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# TECHNOLOGY INTENSIVE PRODUCTION AND ECONOMIC DEVELOPMENT IN THE CONTEXT OF THE NEW INTERNATIONAL ECONOMIC DIVISION OF LABOUR

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# ÖZ

## YENİ ULUSLARARASI EKONOMİK İŞ BÖLÜMÜ BAĞLAMINDA TEKNOLOJİ YOĞUN ÜRETİM VE EKONOMİK GELİŞME

**Dilruba KURUT**

Teknolojik gelişmeler uluslararası sistemde ve uluslararası ekonomik iş bölümünün dönüşümünde şekillendirici ve önemli bir etkiye sahiptir. Sanayi devriminden günümüze kadar devam eden endüstriyel gelişmeler beraberinde teknolojinin kullanıldığı üretim sistemlerini getirmiştir. Taylorist-Fordist üretim metodolojileri 1970'li yıllarda yerini post-Fordist sürece bırakmıştır. Devam eden süreçte artan küreselleşme, bilgi teknolojilerinin gelişmesi yeni bir dönüşüme zemin hazırlamıştır. Son yıllarda Endüstri 4.0 sürecinin de katkılarıyla yeni bir ekonomik iş bölümüne geçişin olduğu gözlemlenmektedir. Bu tezde, endüstrileşme sonucunda ortaya çıkan teknoloji-yoğun üretimin ekonomik kalkınma üzerinde olumlu etkilere sebep olduğu ortaya koyulmaya çalışılmıştır. Bu bağlamda, gelişmiş ve gelişmekte olan, Asya ve Doğu Asya bölgesinde yer alan yedi ülke seçilmiştir ve bu ülkeler iki grupta değerlendirilmiştir. Tümdengelim yöntemi uygulanarak birinci gruba seçilen dört ülkeye (Çin, Japonya, Güney Kore ve Singapur) doğrudan ispat yöntemi ile yaklaşılmıştır. Birinci grupta tezin temel argümanı olan teknoloji-yoğun üretim ve ekonomik kalkınma arasındaki olumlu ilişki ortaya koyulmuştur. Teknoloji- yoğun üretim ve ekonomik kalkınma arasındaki ilişkiyi anlamak adına seçilen ülkelerin sadece ekonomik durumunu belirten verilere değil, tarihsel süreçlerine ve uluslararası ekonomik sisteme entegrasyon süreçlerine de bakılmıştır. İkinci grupta yer alan ülkeler (Hindistan, Endonezya ve Tayvan), tümdengelim yöntemine bağlı olarak, argümanın tersini dolaylı olarak ispat etme yöntemine göre değerlendirilmiş ve ana argümanı desteklemiştir. Temel argümanı desteklemek için ikinci grup ülkeler ekonomik büyüme verileri yüksek olan fakat ekonomik kalkınma ve endüstrileşme seviyesi düşük olan ülkelerden seçilmiştir. Modern Dünya Sistemleri Teorisi ve Bağımlılık Teorisi bağlamında ülkelerin yeni uluslararası ekonomik iş bölümündeki konumuna bakılmıştır. Uluslararası ekonomik iş bölümünün yeniden şekillendiği bu süreçte,

birçok ülke endüstrileşmenin çevre üzerindeki etkisini azaltmak için yeşil ekonomilere yönelmiştir. Bu tezde ele alınan ülkelerin çevre üzerindeki baskısına ve endüstrileşmesinin yol açtığı çevre tahribatına dikkat çekmek için yeşil ekonomilere geçiş incelenmiştir. Bu bağlamda, Çin ve Hindistan'ın yeşil ekonomiye yönelik programları değerlendirilmiştir.

**Anahtar Kelimeler:** Teknoloji-yoğun Üretim, Endüstrileşme, Ekonomik Kalkınma.

# ABSTRACT

## TECHNOLOGY INTENSIVE PRODUCTION AND ECONOMIC DEVELOPMENT IN THE CONTEXT OF THE NEW INTERNATIONAL ECONOMIC DIVISION OF LABOUR

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Technological developments have a shaping and essential effect on the international system and the transformation of the international economic division of labour. Industrial developments from the industrial revolution to the present have brought production systems using technology with them. Taylorist-Fordist production methodologies left their place to the post-Fordist process in the 1970s. Increasing globalization and development of information technologies in the ongoing process paved the way for a new transformation. In recent years, it has observed that there has been a transition to a new economic division of labour with the contributions of the Industry 4.0 process. In this thesis, it has tried to be put forward that technology-intensive production, which emerged as a result of industrialization, has positive effects on economic development. In this context, seven developed and developing countries located in Asia and East Asia were selected, and these countries were evaluated in two groups. The four countries selected to the first group (China, Japan, South Korea and Singapore) by applying the deductive method were approached by the direct proof method. In the first group, the positive correlation between technology-intensive production and economic development, which is the main argument of the thesis, is put forward. In order to understand the correlation between technology-intensive production and economic development, not only the data indicating the economic situation of the selected countries but also their historical processes and integration processes into the international economic system have examined. The countries in the second group (India, Indonesia and Taiwan) were evaluated according to the method of proving the contrary to the argument indirectly, depending on the deductive method, and it supported main argument. The second group of countries is selected from countries with high economic growth data but low levels of economic development and industrialization to support the main argument. In the context of

Modern World Systems Theory and Dependency Theory, the position of countries in the new international economic division of labour has examined. In order to draw attention to the ecocide caused by the industrial process in the world, the transition to green economies has examined, and the programs of China and India for the green economy have evaluated.

**Key Words:** Technology-intensive Manufacturing, Industrialization, Economic Development.

# PREFACE

I would like to thank my mother and father for their support and smile during this thesis study. Think of a mother who listens to you, tries to understand and guide you without knowing anything about the issues you said. I could not have been able to complete this thesis study without my mother's belief in me. I am grateful to my thesis advisor Ertan Erol for his understanding, patience and assistance in this process. It was a long process; I encountered many problems in my personal life during this period. My advisor has always maintained an understanding, encouraging and relaxing counselling.

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Dilruba KURUT

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# LIST OF ABBREVIATIONS

**AI** : Artificial Intelligence

**BC** : Before Christ

**BT** : Bio- Technology

**CIT** : Computer Information Technology

**CT** : Cultural Technology

**DoIT** : Department of Industrial Technology

**ESU** : Econometric Studies Unit

**ET** : Environmental Technology

**FDI** : Foreign Direct Investment

**GDP** : Gross Domestic Product

**GNP** : Gross National Product

**ICT** : Information and Communications Technology

**IDBI** : Industrial Development Bank of India

**IIoT** : Industrial Internet of Things

**IMF** : International Monetary Fund

**IoT** : Internet of Things

**IT** : Information Technology

**KBE** : Knowledge- Based Economy

**MAS** : Monetary Authority of Singapore

**MITI** : Ministry of International Trade and Industry

**MOST** : Ministry of Science and Technology

**MOTIE** : The Ministry of Trade, Industry and Energy

**NABARD** : National Bank for Agriculture and Rural Development

**NT** : Nano Technology

**NWC** : National Wage Council

**OBM** : Original Brand Manufacturer

**ODM** : Original Design Manufacturer

**OECD** : Organisation for Economic Co-operation and Development

**OEM** : Original Equipment Manufacturer

**PAP** : People's Action Party

**R&D** : Research and Development

**RIE** : Research, Innovation and Enterprise

**S&T** : Science and Technology

**SME** : Small and Medium Enterprise

**SRI** : Special Risk-sharing Initiative

**STI** : Science, Technology and Innovation

**TDP** : Technology Development Programme

**UN** : United Nations

**UNCTAD** : United Nations Conference on Trade and Development

**UNIDO** : United Nations Industrial Development Organization

**US/USA** : United States of America

**USSR** : Union of Soviet Socialist Republics

**WB** : World Bank

**WTO** : World Trade Organization

**WWI** : World War I

**WWII** : World War II

**3D** : Three Dimension

# INTRODUCTION

The industrial revolution has been one of the turning points in world history. The origins of capitalism and modern production systems have based upon the industrial revolution. Along with industrialization, mechanic and factory-based production processes have developed, and industrialization has paved the way for the emergence of industrial capitalism as a socio-economic system. Industrial capitalism has led to significant changes in the new international division of labour and the world economy. Due to the increasing globalization, the increasing need for capital meet by exports and the division of labour between regions and states has increased as a result of mutual dependence. This industrial capitalism/industrialization has reached its fourth phase nowadays. Industry 4.0 has conceptualized at the Hannover Trade Fair held in Germany in 2011, and it brought many concepts to has used in the economy and production processes into our lives. The most important of these are big data, Artificial intelligence, smart factories, computing technologies, big data analysis, 3D drawings. The use of these new concepts in countries, especially in production systems, has brought a new dimension to the international division of labour. After the 2008 global crisis, it has seen that the framework and multipolar structure of the new international division of labour became prominent. This crisis has led to the reshaping of the international division of labour and the relocation of actors. East Asian countries appear to be useful in this relocation. The developed countries such as China, Japan South Korea and Singapore have increased importance in the international political economy. The reason behind this is the advanced technology usage capacity due to industrialization and globalization. In these countries, while capital exports have become more comfortable due to the use of technology, their production processes have improved, and they have become one of the actors of the global economy with high value-added products. The trade wars between the USA, one of the important actors of the 20th century, and China, one of the important actors of nowadays, are among the most important indicators of this situation. On the other hand, the influence and visibility of developing countries such as India, Taiwan and Indonesia have increased day by day in the international economy. The predictions that India will be among the top three economies in the world support this situation. In these developing

countries, natural resource exports, software technologies, intermediate goods production and exports have had an impact on economic growth. The fact that China and Japan rank second and third among world economies in terms of GDP rates shows how important East Asian countries are in the multipolar order.

In the context of the new international division of labour, it has seen that the whole world is affected by this process and this effect has positive results in many sectors such as agriculture, production, health, tourism. Mechanization and technological production processes in the agricultural sector; early diagnosis of diseases as a result of the use of artificial intelligence and 3D organ production in the health sector; the need for less human power every passing day and the replacement of human power by machines and robots in the production sector are among the active results of this transformation. The point to has underlined here is the adaptation of technology to all sectors and processes that exist as a result of industrial revolutions and globalization. The sectors that have been handled as labour-intensive and capital-intensive until today have changed, and technology has become intense. From this viewpoint, this literature review has made, and it has predicted that it will be beneficial to review the effects of technology-intensive production on economic development. Considering the effects of technological developments on national economies, policies and decision-making mechanisms in the 21st century, how technology-intensive production lays the groundwork for economic growth and economic development and how it shapes the process are two critical questions that need to answer. While conducting the literature review, it has seen that in many existing studies, industrialization and economic development were associated, but not evaluated in the context of the latest technological developments and the new international division of labour. East Asia and South-East Asia, which are the production and power centres of the 21st century, have been focused on to make this assessment. Seven countries selected from these regions has divided into two groups in terms of their industrial development and technology utilization capacity. In the first group, countries such as Japan, South Korea, Singapore and China, which base their economic development on industrialization and technology-intensive production, were selected. In the second group; The industrialization process of India, Indonesia and Taiwan has studied. Even if the countries selected in the second group are the rising actors in both the world

economy and the new global division of labour, many different variables have effective under this development, incredibly natural resource exports. Although Taiwan is among the Asian tigers, it has not defined as an independent country. In this case, it is an obstacle to being evaluated as a developed country. As can be seen from the title of the thesis, while economic growth can have measured with numerical data, economic development is a concept that also includes the management structure. It has observed that these countries considered in the second group have an export-based growth and, unlike the first group countries, they export in natural resources, intermediate goods and software instead of products with high added value. The contribution of this thesis to the literature is to reveal that technology-intensive production, which emerged due to the development of industrialization, contributes positively to economic development in the context of East and South-East Asian countries. It will have demonstrated that countries based on resource-intensive economies and late industrialized countries do not reach sufficient levels in terms of economic progress even if they achieve economic growth. For this, technological development, which is the most crucial result of globalization periods and industrial revolutions, should be addressed comprehensively. The last period of industrialization in Klaus Schwab's ''Industry 4.0'' book and the new era of globalization in John Micklethwait and Adrian Wooldridge's ''A Future Perfect'' book has discussed. Andrew MacAfee and Erik Brynjolfsson examined the second machine age caused by increasing mechanization and its effects on the new division of labour in the book ''Second Machine Age''. The subjects of ''Information technologies and communication Kondratieff'' in Nikolai Kondratieff's ''Long Waves Cycle'' theory have studied in detail. Based on this information, it has seen that technology-intensive production has gained a new dimension. It will be discussed in detail how these periods, which temporarily mark the same period, affect national and international economies and cause changes in the context of economic cooperation. East Asian economies have achieved great success in their industrial and foreign trade policies, especially by improving their exports in the global technology transfer and electronic product sectors.

