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ENTREPRENEURSHIP
AND GLOBAL
ECONOMIC GROWTH

MODELING
ECONOMIC
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MALAYSIA

Modeling Economic Growth in Contemporary Malaysia

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Modeling Economic Growth in Contemporary Malaysia

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With more than 20 years' experience in business operation, product & business development, training & marketing, entrepreneurship, franchising & licensing, etc., he is also active in many entrepreneurship activities and programs either as trainer, facilitator, or as a module or program developer. Following are few involvement activities and programs that he involved for the last five (5) years as a trainer & consultant – Program Franchise (Franchisors, Franchisee, Licensee, Licensor, Agency), Program Business in Transformation Program (PNS), Program Malaysia Micro Entrepreneur (MME) 2016, 2017, 2018, Kementerian Perdagangan Dalam Negeri Koperasi dan Kepenggunaan (KPDNKK), Program Pemantapan Keusahawanan Kementerian Wilayah Persekutuan 2017/2018, Program Food truck Malaysia (FTM) Kementerian Perdagangan Dalam Negeri Hal Ehwal Pengguna 2018/2019, and facilitator for KWP food truck Program, MyIPO 2015, and many more.

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Introduction

Bruno S. Sergi and Abdul Rahman Jaaffar

The Industrial Revolution 4.0 (IR 4.0) and economic turbulence have brought massive challenges to all sectors of the economy. In today's turbulent, volatile, and ever-changing global market, companies must continually sustain and survive. Malaysia is one country that is paving its way to adapt to the technological advancement of the IR4.0 wave. One of Malaysia's biggest challenges is to find the knowledge, skills, and competencies that will provide solutions to transform Malaysia into a highly competitive industrial country.

Modeling Economic Growth in Contemporary Malaysia aims to discuss critical changes in Malaysia's key economic areas and social well-being. This book explores issues from various perspectives, including business management, entrepreneurship, economic, financial, banking, marketing, and human resources. The articles cover multiple industries such as information technology (IT), green technology, retail banking, tourism and hospitality, education, agriculture, logistics, finance and banking, and many others. Readers may find insightful information and knowledge from multiple chapters, as summarized below:

Chapter 1 explains the retail sector's importance to the Malaysian economy, particularly the volatile environment caused by the Covid-19 pandemic. Under the current Industry Revolution 4.0, it would prioritize the retail industry to meet the challenges of future growth in retail sales and employment.

Chapter 2 highlights the framework activated by MOHE (Malaysian Ministry of Higher Education) for Malaysian public and private universities that have faced unprecedented challenges for many government policies in the short and medium-term coupled with economic uncertainty, budget cuts, and the Entrepreneurship University (EU) plan. It directs this pressure at both public and private universities, in line with the third mission of the Malaysian Education Development Plan 2015–2025 and ranking agencies, by engaging effectively with the community and business, generating revenue in tackling fundraising.

Chapter 3 supplies an overview of small and medium-sized enterprises in Malaysia. The discussion begins with the definition of Malaysian small and medium-sized enterprises, followed by contributions from small and medium-sized enterprises in Malaysia. The last part is on the issues and challenges faced by small and medium-sized entrepreneurs in Malaysia.

Chapter 4 critically discusses how Malaysian small and medium-sized enterprises (SMEs) face human capital development problems because of unskilled employees and unparalleled skills and industrial needs. Malaysian Institutes of Education provide inefficient science, technology, engineering, and mathematics

(STEM) education that generates relevance to STEM's well-provided education to address human capital development issues facing Malaysian SMEs. Malaysia's education system is trying to solve these problems.

Chapter 5 sets out a roadmap on how technology parks, clusters, networks, and the entire ecosystem remains crucial to act as national incubators of innovation and technology in both the current and the future. More important discussions have shown that no country can keep its competitiveness without efficient and advanced technology plus incubator and cluster innovation.

Chapter 6 shows how the COVID-19 pandemic has affected the entire world, socially and economically, and why digital entrepreneurs seek opportunities rather than problems in such situations. In Malaysia, Digital Entrepreneurship strategically maneuvers its business operations while it forces other companies to close.

