperation offer valuable insights into the interplay of national competitive advantage and international collaboration, it is important to explore their real-world implications through qualitative inquiry. Therefore, to contextualize these theoretical perspectives within Indonesia's developing EV industry, the subsequent research questions are formulated to explore how these theoretical frameworks manifest in the specific context of the impact of Indonesia and South Korea Comprehensive Economic Partnership Agreement towards the development of Indonesia's EV industry and international trade.

1. Does the Comprehensive Economic Partnership Agreement support the development of the EV industry in Indonesia?
2. Does the Comprehensive Economic Partnership Agreement support the international trade between Indonesia and South Korea?
3. What are the factors influencing adoption of the EV industry in Indonesia?

RESEARCH METHOD

This study adopts qualitative research methods, which are pivotal for a nuanced examination of social phenomena. By leveraging qualitative instruments such as semi-structured interviews, focus groups, field notes, and open-ended surveys, the research captures the complexity of behaviors and motivations beyond the reach of quantitative analysis (Bryman & Bell, 2015). These methods facilitate a rich understanding of the underlying factors influencing participant behavior, providing insights into the varied interpretations of events by individuals based on their unique circumstances (Kumar & Yadav, 2019).

Data collection is a core component of the research, employing both primary and secondary sources to establish the validity of the findings. Primary data are gleaned through interviews and observations, directly tapping into personal experiences and insights, while secondary data are derived from extensive library research.

1. Semi-Structured Interview
   The researchers used a semi-structured interviewing process for this investigation. The interview was conducted using information gathered from secondary data. By allowing participants to provide detailed responses, semi-structured interviews can

generate a wealth of information that can be analyzed to identify common themes, patterns, and insights (Trochim, 2006). Interviews were conducted up until the point of data saturation, where the information provided by participants became repetitively similar, indicating that no additional unique insights were being offered. This method ensured that the data collected was both rich and comprehensive (Guest et al, 2006).

2. Literature Review
   Library study is data collection carried out by studying reference books, reports, articles, journals and other media related to the development of the Electric Vehicle (EV) industry in Indonesia and Korea as well as international trade between the two countries and to the global market and what course, the factors that influence the application of the electric vehicle industry in Indonesia and South Korea.

The qualitative data analysis technique by Miles and Huberman (1994) is a systematic method for processing qualitative data from various sources such as interviews and documents. It involves identifying patterns and themes within the data, organizing it into coherent categories, and interpreting the findings within the context of theoretical frameworks. This approach enables researchers to distill complex datasets into meaningful insights, facilitating both inductive and deductive reasoning in social science research (Bryman & Bell, 2015). In qualitative research data, data validity pertains to the credibility of the findings, ensuring they represent the true reality. It's assessed through internal validity (accuracy within the study's context) and external validity (generalizability to other contexts). To enhance validity, the triangulation technique is employed, gathering data from various sources, researchers, or theoretical frameworks to corroborate findings. For example, in a study on workplace gender discrimination, data could be derived from surveys, observations, and interviews to mitigate single-source bias. There are three types of triangulations (Creswell, 2018):

1. Data triangulation uses diverse data types
2. Investigator triangulation involves multiple observers.
3. Theoretical triangulation applies various theories.

Each triangulation type has its role, depending on the research goal. Other credibility measures include inter-rater reliability, detailed documentation of interviews, member checks for participant feedback, and transparent communication about research procedures and participant rights. These rigorous practices strengthen the research's reliability and the confidence in its conclusions (Creswell, 2018; Thomas, 2004).