This thesis has sought an answer to the question of ''do technological developments affect economic development?'' and it has divided into three parts within the scope of researches and analyses.

In the first part, instead of the concepts of economic growth, it will be explained why this thesis is moving through economic development, and the processes influencing the emergence of the international economic division of labour will have examined. Economic development includes social, political and economic welfare process. In this thesis, Variables related to economic growth and development will have discussed, but a conclusion will have made on economic development. The implementation and development of Taylorist and Fordist production systems, where technologies are used extensively in production processes, will be evaluated. This assessment is necessary for terms of understanding the development of today's technology-intensive production processes called industry 4.0. Also, economic and political developments after 1945 will have discussed in this section. Understanding the interrelationship of political and economic developments is necessary to understand in which conjuncture the exemplary countries that we will consider in the second part has included in the international economic system.

In the second part, the seven selected countries will have discussed in two different groups. In the first group include four countries that have integrated with global production systems developed their industrial capacity, gained technological competitiveness with their research and development budgets will have discussed. Japan, which has opened to the world with the Meiji restoration, is the leading of these countries, South Korea and Singapore, which are among the Asian tigers, and China, the largest industrial goods producer of the 21st century. The second group includes Indonesia and India, which owes their growth to natural resource exports, and Taiwan, which is not diplomatically recognized. The integration of these countries, which we will consider in two groups, to the international system and economy after 1945, will be discussed. The aim here is to understand the political and economic processes of these countries until the 2008 global crisis and to evaluate their liberalization processes. Secondly, these countries will have examined in the context of variables such as their GDP values, their responses to global crises, their policies in terms of industrial development and R&D studies.

At this point, it will be useful to explain why the theoretical framework is included in the third part. In this thesis, the economic growth and development

conditions and industrial development of the countries considered until the third part have been examined and evaluated. Since the current position of these countries requires an analysis, it was aimed to create an infrastructure consisting of data and information in the previous sections and to make the analysis through this information. In the light of this information, the new global division of labour based on modern world system theory and dependency theory and the new positions of the countries discussed in this thesis in the context of the centre-periphery relationship will has examined in the third chapter. The success of capitalism after the cold war and the unipolar model in the US hegemony, the transition to a multipolar economic order with the 2008 global crisis will have evaluated in the context of the conduction waves. It will have tried to show that China's rise in industrial manufacturing and the countries discussed in this thesis play vital roles among multipolarity. The sustainability of economic development in this multipolar new division of labour depends on the transition to a green economy. Industrialization, although it gave positive results for production and foreign trade, it caused severe damage to the ecology.

In this thesis, the reports and data of UNIDO, World Bank, OECD and various government bodies have used, while discussing the latest technology-intensive production and its effects on economic development.

# CHAPTER ONE

# THE NEW INTERNATIONAL ECONOMIC DIVISION OF LABOUR

The world economy is an active process that is affected by many variables and affects many events. In order to understand economic development, it is necessary to focus on some concepts firstly. The most important of these are the world economy, economic growth and economic development. The industrial revolution is a turning point in terms of the world economy, economic growth and development. Economic growth gained momentum with technological innovations that emerged in the second half of the 18$^{th}$ century in industrial applications. Spence emphasizes that the driving force of this spreading industrial revolution is science and a rapidly developing technology (Spence,2012:33).

Fröbel and his colleagues use the following statements for the world economy in their book on the international new division of labour and free zones; ‘‘The world economy is not a phenomenon that consists of the sum of several independent economies, each of which works with specific laws, and whose relations with each other remain only at foreign trade or at the border or intermediate level.’’ As can be understood from the definition, the emphasis has placed on industrialization and globalization by stating that national economies have shaped by the changes in the capitalist world economic system (Fröbel, Heinrichs, Kreye,1982:17). Weber sees the emergence of the ‘‘spirit of capitalism’’ not only as a reflection of the industrial revolution but as its main engine (Weber, 1913:183).

While the origins of the concept of a world economy based on capital accumulation date back to the 16th century, the global economy concept gained its function in the last quarter of the 20th century (Castells, 2013:35-37). This concept, known as the world economy, is accepted as a ‘‘global economy’’ with the understanding of single/common market provided by globalization and handled in this way. The global economy is an economy with institutional, organizational and technological capacity, operating as a planetary-scale unit (Adıgüzel, 2011:97).

Economic growth and economic development have different definitions in the context of economic theories. Flammang has proposed a qualitative and quantitative distinction between economic growth and development. According to Flammang, growth indicates a quantitative phenomenon, while development indicates a qualitative phenomenon that includes a structural change (Flammang,1979:50). While economic growth refers to a situation that can be measured with numbers, economic development is defined as transformation, the welfare of the society and the improvement of living standards. In this thesis, not only growth rates, GDP values, but also sectoral job distribution, R&D investments, innovation capacities, and welfare levels will be examined (Dura, 2009: online resource).

Economic growth is defined by the French economist François Perroux as follows; ‘‘It is the regular development of a certain size indicator - the national real national product - in a certain period.’’ According to this view; the measurability of the gross national product, total product, population and industry indicators is important (Dura, 2009: online resource).

Spence emphasizes that economic growth depends fundamentally on innovation and knowledge. ‘‘Openness to international trade and globalization is one of the strongest correlations to economic growth in data, as it facilitates access to information.’’ Spence states that the new growth that has emerged recently affects the modern economy in many ways.

> ‘‘New growth was driven by the application of science and technology to production, logistics and communication, management and institutional innovation, and changes in governance and the way in which politics and government interacted with the economy—in short, to every aspect of the modern economy’’ (Spence,2012, 4).

Kuznets' the definition of economic growth, in which he emphasizes that technological development and industrial structure impacts economic growth and development, as follow;

> “… as a long-term rise in capacity to supply increasing diverse economic goods to its population, a growing capacity based on advancing

technology and the institutional and ideological adjustments that it demands" (Kuznets,1971: online resource).

Economic progress is a complex phenomenon. Many factors can affect the pace, quality and direction of economic development (Chen, 2016:516). It is defined as follows; ''… The transformation of the production structure of a country to produce high value-added products and the distribution of the resulting product among the income groups in that society in a fair manner, to raise the living standards (level of welfare)'' (Kaynak, 2011:77).

Goldstein defines economic development as "the combined process of capital accumulation, increase in per capita income, increased skills in the population, the adoption of new technological styles, and other relevant social and economic changes'' (List-Jensen and Sasa, 2008: 2).

Dependency theorists reveal that there is a crucial distinction between economic growth and economic development. They have examined many variables/indices based on whether economic activities benefit a nation from the dependency framework. Much attention has paid to life expectancy, literacy, infant mortality, education and similar indices. Dependency theorists emphasize social indicators much more than economic indicators (Ferraro, 2008: online resource).

Adelman states that economic development is different from economic growth and that economic development consists of the following components: (1) self-sustaining growth; (2) structural change in patterns of production; (3) technological upgrading; (4) social, political and institutional modernization; and (5) widespread improvement in the human condition (Adelman et. al.,2000:1).

As can be understood from these two definitions, Economic growth can be seen as the initial stage of economic development, because, without economic growth, improvement in the data that will provide economic development cannot be achieved. Economic development is economic and social improvements depending on the technologies emerging with industrial and global developments. It is a term that covers technology usage capability, innovation investments and R&D studies (Arslan,2013: 47).

The industrial revolution has been taken as the beginning of technological developments and technology-intensive production. Hobsbawm says of the industrial revolution that;

> ‘‘The British revolution was the first in history. This does not mean that it started from zero, or that earlier phases of rapid industrial and technical development cannot be found. Nevertheless, none of these initiated the characteristic modern phase of history, self-sustained economic growth by means of perpetual technological revolution and social transformation’’ (Hobsbawm,1998:24-25).

Accordingly, in this thesis, information is given about the stages of industrialization. Developments due to industrial revolutions and globalization caused the international division of labour to change.

## 1.1. The Emergence of The New International Division of Labour

Considering the history of the world economy, it is seen that this process dates back to the 16$^{th}$ century (Wallerstein et. al.,1984:11). Also, Fröbel and his friends, in their book ‘International New Division of Labour and Free Zones, state that the origin of the division of Labour emerged in the 16th century in connection with the world economy. The most prominent indicator of this situation is the organization of production actors in various regions and fields (Fröbel et. al., 1982:20-21). Leon Trotsky demonstrated that the geographical expansion of capitalism also proceeds unequally, but in a connected way (Trotsky,2007:132–137). Wallerstein states that in the Modern World system, a capitalist mode of production is a structural obstacle to creating a single world empire. (Wallerstein, Frank and Gills, 2003:208). This capitalist mode of production lays the groundwork for the formation of a division of labour and interdependence.

Fröbel et. al. discussed the world economy in three parts: The turning points that shaped the world economy and the determinants of labour's economic division were emphasized in this process covering the 16th-18th centuries, between the 18th and 19th centuries and the first half of the 20th century. The manufacturing industry

of Western Europe shaped the 16th to 18th centuries, and the organization has shaped by wage labour. Again, in these centuries, the needs of the colonial countries have met by employing captive, and slave workers in Peru, Mexico, the Caribbean Islands, Brazil and India and organizations against colonial powers are occurring in these countries (Fröbel et. al., 1982:20-21). Undoubtedly, the most crucial turning point of the 18th and 19th centuries was the emergence of the Industrial Revolution in England. Heywood emphasizes that the mechanized and factory-based production forms that developed with the industrial revolution are very effective in the socio-economic order. After the industrial revolution, the migration of the population from the countryside to the cities accelerated, wage labour faced with a depreciation. This process, which Heywood named as industrial capitalism, paved the way for capital export between regions. Depending on this situation, the division of labour between states and regions has deepened (Heywood,2016:120). The collapse of the Indian cotton industry and the opening of China and Japan to world trade are among the important developments of this process. In the first half of the 20th century, the rise of Europe, the USA and Japan in terms of manufacturing industry has underlined, while the production of raw materials for export has made in Latin America, Asia and Africa. It has known that developing countries prefer import substitution industrialization, in addition to export-oriented industrialization from time to time, and the foundations of interdependence in economic terms have become stronger in this period (Fröbel et. al., 1982:20-21). Globalization also had significant effects in this process. Globalization refers to a process in which goods and services, production factors, technological accumulation and financial resources can move freely between countries and factor, goods, service and financial markets gradually become integrated (Şubaşat,2004). As can be understood from the definition, globalization initiates a period in which not only national but also transnational production processes play an essential role in the economy. Bieler et al. states that a process in which production is trans-nationalized has begun with globalization (Bieler et. al.,2010,252). ‘‘The increasing trans-nationalisation of production implies a ‘centralization of command and control of the global economy in transnational capital’’ (Robinson, 2004:15). It is useful to examine the relations between the developing countries of the global economy and the industrialized countries in the second half of the 20th century, especially in the 70s,

because the domestic investment of capital gained transnational value after this period. The mechanical and electronic technologies used in the manufacturing industry until this period were replaced by digital technologies. Although we do not compare them with today's digital technology level; the use of many plastic conductors and computers coincides with this period (Fröbel at. al., 1982:20-21).

