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Southeast Asia's Automotive Sector at Crossroads

Current Changes and Future Challenges—Introduction

Tham Siew Yean

The automotive industry is considered an important pillar of the global economy. It is a capital- and knowledge-intensive industry, with extensive linkages with other input sectors such as steel, iron, aluminium, glass, plastics, carpeting, textiles, computer chips, rubber, inter alia. Vehicle and parts producers form the core of the automotive industry and they, in turn, support a wide range of business segments, both upstream and downstream. These widespread linkages generate a considerable multiplier effect from the automotive sector to the rest of the economy, thereby contributing towards the growth and development of the automotive producing country. It is estimated that, globally, each direct auto job supports at least five other indirect jobs in the community in related manufacturing and services (OICA n.d.). In many automotive producing countries, a large share of the domestic production is exported, making the sector an important source of export revenues. In Japan, a leading automotive producer in East Asia, for example, the automotive sector contributes towards 8.3 per cent of the working population and 21 per cent of total exports (Lovells 2019). Intense competition among the top auto producers in the world also drives the Research and Development (R&D) spending in this sector in the race to roll out new models needed to maintain or increase their respective market shares. The technologies employed in the making of a car go beyond mere transportation needs such as safety features and fuel efficiency and include, among others, in-car entertainment and communication tools. These spur technological developments in related sectors to meet the changing consumer demand in the automotive sector.

Nevertheless, there are also mounting challenges related to automotive production and usage. Road accidents and safety continue to occupy the attention of vehicle safety design to reduce risk factors associated with road traffic injuries. Pollution and the impact of the use of fossil fuels on the environment are additional concerns as many countries begin to wage a war against pollution, leading to a progressive shift towards green initiatives and an increasing focus on sustainability. The automotive industry is thus an important component of the goal of attaining global sustainable development in the future, be it near or far.

The automotive sector, at the same time, is undergoing tremendous changes in terms of technology, consumer demand (with increasing customization), as well as sustainability concerns. Changes in

Tham Siew Yean is Professor Emeritus at Universiti Kebangsaan Malaysia and Visiting Senior Fellow at the ISEAS – Yusof Ishak Institute, 30 Heng Mui Keng Terrace, Singapore 119614; email: tham_siew_yean@iseas.edu.sg

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technology, as exemplified by "CASE" (Connected, Autonomous, Shared and Electrified) (Teece 2018; Natsuda and Thoburn 2021) are key global trends that are spurring transformation in this sector.

Connected vehicles are vehicles that can communicate to each other through in-vehicle or aftermarket devices. The information shared may pertain to safety and other mobility aspects. Smart dashboards, as one-stop infotainment portals, are rapidly becoming part of core offerings of automobiles. Numerous technological advances—such as 4G, artificial intelligence, machine learning, telematics and Software as a Service (SaaS) platforms—have facilitated the development of connected vehicles.

Connected systems allow drivers to play a diminished role in driving. Autonomous (or self-driving) vehicles are able to sense the environment and moving safety with the aid of new technology and varying degrees of human input. There are six levels of automation in driving, each requiring varying degrees of driver assistance (with full automation achieved at the highest level). These driverless vehicles provide convenience by converting commuting time to personal or work time (Teece 2018). They can also facilitate better road safety by reducing some of the risks in human driving as well as by overcoming some challenges associated with ageing and disabilities that hinder driving capabilities. Tesla, notably, has invested heavily in the development of autonomous vehicles.

Consumer preferences have gradually shifted from car ownership to the notion of mobility. In fact, solutions that offer mobility are the top priority for modern-day consumers. In this regard, mobility solutions have expanded from traditional services such as taxis, car-rental and car-sharing services to ride-hailing services and flexible pay-per-use options. The increasing demand for more flexible and innovative services, together with sustainability concerns, has raised the substitutability between vehicle ownership and ride-sharing services with Transportation-as-a-Service (TaaS) gaining more and more importance.