RESULTS AND DISCUSSION

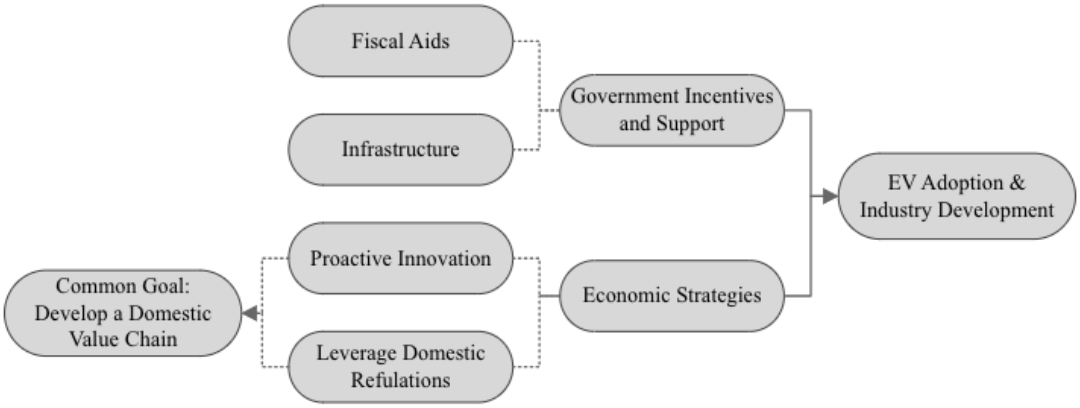
Source triangulation is a step to re-check the data obtained from informants by asking about the truth of data or information from one informant to another. Researchers use several additional informants besides the main informant to check the truth of the main informant. In analyzing the implications of the Comprehensive Economic Partnership Agreement (IK-CEPA) between Indonesia and South Korea, it is invaluable to examine its impact on individual corporate players within the electric vehicle (EV) industry. Two companies that stand as significant case studies in this respect are Indonesia Battery Corporation (IBC), and Gowa Hyundai. Indonesia Battery Company (IBC) is the Indonesian government's initiative to make Indonesia as a global EVB manufacturer. And Hyundai is South Korea's largest automobile company, and has grown to become one of largest and prominent automakers in the world. Representing Hyundai, PT. Gowa Modern Motor (GOWA), which serves as Hyundai's official distributor in Indonesia. GOWA plays a critical role in the local adoption and distribution of Hyundai's electric and hybrid vehicles, effectively acting as the bridge between the South Korean automaker and Indonesian consumers. In this study, while three informants provided insights, their perspectives have been grouped into two, reflecting the companies they represent. This is because two informants hail from the same company, hence likely sharing a corporate viewpoint. Grouping thus ensures a balanced comparison between the two companies' perspectives rather than individual opinions.

Based on the source triangulation that the researcher done, there are some information that can be categorized as 4 sections. They are; government incentive effect, charging infrastructure, green energy, and gas prices.

Government Incentives

To help elucidate the logic behind these intricate variables and their interplay in driving towards the ultimate goal of EV industry development and adoption, this study provides a visual framework for readers.

Figure 2
Framework for Government Incentives Data Analysis



IBC and Gowa, significant players in Indonesia's emerging EV market, share the perspective that government incentives and the enhancement of EV infrastructure are pivotal for the growth of EV adoption in the country. They acknowledge the government's current efforts, drawing parallels with countries like China, but stress that further support is necessary, particularly in fostering a local value chain for the EV industry.

IBC points out the importance of subsidies for costly components like battery packs and the establishment of domestic production lines. These measures are seen as critical for nurturing innovation, reducing costs, and expanding market presence both domestically and internationally. Jeffrie, director of development and operations of IBC, highlights the need for industry-focused incentives and infrastructure improvements to make Indonesia a future leader in the global EV industry.

On the other hand, Gowa notes the significant increase in EV sales and attributes this not only to fiscal incentives but also to the broader development of the EV ecosystem, including the crucial role of infrastructure, such as charging stations. Rifki, deputy COO of Gowa underscores the combined impact of direct and fiscal incentives as well as the improved EV infrastructure, which goes beyond merely increasing sales to creating a more competitive market and providing consumers with more choices.

Both companies agree on the importance of government action in making the EV industry more competitive and attractive. They envision a comprehensive local value chain for EV production in Indonesia, benefitting from the country's resources and potentially reducing reliance on imports.