In the mid-1960s, the inadequacy of Keynesian policies and applied production methods were revealed. State intervention has been replaced by neo-liberal policies in many countries. At the same time, post-Fordist production methods have been implemented (Saklı,2007:8-10). The international economic division of labour has been reshaped for countries with industrial development. However, according to Charlmar Johnson (1982), Japan and other East Asian countries under the leadership of Japan have achieved successful results because they have developed through government intervention for many years rather than market mechanism forces to achieve rapid economic progress and development goals (Johnson,1982:4-10). Thus, Robert Wade (1990) argues that the main reason behind the success of the economies of Taiwan, South Korea, and Japan is due to the state intervention to build the international competitiveness of the domestic industry rather than the free market economy (Wade,1990: XXXIV). As can be seen in many countries that are discussed in this thesis, many states at the beginning of industrialization; it implemented tariffs, imposed import restrictions, subsidies, and held control over the export of raw materials (Kurniawan,2019:13).

In the period after WWII, it has seen that Japan and Germany took their place among this new division of labour actors. It is clear that both of them have transformed into modern trade states and are part of a new international order with their economic interdependence policies (Maull,1989:96). After the Cold War, the positioning of the centre-periphery country was restructured in political and economic terms. It has seen that especially the USA has shaped Japan and Federal Germany as the regional production areas of Asia and Europe. The purpose of this was for these two countries to participate in inter-capitalist cooperation, especially in their periphery and ensure multilateral economic integration (Leffler, 1992:468-9). Borden stated that these two countries are necessary for the balance of power. Thus, Japan and the Federal Republic

of Germany are an important part of the material foundations needed for the growth of the capitalist world economy and the revival of the industries (Borden, 1984: 15). When it comes to the 1970s, it is seen that production centres have shifted to periphery countries through FDI. Under the leadership of European and Japanese companies, foreign investment limits have been rearranged and increased (Hopkins et al,2000:65). The increasing functions of the state and controlled growth movements (taxation, etc.) seem to have weakened after 1975 (Hopkins et. al.,2000:196-197). In accordance with a multinational and multipolar common market understanding and mutual dependency principle, economies have become more intertwined.

Especially after the 2008 global crisis, the transition and integration of China and other emerging market economies into the global economy have created a productivity dividend in the world. The integration of China and the emerging economies included in this thesis into the global economy and the supply shock stemming from the crisis caused change and transformation in trade investment and production models. New competition dynamics, in which technological developments are influential, mean that all parties must make structural adjustments. These adjustments, which will also affect the new global division of labour, will be a complicated process based on differences in demographics, saving and consumption habits, exchange rate regimes and institutional regulations (Keat,2009:271).

In this thesis, the Asian countries that achieved significant economic development by completing their industrial development during the Cold War and their new international economic division positions after the global crisis will discuss. The fact that Japan, China, S. Korea, and Singapore became important actors of the world economy was considered an East Asian miracle (World Bank Policy Research Report,1993: online resource). These countries cannot be shown as examples of economic growth only because they have a structure that produces technology and offers them to the international market as high value-added products while also improving the people's welfare and living standards. They increased economic development standard at the same time. It is clear that countries such as Indonesia, India and Taiwan, which are important actors in the context of the international

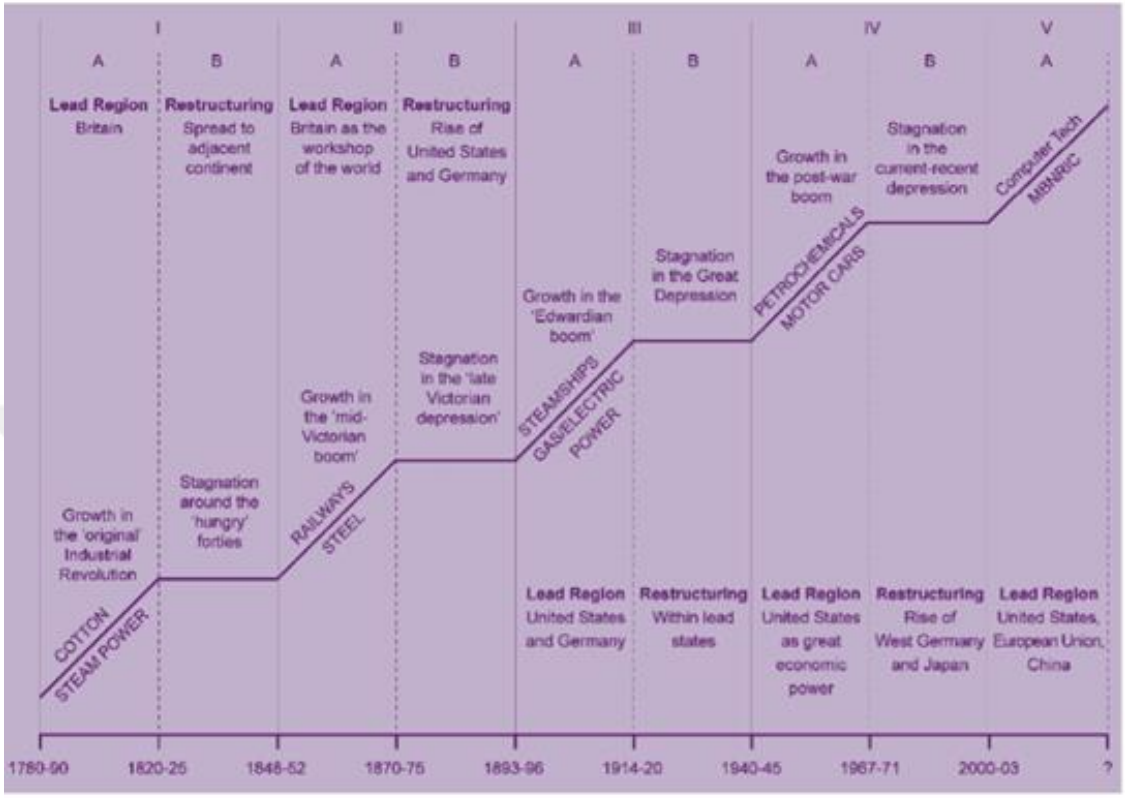
economic division of labour, have achieved economic growth. Still, this situation cannot show economic development.

## 1.2. Effects of Fordism and Taylorism on Production Processes and Industry 4.0 Process

Fröbel, Heinrichs and Kreye, in their books published at the end of the 1970s, examine the factors they determined about the shift of the manufacturing industry from industrial countries to less developed countries. They consider these factors under three groups. While the first factor has considered labour abundance and cheapness of less developed countries, the other two factors have accepted the loss of importance of geographical distances as a result of technological development and the application of substitution production methods to the workforce. Looking at international economic developments, many findings support this view; The increase in foreign investments, in addition to the factories used by multinational companies for production in different countries, they produce in these factories and their industrial zones by using the technological advantages of the post-Fordist process (Fröbel et. al., 1982:16-24).

It is useful to consider the emergence of the Fordist and Taylorist process, which is industrially revolutionary and gains competitive power in production systems. However, before discussing the Fordist and Taylorist process, we need to consider the successive industrial revolutions that cover this process, which we have mentioned in the introduction, from Schumpeter's perspective. Nicolai Kondratiev divides these successive processes, which significantly impact the whole world in terms of technology and industry, into periods of 50-55 years. Schumpeter calls these periods ‘‘successive industrial revolutions’’ (Freeman and Louca,2001:141-150). These 50-55-year periods also have periods of pause and rise. It is necessary to examine the Kondratieff cycles graph in order to understand the pause and rise phases of these Kondratieff cycles. In the graph (Figure 1.1), there are developments in parallel with the industrial revolutions mentioned in the introduction (Flint and Taylor,2014:24).

**Figure 1.1. A World-system Approach to Political Geography**




**Source:** Flint, Colin, and Peter J. Taylor. ***Political Geography: World-Economy, Nation-State and Locality***. Routledge, 2014. p.24

## Table.1.1. Condensed Summary of the Kondratieff Waves

| Constellation of technical and organizational innovations (1) | Examples of highly visible, technically successful, and profitable innovations (2) | 'Carrier' branch and other leading branches of the economy (3) | Core input and other key inputs (4) | Transport and communication infrastructure (5) | Managerial and organizational changes (6) | Approx, timing of the 'upswing' (boom) / 'downswing' (crisis of adjustment) (7) |
|---|---|---|---|---|---|---|
| 1.Water-powered mechanization of industry | Arkwright's Cromford mill (1771)<br>Henry Cort's 'puddling' process (1784) | Cotton Spinning<br>Iron Products<br>Water wheels<br>Bleach | Iron<br>Raw Cotton<br>Coal | Canals<br>Turnpike roads<br>Sailing ships | Factory systems<br>Entrepreneurs<br>Partnerships | 1780s-1815<br>1815-1848 |
| 2.Steam-Powered mechanization of industry and transport | Liverpool-Manchester Railway (1831)<br>Brunel's 'Great Western' Atlantic steamship (1838) | Railways and railway equipment<br>Steam Engines<br>Machine tools<br>Alkali industry | Iron<br>Coal | Railways<br>Telegraph<br>Steam ships | Joint stock companies<br>Subcontracting to responsible craft workers | 1848-1873<br>1873-1895 |
| Electrification of industry, transport, and the home | Carnegie's Bessemer Steel Rail Plant (1875)<br>Edison's Pearl St. New York Electric Power Station (1882) | Electrical equipment<br>Heavy Engineering<br>Heavy Chemicals<br>Steel Products | Steel<br>Copper<br>Metal alloys | Steel railways<br>Steel Ships<br>Telephone | Specialized professional management systems<br>'Taylorism'<br>Giant firms | 1895-1918<br>1918-1940 |
| Motorization of Transport, civil economy, and war | Ford's Highland Park assembly line (1913)<br>Burton process for cracking heavy oil (1913) | Automobiles<br>Trucks<br>Tractors, tanks<br>Diesel engines<br>Aircraft<br>Refineries | Oil<br>Gas<br>Synthetic materials | Radio<br>Motorways<br>Airports<br>Airlines | Mass production and consumption<br>'Fordism'<br>Hierarchies | 1941-1973<br>1973-…. |
| Computerization of entire economy | IBM 1401 and 360 series (1960s)<br>Intel microprocessor (1972) | Computers<br>Software<br>Telecommunication equipment<br>Biotechnology | 'chips' (integrated circuits) | 'Information Highways' (Internet) | Networks; internal, local, and global | ?? |

**Source:** Chris Freeman and Francisco Louçã. ***As Time Goes By: From the Industrial Revolutions to the Information Revolution*****.** OUP Oxford, 2001. p.141

In table 1.1., the effects of these cycles have widely discussed. As we often repeat, the first cycle includes the variables that arise with the use of water power that affects life and economy. The second cycle consists of steam power and its effects on transportation networks and production machines. The third cycle covers electrical energy and Taylorism, which is the beginning of the period that we will consider comprehensively. In the fourth cycle, Fordism includes the first developments of technology-intensive production, which is the thesis's subject. In this cycle; The foundations of transport, civil economy and the motorization/automation of war have laid. This period, which includes many changes in terms of mass production and consumption, will be discussed in detail. And as the last cycle, the process called post-Fordism, which involves the connection of the entire economy to computer systems, will be discussed (Freeman and Louca,2001:141). Although post-Fordism is essential in terms of production and supply chain, it also affects the international economic division of labour. The industrial revolution phases of the transition from factories working with the assembly line to smart factories, shaping technology-intensive production; It has enabled it to connect to autonomous systems in terms of time, flexibility, speed and storage (Görçün,2016:142-146). Before evaluating the process, we will briefly look at the emergence of Fordist and Taylorist production systems and their impact on their usage areas.