Chapter 7 focuses on Malaysian oil palms and has seen steady progress. Started as an ornamental plant in Malaysia, it has become a vast industry. Oil palm production has yielded unlimited economic profits and is currently an emerging Malaysian economy. As one of the world's largest oil palm producers, it is currently experiencing a period of slow or weaker growth to contribute naturally to gross national productivity. Issues like extremes, weather, aging trees, and plant diseases are among the most prominent natural factors that hinder the industry's growth.

Chapter 8 Discussions on Malaysia's Road to Sustainable Development: Circular Economy and Green Technology. The discussion focuses on the circular economy practiced by Malaysian industrial players and government initiatives to encourage and educate Malaysians to embrace a circular economy and sustainable consumption.

Chapter 9 on the importance of the industry value chain for the development of the Malaysian Halal Industry. This chapter inspects over five decades of Malaysian experience in the nurturing and commodification of the halal industry. It assesses possible through the application of the industrial value chain (IVC) approach.

Chapter 10 Malaysia in Global Rating discusses the ideas that have been bandied about countering the Big Three include setting up an Asian/ASEAN rating agency or even an Islamic rating agency that may have a better understanding of issues related to Malaysia or emerging markets. Another option that may merit consideration is Malaysia's Global Ratings: position and Dynamics 133 issuance of sovereign equity, which could pay dividends to investors based on a country's economic performance.

Chapter 11 explains how to create a competitive organization using strategic capabilities in Malaysia. The authors discuss how and why it is essential for an organization to remain competitive.

Chapter 12 discusses human capital development issues and challenges in Malaysia, where Malaysia has shifted from a labor-intensive, agriculture-based economy since its independence in 1957 to a knowledge-based and innovation-based economy, and further explains human capital development (HCD) as a critical driver of Malaysia's socio-economic growth.

Chapter 13 deals with the Public-Private Partnership and Social Innovation in Malaysia. This chapter explains how Malaysia uses public-private partnerships to promote social innovation in the country. In the 11th Malaysia Plan, Malaysia agreed to bring forward people's well-being and development through social innovation to balance social and economic development.

Chapter 14 explores Malaysia's governance, spatial development, and regional policy as critical mechanisms for achieving prosperity.

Chapter 15 Try to elaborate on how to keep Public Servants' Mental Health Intact during and after the COVID-19 pandemic through the Islamic Mental Health Model.

Chapter 16 easing the transition through the Strategic Roadmap to Industry 4.0 by examining the key challenges currently facing Malaysia's Machinery and Equipment (M&E) sector and offering an Integrative Industry 4.0 Strategic Roadmap Agenda.

Chapter 17 focuses on the development of Fintech and commercial banks in Malaysia. Continuous intention to use fintech services in the IR 4.0 environment highlights several regulatory agencies in Malaysia. The government has set up many initiatives to encourage and generate vigorous growth in the Malaysian Fintech and Digital Asset Regulatory Environments. In-depth discussions on the Expectation Confirmation Model, Technology Acceptance Model, and Cognitive Model are the most popular frameworks to discuss the continuous intention to use the information system in this chapter.

Chapter 18 shares a critical view of Malaysia's franchise perspective. This chapter further discusses the development, support, issues, and challenges facing the Malaysian franchise industry.

Chapter 19 explores several issues related to Malaysia's foreign economic policy and trade performance over the last 20 years.

Chapter 20 explains the progress of Malaysia's logistics and transport activities, coupled with recent developments in commercial and business-related projects.

Chapter 21 corresponds to the Malaysian government's business support and assistance to small and medium-sized enterprises (SMEs). It will discuss the government support and help in the COVID-19 Pandemic Crisis and follow up the Government Monitoring Mechanism with suggestions for SMEs' recovery.

To move forward with the Industrial Revolution 4.0, Malaysian companies must embrace the notion that human capital is a crucial contributor to competitive advantage. From the marketing lenses, *Modeling Economic Growth in Contemporary Malaysia* contains issues relating to consumer behavior in the light of money spending and the choice of products or services.