However, the challenges of inadequate infrastructure, particularly a shortage of charging stations, and a limited selection of EV models compared to internal combustion engine vehicles are highlighted as major impediments to EV adoption. There challenges suggest the need for a strategic focus on expanding infrastructure and vehicle options to entice consumers to switch to EVs.

In essence, the insights from IBC and Gowa depict a sector ready for expansion, contingent on concerted efforts by the government to provide a conducive environment for EVs. This includes strategic subsidies, the development of a local manufacturing base, and the resolution of current infrastructure challenges, all of which could propel Indonesia to the forefront of the EV market.

Charging Infrastructure

To aid readers in understanding the complex interplay between infrastructure and various elements within the EV ecosystem, this study presents a visual framework that outlines how improved infrastructure can catalyze consumer adoption, attract investments, and ultimately propel the EV industry forward in Indonesia.

Figure 3
Framework for Charging Infrastructure Data Analysis

IBC and Gowa recognize that enhancing infrastructure is vital for fostering the EV battery industry in Indonesia. IBC suggests that improved infrastructure would prompt more people to buy EVs, thereby enlarging the market and providing more investment opportunities like battery swapping systems. Gowa agrees, emphasizing that a reliable charging network assures consumers and could lead to increased EV sales and market growth.

Both companies expect that improved power and charging infrastructure will positively impact their battery production businesses. IBC envisions that such developments will attract more consumers and boost revenues while also leading to cost savings through economies of scale. Gowa believes that increased EV sales will encourage more manufacturers to enter the market and also result in higher government tax revenues, implying a heightened demand for their batteries.

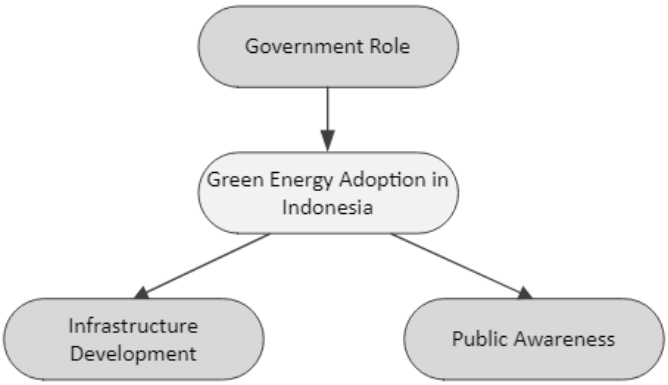
The strategies of the two companies diverge slightly when it comes to investments in technology. IBC calls for investment in battery management systems and charging station reliability to control assets and profits better. In contrast, Gowa pushes for investment in R&D to develop homegrown EV technology.

The discussion suggests that the success of Indonesia's EV industry is closely tied to infrastructure development, and such progress could be influenced by economic agreements like the one with South Korea. The emphasis on strategic investments by both companies indicates that infrastructure improvements and technological advancements are expected to be significant drivers in the EV industry's adoption in Indonesia.

Green Energy

To provide a structured analysis of the electric vehicle industry's development in the context of green energy, a framework is employed as shown in the figure below.

Figure 4
Framework for Green Energy Data Analysis



IBC and Gowa recognize the shift to EVs and green energy as essential for reducing carbon emissions in Indonesia. IBC notes that EV adoption can positively impact the environment despite concerns about emissions, particularly in transportation and energy production. Gowa aligns with this view, advocating for an integrated sustainability strategy that incorporates renewable energy in various sectors, not just transportation.

Both companies agree on the need for certain conditions to enable the widespread use of renewables in the EV battery industry. IBC calls for a combination of government investment, technology, market demand, and awareness, suggesting a comprehensive approach that spans economic, technological, and consumer education initiatives. Conversely, Gowa emphasizes the government's role as regulator, arguing fro policies to ecourage the use of EVs, such as tax benefits.