With the replacement of steam engines by small engines, changes have required in the factories' internal structure. Because, together with small machines, large space gaps have created in the factories. Manufacturers have provided more devices to evaluate these empty spaces. While this mechanisation caused an increase in qualified production, it was also the beginning of a process that required the workers' specialisation. Another significant development took place in the stockpiling of manufactured goods. According to demand, production has increased the warehouse areas' usability in production while ensuring that the warehouse stocks have melted. New production processes and techniques have designed to keep mechanisation competitive. So much so that method has tried to produce to increase internal

productivity. Fordist production methodology and Taylorism approach contributed to many national economies as two critical developments that emerged to increase efficiency and effectiveness in the production process and provide competitive power (Görçün,2016:56-65).

Taylorism is a production system that aims at the maximum use of worker labour. It takes its name from an American engineer. Frederick Winslow Taylor has published a work named "Scientific Principles of Management" in 1911. In this work, he discussed the production methodology that adds a different momentum to the industrialization process. This methodology has been adopted and put into practice by many industrial sectors. The aim is to divide the work into specific sections, as well as to specialize in the workforce only according to the area to be processed (Taylor,1911:1-7). This methodology, which provides great time efficiency in practice, is seen as a complete exploitation system in terms of labour (Wallerstein et. al.,1984: 96-99).

Fordist production methodology was developed on these bases by Henry Ford in the USA (Jessop,1992:43). Henry Ford developed the tasks Taylor made parts into pieces with the electrical conveyor assembly line and added them to the production process. Used today as an automobile brand, Ford is one of the first factories where Henry Ford applied this production methodology. ‘‘How can I produce a car in high quality, high quantity, fast and low price?’’ the question has made significant contributions to the system and assembly line have emerged. With the sliver conveyor systems, the transition between business lines is more manageable/easier and the workforce can produce more products by saving time spent on product transitions (Holloway,1996:7-34). As job segmentation has reduced to the micro-level, the workforce's qualification has lost its former importance (Brayshay,2020:32). This has significantly reduced labour costs. Ford's reduction of processes to microparticles/levels also affected the structural transformation of the workforce. Finding new workers who can do a job that does not require any expertise is easy. An unemployed mass that can be substituted for the working labour force has caused the value of labour to decrease. Earning less by working longer has been the main feature of this structural transformation. As this reduces the purchasing power, it has prepared

the infrastructure for crises over time (Görçün, 2016:61-70). Even the foundations of industrial unionism emerged due to collective wage bargaining during this period (Holloway,1996:9).

Gramsci points to America and Americanism in terms of the origin of Fordism. The starting point of Fordism has considered being the effects of American production methods on Europe after WWI. Gramsci sees Fordism and Americanism as the highest point of capitalist development and thinks that he will eliminate the last remnants of feudalism in Europe (Gramsci et. al.,1992:277). In this context, Fordism has defined as;

> ‘‘It is a production type in which industrial production has largely carried out as mass production, administrative works and manual work have determined with a Taylorist distinction, division of labour and job descriptions are strictly made, product standardization brings productivity increases and the increasing demand accelerates this standardization’’ (Eraydın,1992).

These methodologies (Taylorism and Fordism) have progressed cumulatively to cheaper the increasing demand in economic and industrial terms in a short time. The most obvious example of this is that Fordism is more comprehensive than the Taylorist production methodology. Fordism has accelerated its work assuming that the mechanical systems used in the production process also need an arrangement, rather than focusing only on labour. As a result of these studies, the 'Model T' production method started to be applied. The ‘Model T’ production process has determined each segmented job, and the threads have used according to these schedules. As a result of the studies, it has observed that a Ford style mass production that includes maximum efficiency, economies of scale, assembly-line production, standardization, affordability and effective marketing has spread throughout Europe (Brayshay,2020:32). Harvey points out that the point that distinguishes Fordism from Taylorism is its acceptance of 'mass production meant mass consumption’ (Harvey, 1991: 125-126).

While Harvey expressed that Fordism was firmly committed to Keynesianism, he saw Capitalism as an expansion that brought independent colonial nations into its network. He underlines that in order to make sense of the Post-Fordist transition in the 1970s, it is necessary to look at the interwar years and the developing technology and industry after WWII. In this process, petrochemical products, vehicles and electricity consumption are the main drivers of economic growth (Harvey,1991:131-132) At this point, the interdependence between the Keynesian welfare state and Fordism needs to be well understood. Jessop states that the Keynesian welfare state provided the necessary infrastructure for Fordist economic expansion. Post-Fordism provided the conditions for the expansion of the Keynesian welfare state. Jessop, however, states that Fordism has entered a crisis with the expansion of the economic welfare state, the balance of class forces in favour of organized labour has shifted, and the capital-labour process needs restructuring. Labour cost has tried to reduce with these configurations (Jessop,1994:258). According to Jessop, ‘‘there is a tendential a shift from the Keynesian welfare state appropriate to the Fordist mode of growth to a Schumpeterian workfare state more suited in form and function to an emerging post-Fordism’’(Jessop,1994:251). Boyer attributes the crisis of Fordism to four reasons. The first is that the increasing division of labour within the firm becomes counterproductive. In the late 1960s and 1970s, when the crisis began to appear, workers' resistance increased, and productivity decreased in return. The second is the globalization of production and sales due to the impact of large-scale economies and the increasing expansion of mass production. While competition intensified between countries, it also affected domestic markets. Due to the increasing competition, global economy management has become more difficult with each passing day. Third, Fordism has led to increased social spending. The increase in the relative cost of community consumption areas such as education, health and housing cause economic and inflationary instability. The fourth reason is that the consumption patterns of the "affluent worker" have changed (Boyer,1988:199-205). In this context, the developments that will bring the industries into competition at the national level have shaped over Fordist and Taylorist production methodologies.

Harry Cleaver has pointed out the post-Fordist transition by stating that capital' money should be repositioned in real accumulation in the last quarter of the 20th century. According to Cleaver, capital repositioning efforts required significant investments in technology development and use. Only in this way could the organic composition of capital be raised and production has reorganized and working-class power dissociated. The most important studies on this technological development and use included assembly lines (Cleaver,1995:166-168).

> ‘‘The most widely recognized of such investments have been those transforming Fordist mass production, such as manufacturing mechanization in the form of computer-controlled robotization which has allowed the replacement of assembly line production with flexible, just-in-time, small batch production managed by a new kind of worker.’’ (Cleaver,1995:166-168)

From the neo-Schumpeterian and neo-Smithian perspective, the new technologies and competitive structure created by Post-Fordism consist of hard and irresistible realities (Elam,1994:65). As stated in the table of Kondratieff cycles, Post-Fordism is the fifth cycle that includes the developments after 1973 (Freeman and Louça,2013:177).

Developments that will bring the industries into the competition have shaped over Fordist and Taylorist production methodologies at the national level. Post-Fordism has implemented by components such as just in time, process re-engineering, call centres, and 3D simulation engineering. It focuses on maximum benefit, low wages, delivery time (fast delivery), high quality, diversity, flexibility, reduction of error rate, and mechanical systems. In the transition to this process, the second industrial revolution and the third industrial revolution, which we mentioned earlier, also affect the political developments. In the First World War, while the competition gains a national dimension, the economy focuses on the weapon/war industry. In order to fix the damage left by the war, industries had to shift their technology and accumulation to the field of construction and construction first. During this period, the need for raw materials and the colonial approach positively affected transportation networks and communication development. However, the disadvantages should not

ignore; The losses incurred in the wars led to a shortage of labour for industries. Industries and governments, which had to do more business with fewer people during the rebuilding process, tried to overcome the economic difficulty by taking loans, but the stock market collapsed due to these loans they could not payback. This collapse in 1929 caused an economic crisis called the Great Depression (Görçün,2016:65-70). Dow evaluates the reasons for this 1929 depression around five factors. These are the collapse of the wall street, the end of the real estate bubble, the sudden increase in interest rates, the shrinkage in the exports of the raw material producing countries, the independent stagnation in Germany (Dow,1999:171-172). Although the crisis started in the USA, its effects were felt all over the world in a short time. Many industries were negatively affected by this crisis, and product inventories remained from the collapsed industries. The balance between supply, production and consumption, which are the functions of supply chains, has become invisible, and the process has become inoperable. So much so that demand and consumption have weakened in direct proportion to the deterioration of this balance. There was a period when there was no return from production and supply without consumption and purchasing power.

Another disadvantage of the Fordist production system is that the production system has turned into a mass production method. The desire to produce more at low cost in production also standardized the variety of products that the consumer would reach. Industries would either respond to demand, provide product diversity, increase prices depending on this diversity, or continue producing with the mass-production model and launching less variety at low cost. The fact that the industries used this preference for product diversity contributed to the transformation and development of production systems while laying the foundations for brand culture. This brand culture has improved over time, increasing the economic return of value-added production (Görçün,2016:76-92).

The Fordist production system, which built on Taylorist production system, was also constantly changing. It is necessary to understand what other developments have had essential effects in transforming these two production processes to the post-Fordist process, whose emergence and development have discussed. The main issue

we need to focus on about this thesis is when its effects on the international economic division of labour began.

Industries sought solutions to overcome the Great Depression and restore the balance between supply chain functions. In this process, governments are working on policies and programs to stimulate the economy. The New Deal is a plan put forward by US President Franklin Roosevelt. It was put into practice to prevent the self-regulation feature of the markets and to legitimize the government intervention. This plan includes studies for two purposes; firstly, to increase employment and secondly to increase public investments. These purposes; serve the Keynesian economic model, which is called ‘‘embedded liberalism’’ by Ruggie. With this plan, it has aimed to provide many employment and job opportunities with its multiplier effect, considering that increasing public investments of the States will contribute to the recovery of the economies in the short and long term. Governments applied state intervention to the economy and public investment throughout the world, resulting in a dramatic decrease in unemployment and interest rates, which were caused by the great depression. With the collapse of the gold-exchange standard in 1931, the international monetary system has divided into blogs with definite validity. Even though Britain played a leading role in establishing an international monetary order during this interwar period, such an international economic regime could not be established due to the absence of a hegemon in this process (Ruggie, 1982:379-415).

This thesis’s focus is when and how this production process, which will appear as post-Fordism, began to affect the international economic division of labour. Industries, supply chain functions and production could not operate efficiently, especially until the end of the second world war. Problems arising from a labour shortage, product diversification and post-depression collapse could not be resolved for a long time. In many books, Industry 2.0 has a stagnation phase in itself, even in the Kondratieff cycle. However, this stagnation could not prevent globalization; on the contrary, it started to affect the international economic division of labour in this period. In order to reach the colonial states, supply with the raw material needs, and provide cheap labour, extensive transportation networks have established, sea transportation,

railway transportation, postal and telegraph systems have developed. There have even been processes in which highway construction is considered a sign of development. Electrical energy, petro-chemical industry and internal combustion engines have been the driving force on this development. Industries have made progress by developing these innovations within themselves. The conclusion we will reach here is that; this process, which is called post-Fordism and constitutes the infrastructure of technology-intensive production, is the joint product of globalization and industrialization. These constitute two components that cannot be considered separately from the other in production systems and supply chains. The indirect effect of the Fordist-Taylorist production system on the international economic division of labour has had a direct effect, especially after WWII, with globalization (Görçün,2016:65-92).