There is also progressive emphasis on electrification, driven by environmental concerns. According to Bloomberg New Energy Finance (NEF), electric vehicles (EVs) currently comprise 3 per cent of global car sales (Sylvia 2020). It has been estimated that the share of EVs in global passenger vehicle sales will increase to 10 per cent, 28 per cent and 58 per cent by 2025, 2030 and 2040, respectively. The European and Chinese markets are expected to lead this shift to EVs, since the contribution of these two markets is expected to represent 72 per cent of all passenger EV sales in 2030. The adoption timeline of EVs can be strongly influenced by public policy support as government legislation and incentives can restrict the use of internal combustion engines (ICEs). However, while the current rate of adoption of EVs is certainly pushed by government mandates and subsidies, consumer demand is constrained by issues such as range anxiety, inadequate infrastructure (for example, limited charging stations) and pricing of these new engine vehicles compared to traditional ICE models.

All these innovations in technology and market shifts are changing the automotive industry, implying that the challenges confronting this sector are increasing in scope and complexity. As the sector transits from a vehicle-centric to a service-centric approach, it is also creating several entry points for new contenders in the global automotive market. In particular, China has been leading the world towards electric mobility (WEF 2021), due to strong government support. Policy support ranges from direct funding and tax incentives to building new charging stations—all leading to the emergence of, by some estimates, over 500 EV producers (Tan 2021). However, as the subsidies are gradually withdrawn, intense domestic competition is forcing these companies to shift outwards, to Europe as well as other parts of the world, including Southeast Asia. Teece (2019), for example, identifies Geely as a potential global contender that has developed solid dynamic capabilities in EVs. The company has also moved into ASEAN through strategic investments. The entry of even newer contenders will undoubtedly shift the global and regional landscape of the automotive sector.

This raises some important questions. What can governments do in the face of these evolving changes and the ensuing challenges? What sort of policies are needed to capitalize on these changes to foster an automotive industry that can survive, thrive and facilitate spillovers to other sectors? Since these changes

also highlight the urgency of increasing and intensifying investments in this sector, government policies—including incentives that can drive up foreign investments in new technologies—can be used to accelerate CASE developments in the automotive sector. This is especially important for developing countries that are fiscally constrained. At the same time, government policies also need to encourage domestic investments in CASE to boost indigenous capabilities and promote learning by doing to complement foreign direct investment (FDI) policies. Finally, government policies also provide the necessary regulatory framework that can accelerate CASE developments by formulating strategies that facilitate the entry and growth of the private sector.

The sudden outbreak of the COVID-19 pandemic is exacerbating these ongoing challenges. Supply and demand shocks arising from the crisis have exacted financial losses and rapidly raised debt levels in this sector. In the wake of the overwhelming financial fall-out, companies are cutting costs by moving towards consolidation at all levels, including at the supplier level, to avoid disruptions in their supply chains.

Regionally, member countries of the Association of Southeast Asian Nations (ASEAN) are important producers and consumers of this sector. In the Asia-Pacific, out of the top ten car producers, four are from ASEAN, namely Indonesia, Thailand, Malaysia and Vietnam (Statista n.d.). The sector contributed at least 6 per cent (US$177 billion) to ASEAN's aggregate Gross Domestic Product (GDP) and created around 2.4 million jobs in the region in 2017 (ASEAN-Japan Centre 2020). Automotive production in ASEAN covers the production of passenger and commercial vehicles, motorcycles, trucks and their parts and components, with contributions from foreign multinationals and domestic enterprises—including the all-important small and medium-sized enterprises (SMEs) that form the backbone of the economies in the grouping.

Since income levels are projected to grow annually by 6 to 8 per cent between 2019 and 2030 in emerging ASEAN, the middle-income class is expected to expand and increase fuel consumption (through rise in demand for automotives) (Nortajuddin 2020). Limited public transportation will also escalate the demand for private transportation and car ownership. Importantly, a relatively low motorization ratio (or registered motor vehicles per 1,000 persons) for most ASEAN member states indicates the potential for a massive growth in the number of vehicles in domestic markets. Data from the ASEAN Secretariat (2019) indicate that, out of the ten member economies, only three (Brunei, Malaysia and Thailand) have a ratio of more than 500, implying that there is still significant room for expansion in the regional market.