IBC focuses on the need for a transition plan from ICE vehicles to renewable energy, highlighting the importance of energy storage systems in supporting the electricity demand from the growing EV market. Gowa, meanwhile, discusses the importance of Indonesia's domestic battery production and raw material sourcing, particularly nickel, as well as the role of government incentives in promoting renewable energy adoption, for example, discounts on solar panels used in homes.

The interviews suggest that CEPA could boost the EV industry in Indonesia and South Korea by supporting these areas: incentivizing renewable energy development, ensuring a stable raw material supply chain, and fostering domestic battery production. In summary, the adoption of EVs in Indonesia is seen as key to promoting sustainability, requiring government action, technological advancement, and consumer engagement, alongside the development of energy infrastructure and supply chains.

Gas Prices

In Indonesia's EV market, both IBC and GOWA acknowledge that rising gas prices are a significant factor influencing the shift towards EVs. Their insights cover the impact of these costs on ownership economics, infrastructure development, government policy, and the EV value chain. A visual representation (Figure 5) will be used to illustrate the complex interplay of these factors and their combined effect on EV adoption.

Figure 5
Framework for Gas Prices Data Analysis

The results reveal several key points about the transition from ICE vehicles to EVs in Indonesia, underlining both economic and strategic considerations. IBC highlights the growing economic feasibility of EVs as gas prices rise, though it notes current challenges with charging infrastructure and the total cost of ownership (TCO). GOWA agrees that higher gas prices could drive consumers towards EVs but points out that high initial costs and lack of incentives remain barriers.

Both entities emphasize the importance of developing a robust EV charging infrastructure and the need for governmental incentives to encourage EV adoption and support local production of EV components. These measures are seen as essential to make EVs a more viable and affordable option for consumers. The increasing use of renewable energy is also mentioned as a factor that will contribute to the shift towards EVs.

Additionally, IBC and GOWA discuss the strategic value of controlling the value chain in the EV battery industry. IBC focuses on the benefits of managing the entire lifecycle of EV

batteries, from production to recycling, which promises cost savings and performance enhancements. GOWA notes the lower maintenance needs and thus lower TCO of EVs due to fewer moving parts compared to ICE vehicles, which could be an advantage for EV adoption.

Finally, both companies advocate for a collaborative approach to transitioning to electricity as an alternative fuel source for EVs, recognizing the shared responsibility between the government and private companies. They call for cooperative efforts to improve energy efficiency in EV production, with government aid facilitating company actions in investments and technology. These insights suggest that the Comprehensive Economic Partnership Agreement between Indonesia and South Korea could support the EV industry by addressing these economic, strategic, and regulatory factors.

Answering Research Question "Does the Comprehensive Economic Partnership Agreement support the development of the Electric Vehicle (EV) industry in Indonesia and South Korea?"

The Comprehensive Economic Partnership Agreement between Indonesia and South Korea will support technology development through has encouraged technology development. Based on Chairperson of Indonesian Chamber of Commerce and Industry – Arsjad Rasjid, the Comprehensive Economic Partnership Agreement between Indonesia and South Korea will support development related to the electric vehicle ecosystem that is being built at the ASEAN level. This ecosystem includes batteries, vehicles, charging stations, and battery collection and recycling. Every aspect of the electric vehicle ecosystem requires technology that South Korea can support. Indonesia also has the opportunity to develop the electric vehicle ecosystem, including batteries, through the Indonesia-South Korea Comprehensive Economic Partnership Agreement (IK-CEPA) which was ratified in August 2022, and implemented earlier this year (2023). This agreement could have a positive impact on the South Korean automotive industry as it eliminates tariffs for exporting electric vehicle and its components, and also allows market access for both countries to allow more investments in the industry. From the trade side, the Ministry of Trade noted, Indonesia posted a surplus of US$30 million against South Korea during the first quarter of 2023 or 76.95 percent lower on an annual basis. The surplus was formed from exports worth US$ 2.85 billion and imports of US$ 2.82 billion.