In light of this information, it will be easier to understand the ground from which the post-Fordist process emerged. Political developments particularly contributed to the economy of this period and the industries' transition to technology-intensive production. Bilateral agreements and east-west blocking concluded at the end of the second world war increased the international division of labour and economic unions' functionality (Berend,2011:258-259). In this process, the Concert of Europe, the gulf cooperation council and ASEAN were established to prevent internal threats and ensure regional economic and social cohesion (Lake and Morgan,1997:181-183). In the newly formed bipolar order, this division of labour was formed and developed for the western bloc and eastern bloc countries. Most European countries were in the western bloc; the transfer of information and technological developments became easier in this respect. However, the eastern bloc countries had to follow technological developments behind many countries due to the embargoes imposed (Berend, 2011:256).

From another perspective, towards the end of the 1970s, the production in the metropolis, which was the industry's heart, gradually has lost its competitive power in the world market. Electro-mechanical building elements replaced by automated systems with the developing technology. By keeping the production capacity constant, the use of labour has reduced, and production has automated. Again, during these

periods, as the profitability rate of domestic investments decreased, the western industrial countries started to make foreign investments. Thus, production ceases to be specific to industrial countries only and has begun to shift towards developing countries. (Fröbel et. al.,1982:12-13). Together with multinational companies, these investment rates have increased rapidly, and developing countries have become one of the active parts of the international economic division of labour (Smith,2020:351). The following inference can be made here; it started to be involved in semi-peripheral countries in the production process that takes place between the central and peripheral countries, and this has been an important step in the structural change of the international economic division of labour (Şenses,2009:237). Cox states that Post-Fordism contributes to the globalization trend between countries and individuals. According to Cox, the developing and globalized production activities based on post-Fordism connect both multinational companies and individual production units in different countries (Cox,1996:285). It is necessary to examine its advantages as well as its disadvantages. This investment and production, which shifted from industrial countries, turned into mass layoffs and affected the country's economies. The outflow of capital from national economies required a new balance. This balance is necessary not only for industrial countries but also for developing countries. Countries that are open to these investments that increase employment should acquire knowledge and technological know-how, rather than make profit financial gain from this investment. Two exemplary countries that support the accuracy of our inference and implement state-controlled privatization; S. Korea and Taiwan (Ongun,2009:83-85).

In the special session of the United Nations in 1974, it decided to establish the New International Economic Order. Technology and scientific developments have great importance in the establishment of this new international order. Thomas underlines that science and technology should be linked to international trade and industrialization. He emphasizes that technological changes, innovation, and technology transfer impact economic growth and development in the formation of the New International Economic Order (Thomas,1979:129-132). Cox states that in this new international economic order, central countries insist on financial conditions to third world (periphery) countries and that the internal structure of the third world

(periphery) countries have tried to be adapted to the world economic order with technology transfers and technical assistance. Cox sees multilateralism as an area of struggle in the context of the world-system perspective. It has considered as an area where the demands between the Centre and the periphery are collected and evaluated in the structural change of the world economy (Cox,1996:512).

In the ongoing chapters of this thesis, the change of the economic order according to the post-Fordist process and the changing positions of the sample countries in the international division of labour will be discussed. For this reason, the new international economic order is important for the economic growth processes of the exemplary countries. The deregulation of the conservatives' market economy (deregulation) in the United States of America at the end of the 1970s and the beginning of the 1980s has complemented the ‘‘New Economic Order’’. Harvey underlined that in these developments in the 1980s, Keynesian practices are still valid (Harvey, 1989:170). The newly industrialized countries (Hong Kong, Singapore, Taiwan and S. Korea) called the gang of four or Asian Tigers, and certain products, especially textile and electronics, have entered the capitalist markets. Countries such as India, Hungary and Brazil followed this industrialization wave in a short time. Between 1973-1980, while USA's foreign dependency doubled, developing countries increased their exports. In this process, the USA's balance of payments deteriorated in terms of the balance of goods and services and became the global market's biggest debtor. In this process, Japan, one of the exemplary countries, has turned into an important financial centre (Harvey, 1989:165-166). In light of this information, it is possible to say that industrialization depending on the post-Fordist process, multinational companies and foreign trade effectively shaped the new global division of labour. It has seen that the software industry has developed in addition to the manufacturing industry after the 1980s. The introduction of IBM PCs (computers that combine Intel's microprocessor with Microsoft's MS / DOS operating system), the development of the Unix operating system, and the C programming language's emergence are the preliminary steps in the development of the software industry (Starosta,2016:141). While there are examples (Ireland) of using these software applications in multinational company bases since the 1970s, TNCs also started to

emerge as examples of using this software in the production process (Digital, Ericson) (Starosta,2016:147). In the ongoing process, the transition from main computers to individual computers and integrating communication technologies in this transition has led to a digital revolution. With the arrival of mass access to the internet in the 1990s, this digital transformation has found a widespread area (Youngs, 2007:13). Russell expresses the impact of this digital transformation on the economy with the concept of generic technology as follows; ‘‘Generic technology can be taken to refer to a technological innovation or set of innovations with a shared genus, observed to affect large portions of the economy’’ (Russell 1997: 44). This technological transformation, which is effective in many areas, points to a process called industry 4.0 today. The Industry 4.0 Term, which was put forward at the Hannover Messe held in Germany in 2013, is very effective in transforming the economy. Th terms of ‘Industry 4.0’ describes a new stage in the organisation and management of the entire value chain throughout a product’s lifecycle (Kagerman et. al.,2016:5).

Buxman et al. expressed the importance of the Industry 4.0 platform for the economy as follows;

> ‘‘In markets where the benefits of a digital good increase in proportion to the number of users, global market leadership can only be achieved through rapid and widespread global expansion. Platform-based software markets in particular are frequently characterised by network effects. Direct network effects occur in these “winner takes all” markets when the benefits to existing users increase as the number of new users grows. Indirect network effects are generated through the growing number of complementary products based on the central platform provider’s de facto standard. In view of the emergence of platform-based ecosystems in the field of Industry 4.0 – along the same lines as traditional Internet platforms – the combination of strong network effects and significant economies of scale often means that it is essential to establish an early global presence in order to achieve the critical mass of users needed to create de facto standards’’ (Buxmann et. al.,2011, Kagerman et. al.,2016:7).

‘‘The central objective of Industry 4.0 is fulfilling individual customer needs which affects areas like order management, research and development, manufacturing commissioning, delivery up to the utilization and recycling of products …The four main drivers of Industry 4.0 are Internet of Things (IoT), Industrial Internet of Things (IIoT), Cloud based manufacturing and smart manufacturing which helps in transforming the manufacturing process into fully digitized and intelligent one.’’ There are many components such as Big data, autonomous robots Augmented reality, Internet of things, cloud (cloud systems), Syber-physical system, which facilitate integration into the system and accelerate the transformation in procurement and production processes (Vaidya et. al.,2018:233-237). Such that, as a result of nearly a century of development, autonomous systems have become structured and equipped to communicate with each other. Objects belonging to the production and supply chain can be addressed through the networks created among themselves and can remain in communication with each other. We can briefly define Things of Internet as follows; ‘‘It is a system of devices that communicate with each other through various communication protocols and have formed a smart network by connecting and sharing information’’ (Karel Yüzyüze Teknoloji, 2020: online resource). The concept of the internet of things is a system that provides versatile added value and benefits for consumers, supply chain actors and industries (Görçün,2016:149). This system appears in many ways not only in the production and supply process but also in our daily life. It can be seen that eight of the ten updated phones have SmartThings sections added. You can connect with TVs, home appliances and other devices in your home or car through this system and provide a remote control for miles. While the economic and timing benefits of this are noticeable even for a home, it would be a big mistake to ignore the return for a factory or an industrial establishment, or even its contribution to a country's economy. Again, many people store their data and photos in cloud systems on phones and computers. Using 3D printers before production, drawing programs such as AutoCAD can use, and the product can be simulated in the digital environment. In this way, the error rate can be determined, and this situation can prevent before starting the production phase. This connection process continues even after the sale of the product. While any problem that occurs in the product can automatically be reported to the production system (by

the product), the problem can be resolved remotely. These developments started a structural transformation in the workforce. While the need for a specialized and highly equipped workforce is increasing; simple operations are done by machines and robots.

Today, it has seen that artificial intelligence and automation systems have widely used in the service sector and other areas. Artificial intelligence is the source of Innovation. Along with innovations, artificial intelligence and technology-intensive production paved the way for changes in the service sector structure and labour-intensive production (Huang et. al., 2018:155-158). Acemoğlu and Restrepo state that artificial intelligence and these autonomous systems cover industry and agriculture as well as computer software, retail, wholesale and business services. In fact, AI-supported autonomous systems and software cover many functions such as obtaining information, coordinating logistics, managing inventories, providing tax and financial services, translating complex documents, writing business reports, preparing legal summaries and diagnosing diseases (Acemoğlu and Restrepo,2018:4-5).

## 1.3. Economic and Political Developments in The World After 1945 and Their Effects on The International Division of Labour

Examining the political developments of a period in which WWI and WWII, which affect the world economically, politically and sociologically, will be left behind, will enable us to understand the movement and future of international capital. After mentioning the change experienced by the 19th-century civilization on four foundations by Polanyi, the collapse of the gold standard, the functioning of the self-governing order that he called Haute finance, and the effects of the balance of power on the transnational capital, he discussed the developments after 1945 as three different periods (Polonyi,1944:3-10). Because in the period from 1945 to the present, changes have been experienced in many issues, especially the balance of power, with the effect of globalization and industrialization. According to periods and periodical characteristics, giving information without distinguishing this whole process may push us to make wrong inferences. In light of this explanation; in this section, three sections'

political and economic developments will be discussed to be the period between 1944-1974, the period between 1974-2008 and the period after the 2008 global crisis.

Polanyi based 19th-century civilization on four pillars, two political and two economic. According to Polanyi, it was the balance of power that enabled a long peace process. This balance of power continued to function according to the gold standard system. In this context, Liberal states were the creation of a market regulating according to their own rules. Polanyi needed an institutional mechanism to explain 19th-century civilization's collapse, and he built this mechanism on a self-operating market economy (Polanyi,1944:3-10). Even though these views preserved their validity in the 19th century, there were two great wars, and a famine called the Great Depression in the 20th century. Therefore, economic development, globalization and industrialization were significantly affected by these processes. Many attempts have made to reduce and eliminate impacts. The New Deal and General Theory plans can be considered at the beginning of these initiatives. New Deal (1929) is a plan put forward by US President Franklin Roosevelt to eliminate the effects of the Great Depression. Within this plan's scope, Fordist production, which we emphasized earlier, spread and laid the foundation of labour unions (Lacher,1999:352-345).

The General Theory, which was accepted as a solution to the Great Depression and published in 1936, influenced the shaping of the modern world economy. The theory discussed by John Maynard Keynes emerged as a criticism of Say's idea that "every supply creates its demand". We have already mentioned the conditions of the period in which it emerged; it is a theory that invites governments to intervene in the economy when unemployment increases and interest and monetary policies increase their importance (The General Theory). Indeed, this theory has taken into account, and many economies take advantage of this theory's benefits. The Keynesian multiplier effect has brought short term unemployment solutions with it. John Ruggie calls this process embedded liberalism. In the post-war period, these policies significantly affect the rebalancing of the economy, industrial production, world trade and politics. Economic intervention has become multilateral and even institutionalized over time. After the war, national economies, which changed with Keynesian policies, played a

role in mobilizing and experiencing a transformation in the international order due to their active roles. The practices that emerged in the context of this theory also helped the formation of social welfare states. Economic and political developments have been influential in shaping a world order with polarization. The most important of these developments is establishing the Bretton Woods system, the establishment of important supranational global organizations such as the IMF and the World Bank (Ruggie,1982:379-438). In addition to these, the structuring and functioning of multinational companies have also had important effects on the shaping of the global capitalist order (Şenses,2009:240). Another issue that played a role in shaping these economic developments is undoubtedly the Cold War process. During the cold war, the separation of countries into communist and capitalist blocs and the establishment of regional unions (European unity, Etc.) brought the global effects of the political developments. The oil crises in the 1970s and the Asian crisis in 1997 visualize how these effects have penetrated large areas.