It has been reported in the ASEAN Automotive Federation (2020) that automotive sales in the region increased by 7 per cent in 2018—for the third straight year. Although sales in the region fell by 3 per cent and 28 per cent in 2019 and 2020, respectively, due to economic slowdown in the former year and the COVID-19 crisis the latter year, the figures are expected to stabilize in 2021, in line with the forecasted economic recovery in the region.

In view of the above, how are the governments and automotive industries in ASEAN responding to the global trends and their ensuing challenges? In 2020, two webinars were organized by the ISEAS – Yusof Ishak Institute to discuss how four key automotive-producing countries in ASEAN, namely, Indonesia, Malaysia, Thailand and Vietnam, are responding to the changes in global trends. The articles in this special issue are the refereed and revised country papers that were presented at last year's webinars.

The country papers share a common objective: to examine the response of the respective government to global automotive trends. The papers begin by providing an overview of the development of the automotive sector in each country, before diving into the government's policy responses towards these global trends. It is important to note that the policies implemented to position or reposition each country in the regional/global automotive market also include the private sector (both FDI and domestic investment) responses. Each paper then identifies the key challenges moving forward, especially in the development of EVs.

Although all four country papers examine a common research question and have a parallel structure, the analysis in each is couched within country-specific contexts. Consequently, we see that different outcomes are obtained in each of these countries even when similar policies are employed, with timing playing a crucial role in providing early mover advantage. For instance, although all countries opened up FDI for industrial development, the liberalization for automotive production took place first in Thailand, followed by Malaysia, Indonesia and then Vietnam. Likewise, inward investment by multinational automotive companies play an important role in the development of this sector, with more than 80 per cent of ASEAN's vehicle production remaining in the hands of Japanese MNCs, facilitated by tariff liberalization measures under the ASEAN Free Trade Area (AFTA).

Despite tariff liberalization, some similar non-tariff measures are used to protect the domestic market in Indonesia and Malaysia, thereby restricting exports to these countries. However, in the case of Malaysia, the focus of protection is more on shielding the national cars (Proton and Perodua) from external and internal competition. Indonesia, on the other hand, is protecting the large domestic market for the MNCs producing there.

The different country contexts also illustrate critical differences in the role and focus of government policies even when similar measures are taken. Significantly, both Thailand and Indonesia have used product champions to drive exports, but the former has been more successful. Thailand's success, as analysed in the country paper, can be attributed to important complementary policies in terms of institutions and building human capital capabilities. Likewise, although all countries aim to nurture a strong local supplier network, Thailand has moved ahead of its competitors, with some of the country's local SMEs investing in R&D to upgrade their operations.

Vietnam, as a latecomer in the development of passenger vehicles, differs significantly from the other three countries in terms of policy coherence and development of supplier network. In addition, a local private champion (Vinfast) is ambitiously trying to advance beyond domestic shores and ASEAN to other countries.

Moving forward, although all four countries are aiming to develop the EV market in terms of policy attention, the concrete action plans and coordination needed for this to materialise are still very much in the "work-in-progress" stage in each country. The readiness to make the shift, however, varies from country to country. In this regard, Indonesia has the most ambitious vision, given that it plans to harness its rich nickel resources to develop battery production for EVs, apart from attracting FDI for EV production in its bid to lead the region in both EV production and consumption. However, all four countries face similar, significant demand challenges as well as a shortage of the requisite human capital to make large-scale transition from ICEs to EVs.

Finally, the country studies on Malaysia, Indonesia and Vietnam indicate the possible emergence of new contenders that could challenge the domination of Japanese MNCs in the region—with the arrival of Chinese global car manufacturers in Malaysia and Indonesia and increasing presence of Korean car manufacturers in Vietnam. These new competitors also have an eye on the emerging EV market. This further raises the possibility that Indonesia or Vietnam may be challenging Thailand to become the future "Detroit of the East".

I hope researchers in the automotive sector, and the research community at large, will find this special issue to be an informative and useful collection of articles that will inform as well as generate new research interests, given the growing importance of the automotive sector.

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