CEPA supports Downstream Electric Vehicle Industry, Indonesia's Industrialization Increases (Moreover, Indonesia is intensively increasing the Manufacturing sector), supports digital transformation (one of President Joko Widodo's government programs), increases FDI (Investment), Trade Surplus Opportunities, creates jobs (industrial development absorbs Indonesian workers) then strengthen economic growth.

Answering Research Question "Does the Comprehensive Economic Partnership Agreement support the international trade between Indonesia and South Korea?"

The Comprehensive Economic Partnership Agreement (IK-CEPA) between Indonesia and South Korea has demonstrated a concrete impact on international trade between the two countries. This bilateral agreement, ratified by the Indonesian government on September 27, 2022, through Law Number 25 of 2022 (kemendag.go.id), facilitates a liberal trade environment which has catalyzed economic engagement. Within the first quarter of 2023, the Ministry of Trade noted that Indonesia enjoyed a trade surplus of $30 million with South Korea, though this represented a 76.95 percent reduction from the previous year's figures, indicating a fluctuating yet substantial trade relationship (Ministry of Trade, Indonesia).

The Agreement's stipulations for tariff liberalization, with Korea liberalizing 95.5 percent and Indonesia 92 percent of their respective tariff posts, has set a robust framework for market access and the reduction of trade barriers. The immediate effect of this liberalization has been significant, with South Korea eliminating tariffs to 0 percent on 92 percent of its tariff posts upon entry into force (EIF), while Indonesia has done the same for 86 percent of its tariff posts (kemendag.go.id). These provisions are expected to further increase trade volumes, as demonstrated by the substantial presence of over 2,000 South Korean companies in Indonesia and an investment realization in the first quarter of 2023 reaching $623.4 million for 3,071 projects (Indonesian Embassy in Seoul).

Projections based on this agreement indicate a positive economic outlook. It is estimated that within the next five years, IK-CEPA will lead to an increase in welfare by up to $21.9 billion, boost economic growth by 2.43 percent, and result in an export increase of 19.8 percent along with an import rise of 13.8 percent (kemendag.go.id). The trade figures from January to October 2022 support this optimistic forecast, showing a robust increase of 40.36 percent to $20.58 billion in total trade between the countries compared to the same period in the previous year, with Indonesia securing a surplus of $712.3 million (Ministry of Trade, Indonesia). Thus, the IK-CEPA has proven to be a pivotal factor in sustaining and enhancing the trade dynamics between Indonesia and South Korea, fostering economic growth and offering a promising trajectory for future trade and investment relations.

Answering Research Question "What are the factors influencing the adoption of the EV industry in Indonesia and South Korea?"

Both IBC and GOWA highlight different strategic considerations related to the impact of international trends on Indonesia's ability to manufacture EV batteries.

IBC focuses on the aspect of battery chemistry. They highlight that the global industry is focusing on improving battery chemistry to achieve greater energy density and lower costs. While lithium iron phosphate (LFP) is currently leading in lithium-ion batteries, IBC suggests that Indonesia could leverage its significant nickel reserves to influence the market and favor the production of nickel manganese cobalt (NMC) batteries. This strategy would not only reduce costs, but it could also allow Indonesia to shape industry trends according to its own demands and capabilities. Essentially, while global trends affect Indonesia, the country can potentially influence the industry through its control over key resources in the value chain.