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Chapter 1

SMEs Retailing in Malaysia: Challenges for Industrial Revolution 4.0 Implementation

*Halim Hamim, Mohd Nizam Abdul Kadir
and Mohd Noor Mohd Shariff*

Abstract

The importance of the retail sector to the Malaysian economy especially in this volatile environment caused by the Covid-19 pandemic would be more prominent. The retail sector under the current Industry Revolution 4.0 would be prioritized to align with the challenges of future growth for retail sales and employment. In the Industry 4.0 environment, retail companies must put enough resources in embracing the major changes for maintaining their competitive advantages. This includes adapting and developing back-end systems, creating effective storage and distribution networks that make products available to consumers on any time basis, and offering maximum flexibility in the last-mile delivery options. Retail companies will need to evaluate the importance of innovative ideas such as crowdsourced distribution networks, radio-frequency identification (RFID), automated locator that shift the look of logistics when evaluating newer, nimbler distribution models, and multichannel marketing that consist of online and offline customer interface.

Keywords: Industrial revolution; IR4.0; automation; information sharing; Internet of things; big data; digitization; SME; retailing; Malaysia

1. SMEs Retailing

Retail is a large, competitive, and highly potential sector that has a significant impact on the economy of many countries, apart from being one of the main contributors to Small and medium-sized enterprises (SMEs) growth. As shown in Fig. 1.1, the global total retail sales in 2019 stood at USD21.46 trillion for both

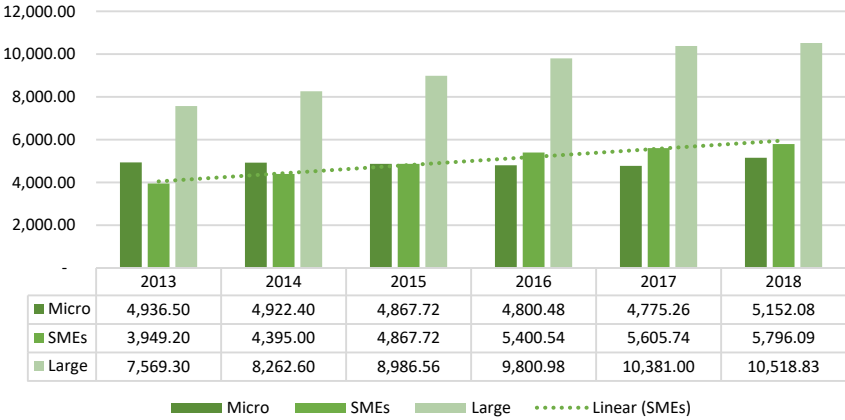


Fig. 1.1. Total Worldwide Retail Sales 2013–2018.

Source: [Retail Group Malaysia \(2017\)](#), [Research and Markets On-line \(2017\)](#).

in-store and Internet revenue. Considering that the retail sector is still dominated by large enterprises, the shares of SMEs (2013–2018) vary from 24% to 27% of total retail revenues.

Moreover, for many countries retail becomes a major source of employment. Retail is a labor-intensive sector that offers enormous opportunities for employment. The retail industry is the largest private sector in the United States that supports nearly 35 million jobs, or 1 out of 4 its jobs. The retail sector generates more than 35% of total national jobs for developing countries such as China, India, and Indonesia.

Internet or e-commerce is becoming increasingly important, reaching 8.8% or USD 2.49 trillion in 2018, where the United States and China are leading this segment. The African continent and the Asia Pacific countries are expected to become the new growth frontier for the next decade for in-store or brick-and-mortar retail establishments ([PwC, 2016](#)).

1.1 Retail Sector in Malaysia

For Malaysia, the sector reported RM96 billion (USD23 billion) of sales value out of RM1.237 billion (USD 296.4 billion) of the total nation’s GDP in 2016 and provided jobs for 992,986 individuals. Since 2013, retail sales have been growing consistently though not as fast as the global rate.

[Fig. 1.2](#) shows the growth in retail sales for selected countries in 2016 and shows that the retail sector in Malaysia still lags behind the benchmark for global retail growth. While a few countries such as the United States, Brazil, Nigeria, China, Russia, and Indonesia have reached 3.9% global retail expansion, few others are still struggling to reach the target including the United Kingdom, Singapore, the Philippines, Thailand, and Malaysia.