It is essential to examine the blocks' status and whether the non-aligned movement affects these blocks' economic relations when the USA and the USSR are hegemonic power. What has industrial and technological progress observed in the western bloc and eastern bloc countries? Are these thesis sample countries included in any bloc? These are some question to be responded in terms of transition to technology-intensive production, which is one of the thesis's main variables. We will also discuss the country groups' positions in which we will evaluate the contribution of technology-intensive production to economic development and the attitudes they take in economic-political developments.

After the Second World War, the Bretton Woods Agreement has signed with the participation of 44 countries for the functioning of the international monetary order and the development of world trade. The Bretton Woods system sought to reconcile the international monetary rule to recognise the power of labour (Holloway,1996:7-34). This agreement, which aims to stabilise the exchange rates, led to establishing other institutions that will also find solutions to external balance problems; International Monetary Fund (IMF) and International Bank for Reconstruction and

Development (IBRD / WB). Along with these, GATT discounts started to implement policies that enabled the recovery and expansion of world trade. (But this expansion continued until 1974.) The IMF was established in 1944 with the participation of 44 countries and continues to work with 189 countries today. Its main purposes are; to promote global monetary cooperation, ensure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty in the world (About the IMF, 2020: online resource). The other organisation, established under the name of 'The International Bank for Reconstruction and Development' and known today as the World Bank, provides finance to support development and development in various sectors of developed and developing countries. Its effects are dating back to the today cover more than 180 countries. These countries cooperate with the IMF throughout their work. The purpose of its financial support is not only to ensure long-term economic development but also to attract poor countries above a certain level and to achieve global economic balance (The World Bank,2020: online resource).

While significant economic sense developments take place in this direction, we will examine political developments in parallel with economic developments. As a result of the destruction caused by the Second World War, it has seen that the countries depending on these economic developments have completed their world trade balances, especially in the world industrial production, in the second half of the 1950s.

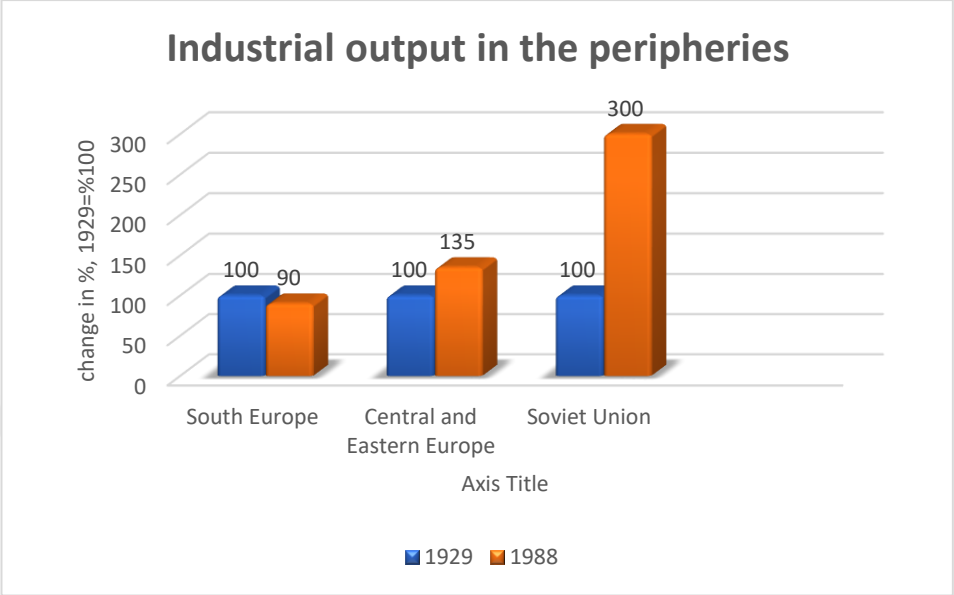
Before addressing the blocks of the bipolar world and developing these blocks; the post-world war situation of the world's colonial states should also examine. There is a process in which many countries have colonized before the Second World War. The independence of these colonies has mostly completed in the period between 1945 and 1960. These states, which continued their existence as colonies for a long time, started to implement import substitution industrialization strategies (most colonial countries) to make up for their deficiencies in many areas after gaining independence. These countries, which will be under external influence with multinational companies' investments and will shape their economies with foreign investment in the following

periods, are the countries that receive the most assistance from the IMF and WB in the post-1945 global economy (Ongun,2009:23).

After WWII, it has seen that a bipolar order (east-west, USA-USSR) dominated the international system. While the eastern bloc countries showed socialist economic trends, the western bloc countries adopted capitalist economic principles. The USA and the USSR played vital roles in the election of communist and democratic governments in the countries they could influence. The Marshall Plan, the establishment of economic cooperation in Europe and even the laying of the European Union's foundations are important developments in this process. Who were the Eastern bloc countries? Why were countries in the eastern bloc? How much progress have eastern and western blocs made in terms of industrial efficiency and economic development? Who were the Western bloc countries? Why did they take place in the western block? It is necessary to answer questions.

The Eastern Bloc includes the USSR, Poland, Romania, Bulgaria, Hungary, East Germany, Czechoslovakia, Mongolia, China, Vietnam, and North Korea. Many of its members were members of the Warsaw pact for defence and security purposes. As the answer to the question of why these countries were in the eastern bloc; after the wrong policies implemented by the fascist governments and the war that resulted in many deaths, especially in Europe, the order had changed. Since the USSR liberated many countries from the yoke of these fascist governments, these vulnerable countries showed a desire to join this bloc due to both their national security and a need for international security. A 5-step process may cause other countries to join the eastern bloc. This process started with Soviet occupation, forming coalition cabinets in the occupied countries and communist parties dominate the government and finally continued in the form of liquidation of opposition parties. After this process, the eastern bloc countries adopted and implemented the Soviet models socially and economically. As a matter of fact, the five-year development plans, agricultural collectivization and industrialization movements they implemented gave positive results (Berend,2011:199-205).

**Graph 1.1. Industrial Output in the peripheries**




**Source:** Tibor Iván Berend, ***20. yüzyıl Avrupa iktisat tarihi***, Türkiye İş Bankası Kültür Yayınları, 2011. P.200

The graphic (Graph 1.1) given above is an indication of the leading role of the Soviet Union in the 1930s. The policy and institutionalization that started to be implemented in this process has based on economic growth and development, and it brought with capital accumulation, social mobility, education revolution and central planning (Berend,2011:199). Western Bloc countries could be identified as USA, France, West Germany, Belgium, Canada, Denmark, the Netherlands, Greece, Iceland, Italy, Norway, Portugal, Luxembourg, Spain, Turkey, United Kingdom, Japan. Countries in this group have come together to prevent the expansionist policies of the USSR. Western Bloc countries have achieved economic and technological development with their capital accumulation and investments in the post-war period (Berend,2011:313). The eastern bloc responded to western bloc-based formations such as Marshall Plan, Truman Doctrine, NATO with Cominform, Molotov Plan, Comecon and Warsaw Pact. In this process, some countries try to maintain their economic existence by staying at an equal distance to both blocs; the non-aligned movement. Most of these countries, which attach importance to being independent in their international and national administration, were third world countries. There were

Yugoslavia (later adopting the principle of neutrality), India, Egypt, Indonesia, along with some Asian and African countries (29 countries). One of our sample countries, China is still the observer of this non-aligned movement (Armaoğlu,2014:390-406). The countries included in this group continue their work under the umbrella of the United Nations (Nonalignment Movement and International Economic Order, w. date: online resource). The underlying reason why they choose to be independent is that many of them are former colonial states. They argue that they can establish an order of equality, peace, cooperation and welfare with anti-imperialist and anti-colonialist ideas. Their contribution to the process regarding international industrial productivity and economic development was chiefly through the export of raw materials and natural resources. Especially, the transfer of many natural resources such as cotton, oil, coal, Etc. of India and Indonesia to the international market and their effect on production processes will be discussed in the second part of the thesis.

Europe has set up the European Economic Community against the Comecon of the Eastern bloc. Unlike Comecon, the European Economic Community still exists today under the name of the European Union. The unifying and positive effects of the Cold War era have seen in terms of European stability. Such that, the long wars in Europe gave way to a society standing together against the Soviets. The "Sovietization policies" applied by the Soviets, especially on Eastern European countries continued to be implemented by the communist leaders. Eastern bloc countries, with the exception of Yugoslavia and Albania, were forced to implement anti-market economies (Yugoslavia and Albania have adopted the Socialist economic model of their own accord) (Berend,2011:220-223).

The Socialist economic model was introduced, in which the market economy was largely under state control. In fact, foreign trade became a state monopoly. Foreign trade became a state monopoly. We see these characteristics in the 5-year plans that the Soviets started to implement in 1928, after 1947, most of the eastern bloc countries implemented (or were forced to implement). During this Cold War period, the state-centred market was preventing the public and the producers from having a say in developments. They had to apply the rules of the administration not only in agriculture,

economy but also in technological development and industrialization. Under the policies of Khrushchev, planned division of labour and specialization policies in certain products were followed. As a result of these policies, which include specialization in the field, especially in the machinery industry, and having monopoly rights, Comecon countries have kept their markets alive among themselves—for instance, Romania; diesel locomotive manufacturer, Bulgaria; computer manufacturer, Hungary; machine manufacturer (Berend,2011:221).

The Korean War was a political development that had an impact on the dynamics of the economic process. This country, which was under the tutelage of the USA, USSR, England and China for a while, was divided into two according to the 38th latitude. While the USSR's military forces were effective in the north, the US military force remained dominant in the south of the 38th latitude. Elections have held in both regions, and while the People's Republic of Korea has established in the north, the Republic of South Korea has established in the south. The fact that Japan is under the USA's control in this region, which has strategic importance in terms of the power balances of the eastern and western blocs, caused the tension to increase (Kalaycı,2010:391-392). With the establishment of the Communist government in China, this power advantage started to turn in favour of the eastern bloc. As a result of these events, North Korea and the forces behind it declared war on South Korea in June 1950 (Armaoğlu,2014:4008-409). As a result of this war, which caused significant increases in market prices, Comecon countries adopted the principle of using without changing the market prices between 1950 and 57. This situation facilitated the predictability of the gains to be brought by import and export among themselves (Kaser,1986:154). Another issue that should be underlined here is the difference between the current situation of South Korea and China, which are our exemplary countries, and the current situation in the international global business segment. (This issue will be discussed in detail in chapter 2)

In order to protect the east-west power balance and not to turn in favour of the Soviets, America provided much economic and military aid to the countries that gained their independence in the region. Later, SEATO (South East Asia Treaty Organization) has established to prevent the Eastern Block's strengthening in the region. In 1954, the

United States, Britain, France, New Zealand, Austria, the Philippines, Thailand and Pakistan were members of this organization (Thomas,1957: 928). We can see the UK base in Singapore as part of this organization (Armaoğlu,2014:66-67). The aim is to create a circle of an alliance that prevents the expansionist policies of China and Soviet Russia (Ball,1958:17). As a matter of fact, there are some unsuccessful steps as well as successful steps towards peace.

Another important political development that changed the balances in this period; In 1967, ASEAN founded in the Asian region against the communist threat. ASEAN Member states are Indonesia, Malaysia, the Philippines, Singapore, and Thailand (Narine,2008:414). This old union established in the Asian region was in a political and security scope in the early days, but it started to include economic elements in later times (Narine,2004:431). ASEAN has ongoing free trade agreements with China, Japan, S. Korea and India, which have studied in this thesis (ASEAN, 2020: online resource).