On the other hand, GOWA suggests that Indonesia should align its strategies more with the EV industries of China and South Korea, rather than with western countries. This approach would mean closely monitoring and adopting best practices from these Asian markets, which are also leading in the global EV industry. This could provide Indonesia with practical insights and potential collaboration opportunities in technology, manufacturing, and policy-making. Based on these responses, the factors that might influence the adoption and development of the EV industry in Indonesia could include:

1. Leveraging Indonesia's natural resources, specifically nickel, for battery production.
2. Focusing on improving battery chemistry R&D for better performance and cost reduction.
3. Keeping up with international trends in the EV industry, especially in countries with strong investment ties to Indonesia.
4. Considering international policy incentives when planning the direction of the country's EV industry.
5. The ability to control and shape the value chain according to Indonesia's advantages.
6. Improving the infrastructures such as charging stations for EVs in Indonesia

In terms of the Comprehensive Economic Partnership Agreement between Indonesia and South Korea, it could support the development of the EV industry as it enables collaboration and technology transfer in battery production, facilitates investments in the EV industry, and aligns incentives with industry trends in both countries.

CONCLUSION

This research result showed how IK-CEPA had an effect on the development of electric vehicle and electric vehicle battery industry development in Indonesia. This research underlines the four factors that influences the electric vehicle and electric vehicle battery development in Indonesia which are; Government incentives, charging infrastructure, green energy, and gas prices. Based on the factors, It is understood how the partnership agreement can support the development of EV and EVB industry. From the data gathered using source triangulation, it can be said that the incentives currently provided by the Indonesian government are already beneficial enough to the development of the industry although, the incentives provided are mainly focused on increasing the

EV adoption rates in Indonesia because as the evidence suggests, the EV and EVB industry in Indonesia as a whole are still in its early stages. Therefore, this research concludes that the IK-CEPA supports the development of EV industry in Indonesia by encouraging economic cooperation between Indonesia and South Korea. As a result, South Korean EV and EVB companies such as Hyundai are incentivized to invest in EV and EVB production in Indonesia because of the reduced tariffs. Which allows for further development of the overall EV industry in Indonesia, and a possible increase in revenue for the companies.

However, this research has analysed that further development in the EV industry are hindered by the lack of charging infrastructure in Indonesia. The data shows that charging infrastructure is key to EV adoption, and less adoption means less revenue for the industry players. From a consumer's perspective, it is understood that there are currently not a strong reason to why they should choose electric vehicles over ICE vehicles. The factors that plays a strong role in consumer's decision making are charging infrastructure, market options and total cost of ownership (TCO). As it currently stands, Indonesia lacks charging infrastructure and competent charging technology especially outside of Jakarta, and despite the rising gas prices, the TCO of ICE vehicles are still lower than electric vehicles.

Suggestions

Therefore, this research suggests that Indonesia should establish and internalized value chain. Establishing an internalized value chain in an infant EV industry is a strategic move that offers numerous benefits. By controlling the production process from the mining of raw materials to vehicle assembly, the industry can achieve cost efficiency, ensure quality standards, and protect the industry from global market fluctuations. This integrated approach not only offers stability but also makes Indonesia attractive for foreign EV companies seeking cost advantages. As more players enter the market, competition can drive down EV prices, making them a viable alternative to ICE vehicles. Furthermore, as the government develop the value chain, they concurrently invest in vital infrastructure, such as charging stations, enhancing Indonesia's appeal to the global industry. For this vision to fully materialize, it's crucial that the government maintain transparency, foster innovation, and create policies that promote a healthy competition and collaboration with established EV and EVB players. The IK-CEPA acts as a catalyst, expediting the development of Indonesia's internalized value chain. The combined benefits of technology transfer, reduced costs, and market access provided in the agreement can greatly assist in solidifying Indonesia's footing in the global EV landscape.

Limitations

The limitation of this research is qualitative interviews that rely on respondent's knowledge and ability to give their opinions regarding the topic. Therefore, it cannot be considered entirely accurate. Moreover, there was generally a lack of respondents mainly because the researcher couldn't find more respondents in the small pool of people with appropriate role in the EV industry with decent knowledge about the niche topic of the recently ratified comprehensive economic partnership agreement of Indonesia and South Korea. The findings maybe broadly applicable to EV and EVB companies in Indonesia with relations to South Korean investors. Still, they cannot be generalized to other companies that doesn't benefit from the IK-CEPA.

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