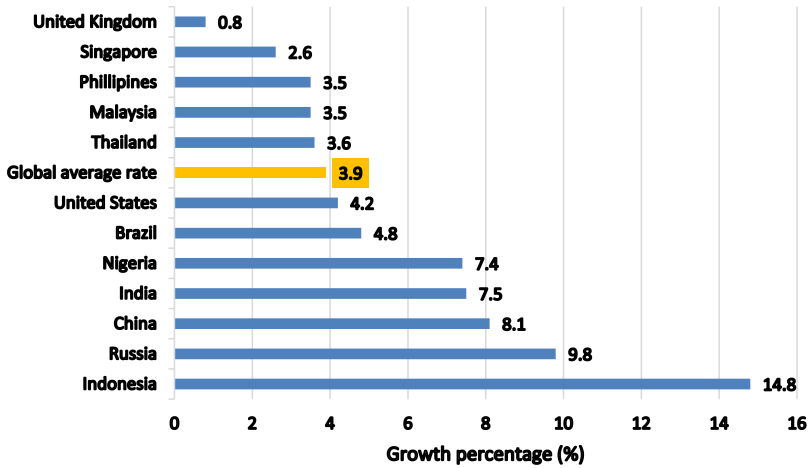


Fig. 1.2. Retail Sales Growth Rate for 2016 (Selected Countries).

Source: Kadir (2019).

In September 2010, the Malaysian government announced that this subsector of SMEs would be placed under the National Key Economics Areas (NKEA) priority agenda. It is also classified within the Economic Transformation Program (ETP) initiative among 12 subsectors. ETP is a high priority program with the objective of boosting the Malaysian economy to become a developed nation by 2030. ETP's other aim is to escalate the status of Malaysia as one of the best shopping destinations in the world.

2. Industrial Revolution

The buzzwords of the current Industry Revolution 4.0 or IR4.0 of which many researchers, media, organizations, and others are currently discussing are the key technologies that drive this revolution and its impact on governments, companies, and people as a whole. In short, the new approach is integrating conventional production processes with technologies by utilizing the Internet of Things (IoT) to enhance the efficiency of automation, connectivity, and the data in real time for all situations applicable to the value chain (Kurniawati & Ali, 2018).

The IoT relates to the billions of hardware appliances connected to the Internet today, storing and sharing information worldwide. It affects just about every aspect of our daily lives. The first industrial revolution focuses solely on the use of steam engines, the second industrial revolution on electrics, and the third on IT-based industrial revolution (Kurniawati & Ali, 2018).

Many years ago, TV channels were only a tool for disseminating information and entertaining the public. Nevertheless, today a Smart TV will sense if those watching it fall asleep and automatically switch off the TV.

2.1 The Evolution of Industrial Revolution

The Industry 4.0 term was used in Germany as early as 2011. However, it only started to gain attention when the World Economic Forum 2016 declared the world was on the verge of the Fourth Industrial Revolution. The world has undergone three distinctive industrial revolutions and is still undergoing the fourth industrial revolution.

2.1.1 The First Industrial Revolution

Between the end of 1700s and beginning of the 1800s, the first industrial revolution was taking place. The first industrial revolution began with the arrival of steam-powered engines in the eighteenth century. Manufacturing during this period evolved from the reliance on manual labor done by humans and assisted by animals to an optimal structure of labor performed by humans and was supported by water and steam engines and other machine tool methods. Steam was being used for powering locomotives and facilitated later among other things effective advances in manufacturing development besides transport, leading to Industrial Revolution 1.0.

2.1.2 The Second Industrial Revolution

During the early part of the twentieth century the world began its second industrial revolution, with steel innovation and electricity use at factories. Scientists then invented electricity that powered Industrial Revolution 2.0 just before World War I, leading to telephone, aircraft, and other innovative automobiles using internal combustion system engines. The advent of electricity empowered producers in making machines more effective to boost productivity. Manufacturing on a mass scale could be done with electricity, leading to the creation of manufacturing factories. During this period mass production concepts such as the assembly line were being introduced as a way of improving productivity.