Another significant development is the oil crises in 1973 and 1979. The oil crisis in 1973 emerged due to the Yom Kippur War between Arabs and Israel. The Organization of Petroleum Exporting Countries (OPEC) has declared that they will not export oil to the countries that support Israel in this war, and as a result of this practice, the industries of the developed countries have been in a difficult situation. With the increase in oil prices of OPEC countries, an economic crisis occurred on a global scale (Hancock and Vivoda,2014:2). The fact that Japan sided with the Arab countries and the oil existing in Indonesia gaining importance are among the essential effects of economic process (Akins,1973:465-466).

The collapse of the Bretton Woods System is also a development that has economic and political effects. After the Second World War, this system tried to strike a balance between the liberal world market and the states' practices. The Bretton Woods system had a mechanism that fixed gold to dollars. In 1970, the United States' over-investment in military fields caused budget deficits and foreign trade deficits. Japan's rising position has also had an essential effect on these payment balances. With the devaluation of the dollar in 1971, the US abandoned the gold standard. As a result,

the Bretton Woods system collapsed in 1973 when the industrialised countries' currencies could not follow a fixed exchange rate against the dollar. This situation has led to the recycling and restructuring of the international economic system. The structural strength of capital, production structures and debt were key elements of this structural transformation. Also, in this period, the importance of multinational companies and supranational corporations that started with globalisation increased. States have become part of the global market mechanism, and safe investment conditions have begun to be provided to foreign investors. Despite the collapse of the system, the IMF continued to maintain the international financial order. (Cox,1992:296-302). The Bretton Woods system's vital point to be considered for this thesis is that it is a result of the inadequacy of Fordist production systems. After the collapse of the system, post-Fordist systems came into play. It can be said that the years 1945 and 1974 were a period in which the destruction caused by WWII has overcome, an expansion was experienced all over the world in terms of industrial production and world trade, and the industrialization foundations of the countries to be discussed were laid and developed. This development and progress continued until 1974, and it has undergone a transformation depending on economic and political developments.

Between 1974 and 2008, a process in which neo-liberal policies have implemented in the economy, democratization movements and interdependence increased. With the end of the cold war and the rise of the capitalist bloc, it has seen that the countries included in the socialist bloc are pursuing harmonious policies to be included in the international economic system. After the cold war, the world economy has undergone a comprehensive transformation. Even though it seems unipolar in the political sense, many polarities have started in the economic sense. The end of the Cold War is one of the main reasons for this transformation. A period has begun in which the concepts of war and peace are less important due to the principles of interdependence, with economic issues taking an important place on the global agenda. The end of the cold war also represents the transition from bipolar to a tripolar world. These three poles are the USA, Japan and Europe as an economic union

(Bergsten,1992:51). The basis of this information is the industrial development of the three regions and their share in foreign trade.

The capital movement began to be liberalized in developing countries after the cold war. This liberalization in capital movements positively affected short-term capital movements with high real interest and financial returns, and the abundance of foreign exchange, that is, hot money, began to be found in excess in developing countries. This situation led developing countries to import and paved the way for borrowing by obtaining loans from banks. The crises that emerged in the 1990s have based on imports and short-term investments instead of export-oriented industrialization (Ongun,2009:92-93). In addition to these; Increasing globalization, active use of technological developments in all international financial systems, especially in banking, increased dependency and competition have brought some risks. The Asian Crisis in 1997 is a development that emerged as a result of these risks. Financial crises can also be considered as a process required by financial globalization. The world economy experienced many crises in the 90s. However, the Asian crisis experienced in 1997 greatly affected the countries will be considered. The crisis started when foreign investors withdrew their portfolio investments from East Asian countries and impacted the whole region in a short time. Thailand, Indonesia, and S. Korea were deeply affected by this crisis. China, Taiwan, Singapore and Vietnam were relatively less affected. Kissinger attributes China's not being affected by this crisis to the relaxation of its capital control and financial savings measures (Kissinger, 2015:574). On the other hand, Japan was slightly affected by this crisis, but its economic problems had a negative effect on growth values. This crisis has caused the operability of IMF proposals to be questioned, and the trust in the IMF has shaken.

With the establishment of the World Trade Organization (WTO), the goods trade rules, which were limited to the GATT, were expanded (1995) (Hoekman and Kostecki,2009:58-59). WTO acts to protect and develop goods, services and intellectual property rights, regulating international trade policies and contributing to the liberalization of world trade (WTO, The WTO in Brief,2020: online resource). During this period, when economic liberalization policies have actively implemented,

Wade stated that the WTO's establishment narrowed the development area in developing countries (Wade,2016:512-513). With the TRIPS agreement, the protection of intellectual property rights has transferred to the WTO (Lall,2016:466). In this context, Wade states that the WTO protects the countries that are exporter of intellectual property rights and technology. He also emphasizes that developed countries have not sufficiently ensured to provide technology to developing countries. He underlines the existence of an invisible mechanism that prevents developing countries as a result of the economic sanctions shaped over the information and technology market (Wade,2016:509-517). The countries discussed in this thesis are among the WTO members. Since Taiwan is not officially recognized, its official membership has made in 2002 under the name of China Taipei. Taiwan had bilateral trade agreements with many member countries until its membership started and acted within the scope of WTO practices.

The abbreviation ‘BRICS economies’ was first used in a report published in 2003. BRICs economies consist of Brazil, Russia, India and China and South Africa (Armijo,2007:8). BRICS 'is a structure that reflects the rise of new world actors as producers of goods and services (Vijayakumar et. al.,2010:2). BRICS countries with different development levels also do not have common borders, but this is not an obstacle to integration (Sidorova,2018:35). Recent decades, economic crises in developing countries have led to the transition to neoliberalism-based on market forces. It has seen that BRICS countries adopt neoliberal policies. These countries' dependence on foreign capital and investment has increased. (Siddiqui ,2016:5-23). Sidorova states that the BRICS countries have important market potential and are the fastest developing economies globally. He emphasizes that the BRICS countries are more prone to technological progress in terms of their innovative potential. Sidorova used the following statement for the interdependent economic system of BRICS;

> ‘‘Owing to the introduction of uniform developments in the BRICS member countries there is an expansion of space for innovation, coordination of research programmes, growth of financial opportunities of researchers and the creation of an interconnected economic system at the same technological order’’ (Sidorova,2018:35).

BRICS countries, which are among the developing economies, are targets for direct foreign investment (Vijayakumar,2010:2).

The financial crisis in the USA in 2008 has regarded as the beginning of a new era in terms of restructuring the international economic division of labour (Abraham et. al.,2009:1-13). We have dealt with many variables, such as the world economy, industrial revolutions, globalization, and production processes in the thesis. Because all these factors form the basis of the technology-intensive production applied today. We stated that the first change on these foundations took place in the 1970s and the international economic division of labour has reshaped, until this process, the division of labour progressed as a nation-state, after this process it gained an international character. When these developments combined with technology, the economic competition started to get stronger on a global scale (Lall,2016:462). Developing countries have become important actors of production and capital. The second change started to manifest itself with the crisis in 2008.

The crisis started in the US financial market in 2008 affected the world economy in a short time and caused recessions. While GDP decreased in developed countries, there were also decreases in world trade volume (UNCTAD, 2010: online resource). The crisis started in the US financial market in 2008 affected the world economy in a short time and caused recessions. While GDP decreased in developed countries, there were also decreases in world trade volume. In the manufacturing industry, that is, in areas where technology-intensive production has used, problems have experienced as a result of the decrease in the demand for raw materials. East Asian countries have shown their presence in manufacturing industry products with high added value. In Fact, this year, China has become the world's largest auto dealer, surpassing the USA. At the same time, China was the most indebted country for the USA (Japan before). China's strengthening position in the international economic business segment was the result of a trillion-dollar debt and investment to the US in 2008 (Holcombe,2016:389).

After this crisis, the growth rates of the world economy slowed down. China's rapid growth and the increase in export rates have a great driving force/importance in

increasing the growth rate again. The US and European markets, which have been stagnant due to the crisis, have contributed to China's reaching a size that can respond to domestic and international demand (Akkemik,2015:298). While this economic crisis caused a 2% contraction in the world economy in 2009, there was a 13% volumetric contraction in global import and export rates (UNCTAD, World Investment Report, 2010: XXIII).

The countries have discussed in this thesis have been selected from the Asia and Southeast Asia region with a regional perspective. In 2017, PricewaterhouseCoopers company published a forecast report on the world's largest economies in 2030 (PWC,2017: online resource). There is a system projection in the report that the global economic order will change by 2050, and the actors will be repositioned in this change. Based on the rankings in this report, it has been researched on China, India and Indonesia. In the following sections of the thesis, it will be explained in detail that each of them has achieved economic growth by going through different processes. Based on the economic growth and development rates, it has been selected two groups of countries from this region with the question ‘‘Is there a relationship between developing technologies and economic development?’’ While it has been selected the first group of countries among the countries that have undergone a rapid development process due to industrialisation, it has selected the countries to be considered in the second group from countries that are late industrialised and achieve economic growth without applying industrial development to every field in their country. The second group of countries also have development in industrial sectors, but their economic growth has not completely formed on an industrial basis. While many factors such as natural resources, foreign direct investment, assistance/advice from multinational companies, and supranational organisations have been effective in these countries' economic growth, their economic development has lagged in the first group compared to the countries it has been discussed. In the next chapter, while evaluating these countries, we will show a linear relationship between technology-intensive production and economic development. Technology-intensive production will be analysed based on industrial developments, and inferences will be made from data on countries' latest situation.

# CHAPTER TWO

## EVALUATION OF TECHNOLOGY INTENSIVE PRODUCTION AND ECONOMIC PROGRESS IN THE BASIS OF VARIABLES

The relationship between economic development and technology-intensive production revealed in this thesis will be evaluated over two groups selected from East Asian and Southeast Asian countries. Especially East Asian countries and these countries will be evaluated according to the variables to be discussed. When looking at the Asian region, it has not based on harmonious geography and cultural foundations. Countries of this region, where wars and occupations are experienced from time to time due to ideological differences and interests, will be classified according to our basic variable, economic development. In the first group, countries that apply the opportunities brought by globalization and industrialization to the production systems in their countries and consequently achieved rapid growth in a short time in terms of economic development, depending on these practices. In the second group, Asian countries, whose economic growth rates are rising rapidly, which increase their visibility and role in the global system, but do not do this on the basis of technology-intensive production, will be discussed. It will be tried to show that the phenomenon that supports the economic growth rates of the second group of countries is the excessive use of natural resources, foreign trade and specific industrial sectors (software) rather than technological and industrial development.

The determination of variables in this thesis, which will be studied on seven countries selected from developing and developed economies, was determined as a result of the examination of UNIDO and OECD reports. In UNIDO's Industrial development report titled 'The Role of Technology and Innovation in Inclusive and Sustainable Industrial Development' published in 2016, the effects of technological development and its ability to imitate technology by countries have included. In order for a country to adopt technology in its sectors, especially in the manufacturing sector, the population must have an infrastructure in terms of educational status, R & D studies, resource allocation and technological capabilities. (This high-tech infrastructure, which countries need to start technology-intensive production and improve their

service activities, has also revealed a development due to industrial revolutions and globalization.) In this context, GDP values of selected countries, Innovation and R&D capacities and sectoral distribution will be discussed (UNIDO: Industrial Development Report 2016,2015:4-7).

The World Economic Forum, Global Competitiveness Index 4.0 report, which has prepared to examine the institutions, factors and policies that determine the productivity level of 141 countries, was published in 2019. Among the countries discussed in this thesis, Singapore ranks first, Hong Kong, which has linked to China, is at the third place, and Japan is at the 6th place. It has seen that Taiwan ranks 12th in this report, followed by South Korea in 13th place; China 28th, Indonesia 50th, and India 68th ranked (Schwap,2019: online resource).