2.1.3 The Third Industrial Revolution

The third industrial revolution gradually began to emerge in the late 1950s, when manufacturers began to integrate more electrical equipment into their plants, and finally computer technology. It was also known as the digital revolution, when electronic appliances such as cameras, televisions, and radios were being created. During this period of time, manufacturers started to experience change which put less focus on analogue and mechanical engineering and more on digital technology software and automation development. This is the period of the advancement of Internet technology.

2.1.4 The Fourth Industrial Revolution

The fourth industrial revolution is otherwise known as Industry 4.0. IR4.0 emerged in the last few decades, promoting interconnectivity through the IoT, accessing real-time data, and implementing cyber-physical systems. IR4.0 has put the focus on digital technology compared to the last decades.

It differs from IR3.0 in terms of the interaction among digital technology and human factors and other physical structures. IR4.0 is concerned the cyber-physical systems and technologies which connect the digital world through the Internet with biosystems such as humans. However, the technology does not directly interact with humans in IR3.0. This is, however, a two-way link between humans and electronics with the IR4.0. In other words, people become a part of technology. Electronic devices such as smartphones, smart TVs, and smart homes use data generated from human beings to better perform their roles.

IR4.0 provides a wider, more interconnected, and more integrated manufacturing method. It integrates digital with the physical and facilitates greater communication and connectivity through agencies, partners, suppliers, products, and individuals. IR 4.0 empowers business owners to monitor and increase in value each part of their operation better and enables instant data which can be leveraged to boost productivity, automate processes, and drive performances.

IR4.0 is a name given to current trends in automation technologies and the sharing of information. This consists of cyber-physical systems, the IoT, cloud computing, and cognitive computing. In 2011, the word IR4.0 was first officially adopted by a coalition of members from various fields (such as finance, politics, and academia) as “Industry 4.0” under an effort to improve German competitiveness in the manufacturing industry.

From the manufacturing perspective, development of robots and sensors refers to a replacement of human workers for specific tasks through automation. Malaysia is one of the countries that forges IR4.0. Artificial Intelligence (AI) is one of IR4.0's core advance technologies. A manufacturing or business process system can use AI to build and learn from its environment and with that data connect people, machines, and the digital world. IR 4.0 is also known as “IIoT” (Industrial Internet of Things) or intelligent manufacturing, which merges activities in manufacturing and smart digital technology, machine learning, and big data in order to generate a more streamlined and better connected world for businesses that rely on manufacturing and supply chains. The cycle of revolutions is depicted in [Fig. 1.3](#).

3. Impact of IR 4.0

From a macroeconomic point of view, more competitively priced exports have the potential to boost volume of exports and stimulate the Malaysian economy. In other words, IR 4.0 could enhance Malaysian exports' competitiveness, thereby increasing its Gross Domestic Product (GDP). A higher GDP translates into more profits that can further improve the manufacturing and potential job sectors.

Implementing IR 4.0 would reduce the cost of manufacturing operational costs and prices of products and services to be provided to make Malaysia more profitable on-the-ground goods rapidly adapted to the transformation of Malaysia, gaining the value of early movers. On the contrary, it may be claimed that increased automation ensures employment opportunities for heavily manual jobs with repetitive tasks which can be diminished. Consequently, some workers might be retrenched as robots take over human roles for certain activities. This is not expected to happen across all jobs; however, some large-scale factories are already automated. The real benefit of IR 4.0 lies in Big Data access and learning. Those, too, are likely to create new employment levels ([Idris, 2019](#)).

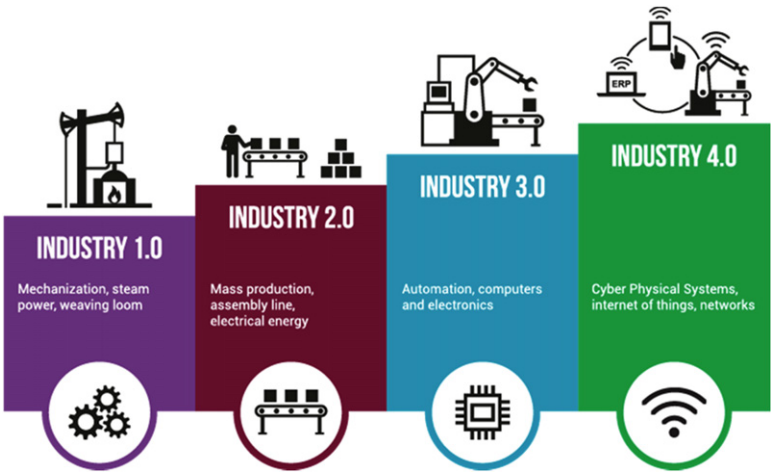


Fig. 1.3. Industrial Revolution 1.0 to 4.0. *Source:* [Erich \(2018\)](#).



Source: [Kadir \(2019\)](#).



Fig. 1.4. Ways of IR 4.0 Impacting Retail Sector. Source: Kadir (2019).

3.1 Ways of IR4.0 Impact on Retailing

By entering the era of IR4.0, the new mechanisms of advanced business models, smart and digitized platforms, and introduction of new technologies will change many industries forever in optimizing their business operations. When we see the latest product or in trending made available by retailer and quick fashionable merchandizing market, we may think that the influence comes from the social media and IoT. However, it occurs at the initial of supply chain whereby manufacturers creatively design their products using all kinds of software applications and develop them within tight deadlines in order to match the fast evolving customer preferences. The gathering of materials occurs all over the world through network of suppliers. Despite the complicated transactions as it may project, the technology evolves rapidly that may align with the design and development of related merchandise impacting the retail sector. There are few ways the IR may impact this sector such as IoT, 3D printing, multichannel, and robotics as shown in Fig. 1.4 (Nainy, 2017).

3.1.1 Internet of Things

IoT can be used in various ways. Starting with the ordering process which connects the back end and front end where the items sold at cashiers will trigger stock movement directly in the inventory system. With some setting up of system functions, this automated system can issue purchase orders directly to suppliers. Checking of inventories is becoming easier as the function of the system is activated when the stock reaches a certain level. IoT also provides prevention and loss for merchandising with the usage of RFID tags that trigger

an alarm if payment is not made during customers' checkout. IoT-enabled data can be used to predict the preference of customers especially those that use the loyalty card and personalized marketing or promotion which will be easily generated using advanced software. The big data of merchandise purchased by customers can trigger many statistic data that can be shared inter-departmentally and across different systems for identifying fast-moving items, trends, and preferences of customers, various levels of suitable hours for promotions, as well as providing the retailers competitive advantage by analyzing the built-in data.

3.1.2 Multichannel Offerings

Retailers can mix online and offline shopping experience with the built-in multichannel offered. With this approach, consumers move between their physical store networks and online platforms quickly. Mobile consumers will still have the same look and feel of the product offerings. The hybrid business models require the "click and collect" option, the facility from which consumers may purchase their goods at the nearest store. Other features may include the "scan and deliver" in which customers scan their products using a smartphone, in which the retailers will deliver the product home from the store upon getting customer online payment. Both services bring value to the retailers and promote customer loyalty (PwC, 2016).

3.1.3 3D Printing

3D printing is increasingly gaining attention by contemporary customers and becoming a very potential disruptive technology in the IR4.0. This technology allows customers to design, amend or mix, or select the predesigned items before the manufacturers can produce or retailers can mass-market them. Hence, the manufacturers will know what exact design will be more sought out or pervasive. An apparel or glassware manufacturer can avoid understock or reduced overstock on preprinted merchandising and eliminate wastage. This can be applied to design of perfume bottles, hand phone cover, computer mouse design, shoes, and many more. Many suppliers have been experimenting with it in which the concept of "purchase the product before it is being made" and encouraging retailers to invest in technology first before their inventory.

3.1.4 Robotics

Robots have been extensively used in the manufacturing sector. However, this trend is slowly blending into the retail environment. Robots play an important role in automating the warehouses or backrooms of retail stores especially in segregating boxes, arranging and retrieving inventories. When integrating with an advanced system, robots will become highly effective in managing inventories which include designating the right location for storing, picking stock based on appropriate items, detecting expiry date, controlling stock level, and managing