In the 2019 Global Innovation Index, three countries with the highest innovation capacity among East Asia and South-East Asian countries are (1) Singapore, (2) Republic of Korea, (3) Hong Kong, China. Among these countries that we consider in the first group, Singapore is in the 8th place, and South Korea is 11th, China is 14th, Japan is 15th, India is 52nd, and Indonesia is 85th worldwide. Taiwan has not included in the list (World Intellectual Property Organization, Cornell University, INSEAD,2019: online resource).

## 2.1. The Developed Countries Which Applying Technology-intensive Production Systems

In the early 21st century, three of the world's five largest economies were in Asia, China and Japan, the second and third-largest economies, both specifically in East Asia (Silver,2019: online resource). What kind of economic development model did these developing countries follow in the 20th century? When did he start to be a major actor in the global division of labour? Except for China and Japan, which countries in the region are economically part of the global division of labour? It is necessary to start by answering these questions.

The best way to grow in developing countries is through imitation. Innovative growth follows growth for imitation. The main driving force of growth is innovation

(new services, new techniques, new technologies, new production processes). In his article named ‘‘Imitation: A catalyst for innovation and endogenous growth’’, Collins emphasized that the process that starts with imitation in the relationship between technological development and economic growth leads to innovation. He stated that the relationship between imitation, innovation and economic growth would contribute to effective industrial policies and the efficiency of R&D studies (Collins,2015:300). In the Howitt model developed by Aghion-Howitt (1992, 1998), it has emphasized that countries investing in new technologies will show equal growth and progress by influencing each other. Countries that do not invest in technologies and are far from imitation will not benefit from this technology transfer without technology investment. Therefore, technology investment and R & D studies are very important for the economic growth of countries (Howitt and Mayer-Foulkes,2002:2-3).

These countries, especially in the period after the Second World War, entered a painful transformation process with the effect of globalization and industrialization waves. Japan (the defeat of the Second World War), South Korea (Korean War), China (internal disturbances), India (internal disturbances), Taiwan (the ongoing struggle for independence with China), Singapore took advantage of the process. It became one of the countries with the best economy in the 21st century. These countries kept pace with globalization through imitation, later with education policies, R&D and innovation investments. They started to balance this factor's use in sectors with high productivity by reducing the use of factors in sectors with low productivity. They switched to technology-intensive production systems, reducing labour-intensive production. Thanks to the communication and communication networks, which are the most significant gains of globalization, they have become a part of political and economic developments. Although they displayed different ideologies and political views in the national context, they adopted a supportive and imitative attitude in the context of economy and technology. As a result, they are before us as actors that direct global politics and the global economy in the 21st century.

Under this title, the historical processes of the first group of sample countries, how they integrated into the global economic and political system, and the data obtained in the context of determining variables will be evaluated.

### 2.1.1. China

#### 2.1.1.1. Historical Process

The most important feature of Chinese civilization is that it seems to have no beginning. Rather than being a nation-state in history, it has always existed as a natural phenomenon (Kissinger,2015:25). Because its origins date back to before Christ. Two great empires emerged in BC; China and the Roman Empire (Roman 509 BC, China 221 BC) (Roskin,2014:506). China, which has a very ancient past, has some cultural and physical features that give this civilization superiority. While the Himalayas and the Tibetan plateau were among the physical causes of this specificity, Confucian thought and Buddhist teachings have identified as the cultural pillar of this situation. Even though its development in maritime technology dates back to very old centuries, Confucian principles prevented China from being colonial and expansionist. So much so that the Chinese people grew up believing that China was not a ‘‘great civilization’’, but ‘‘one civilization’’ on its own. China, which has limited communication with the outside, has gone through periods of isolation for many years. This situation does not mean that he does not know other countries; it knows many societies, especially its surroundings. While maintaining some trade relations with the Roman Empire through the Silk Road, it established close relations with countries such as Korea and Vietnam, Thailand and Burma. Nevertheless, because he saw himself as the ‘‘Middle Kingdom’’, that is, the ‘‘centre of the world’’, he would consider other societies as his successors (Pye, 1992:1161-1164).

China maintains its scientific, technological and economic superiority until the industrial revolution. It invented many important inventions such as paper, the compass, clock, gunpowder, paper money and rudder. They also invented the mines used for casting the iron before European countries (Acemoğlu and Robinson,2013:216). Until the industrial revolution, China had held the field in terms of the population, area size and commercial against many European countries. Since it has a self-sufficient system, its superior subjects were little known in the world, because it had little connection with the outside except for trade relations. Even though

China thought it had a role of superiority similar to America, it did not adopt a colonial and expansionist understanding as we have stated before. Therefore, it has not tried to spread its thoughts for centuries but instead opened its doors to those who want to know their thoughts and lifestyle. China, which has a unique understanding of sovereignty, could not follow technological innovations due to its limited foreign trade and closure (Fairbank and Goldman:2006:88-93). Rather, it did not admit that there were developments to follow. Because, looking at the historical process, China used coal as fuel long before the industrial revolution and invented a steam engine mechanism. Nevertheless, they did not make this useful on production systems. This situation is one of the main reasons why the industrial revolution has often mentioned in this thesis as a turning point. The industrial revolution in Britain was facilitated not only by production and steam engines but also by the emergence of many auxiliary factors. As a result; China, which has been the world's most glorious civilization and largest economy, far ahead of Europe for centuries, has lagged behind in comparison to western countries (Pomeranz,2000:60-63). In this process, European societies have gone far beyond the technologies, industrial methods and scientific discoveries of China. This process has gained momentum in many areas that have an impact on capital production (transportation; railway, steam power; production, new methods; production processes, Etc.). Despite this, there was no major decline in China's land, labour and import markets in the 18th and 19th centuries (Holcombe,2016:232-233). In this process, European societies have gone far beyond the technologies, industrial methods and scientific discoveries of China. This process has gained momentum in many areas that have an impact on capital production (transportation; railway, steam power; production, new methods; production processes, Etc.). In the 19th century, the reason for its decrease in world production was the industrializing economies and countries, but it has known that China kept its economic power. It has seen that these balances change in the next process. In the 20th century (1913), Europe and America's market share has increased due to the increasing industrialization, and this has undertaken 86% of the world's manufacturing. China can only make 3.6% of its production during this period (Bairoch,1982:294-297).

China, an important dominance figure in Asia at the end of the 17th century, did not welcome the nation-state processes brought about by the new world order. Especially in Chinese markets, free trade practices increased by the 18th century. Diplomatic developments also took place in this century, and Britain sent its first ambassador (Spence,1990:115). The envoy came with some gifts to show the West's technology, but even these gifts could not make China accept its technological and industrial backwardness. Based on this; at that time, China had a GNP of seven times the GDP of Britain and its economic power lay. High-profit trade and colonial approaches were against the Confucian teachings that had accepted for years. The Opium Wars took place as a result of the European states' desire to exist in Chinese ports and the ambassadorial demands of other countries that would reveal their diplomatic presence as a requirement of equal sovereign power. Opium wars can be regarded as a confrontation for China or acknowledgement of technological deficiency. As a result of the tension over Westerners' demand for the unrestricted opium trade, the Chinese coast has blockaded by Britain. Britain and other western powers' superiority in terms of naval technology has also revealed in this blockade. China's compromise to the Western powers was again a result of the Opium Wars. China's ongoing dynastic and Asian leadership position has replaced by searching for repositioning and role in the new international system. In this, it knew that he had to provide industrial, scientific and technological development and keep his economy and trade in this balance (Fairbank and Goldman,2006:198-201).

This historical process is of great importance in taking China as a model country in terms of economic development and developing technology in production processes, which are the main variables of this thesis. As a result of this country's inability to follow technological and industrial developments, which has signed many important inventions and has great economic power, it has become difficult to integrate into the international system and face various problems inside and outside the country.

By the 19th century, it found itself in domestic turbulence for three main reasons. The decline of the empire started with this domestic turbulence. One of these reasons is that the western states gained commercial sovereignty and privileges in Chinese ports due to the Opium wars, while another important reason was Russia's

expansionist policies. Since Russia is superior to China militarily, the situation could have caused China's land loss. Finally, this country's regional and international role, known as the ‘‘Will of the Sky’’, was that not only the west and Russia wanted but also Japan. Japan wants to assume the leadership of the international order in East Asia. In the face of these aggressive behaviours of Western countries, Russia and Japan, some rulers of China have issued statements. The point to be underlined in these papers is; It is the need for China to develop its technological capabilities in order to improve itself. In contrast, the Chinese people, who have a long-established legacy and teachings, rejected technological and industrial innovations from outside. It has thought that this was at first contrary to Confucian thought, and then a western-style modernization would damage Chinese culture. Therefore, it has only adopted the attitude of keeping up with political innovations. In the 1860s, the rulers of China (leader LI) issued some statements highlighting many industrial and technological deficiencies such as firearms and steamships and emphasized the need for compromise with the west (Kissinger,2015:87-107). In light of this information, it has seen that China's opening to the outside world was a necessity, and as a result of a process of domestic turbulence, it was imperative. China had to take the West's technology and industrial knowledge without moving away from its traditional structure.

A reformist process that lasted for a hundred days began in 1898, and the emperor published many statements about the planned reforms in the country. Nevertheless, instead of implementing these reforms, Chinese elites and rulers dealt a blow to the emperor. As a result of the events that continued until 1911, the dynasty ended, and between 1916 and 1927, a period of significant disintegration occurred in China. The ‘‘Twenty-One Demand’’ planned by Japan in 1915 on Chinese territory resulted in the Chinese people's uprising and protests. During the years of the First World War, as we stated in the first part, industrialization and production shifted to the arms industry, in China, which was seeking technology and reform, therefore, in terms of defence and preserving its existence, it shelved these non-applicable reform packages for a while (Roskin,2014:514).

The fact that nationalist and communist movements found ground in China can also be considered in this historical context, while one part of the population was

composed of the elite educated in the west, while another section was living in the village, less educated and interested in agriculture. Nationalist elites taking over the government and going to war with Japan and not making remedial policies in most of the population, it caused the peasant people to act. China faced both internal and external problems in this process, and it caused the Manchuria region to come under Japanese rule in 1931 (Spence,1990:272-273). Then, in 1937, Japan, one of the aggressive states of the period and under the influence of Nationalist movements, began to occupy the rest of China. In the bipolar world order mentioned in the first chapter, one of the main reasons why China and Russia are on the communist side is these foreign occupations. Germany's invasion of Russia and Japan's occupation of China is among the best answers to this situation (Roskin,2014:514). The fundamental question to be asked here is; how did a communist-influenced China become part of the international capitalist system? What method did he follow to help his country develop and regain its economic glory? While seeking answers to these questions, we can see how globalization and industrialization influenced the world order and its spread in the Chinese example. In fact, we can see this reformist process and change that China has followed on the basis of it becoming an important actor on global power balances.

After the Second World War, China had witnessed clashes between the nationalist and communist people within itself. Nationalist forces were considerably more extensive and armed than communist forces. But as high inflation had a negative impact on the economy, nationalist groups lost this power. And these conflicts ended with the gain of the Communist group (Lary,2015:8-30). The Chinese communists' goal of modern industrialization played an essential role in integrating into the capitalist world system.

With the establishment of the People's Republic of China in 1949, it has seen that bilateral dialogues and mutual relations started in the international system. Again, with this new government, a modernization wind started to blow. In the next title, the integration of the People's Republic of China into the international system after the Second World War, its compliance with the waves of globalization and industrialization, and its rise to a global actor's position will be discussed.

### 2.1.1.2. Integration and Development to the International Economic System

Since the process that started with the Opium Wars, China has tried to make reforms in many areas, especially in the field of democracy, economy, technology, law and military fields. Although its traditionalist structure opposes the implementation of these reforms, it has attempted to regain its global power after the May Fourth Movement. The 4th of May movement is the search for "newness" in the fields of science, technology and democracy in the country. In addition to the ongoing internal conflicts of the nationalist and communist sections, Japan seized China's agricultural lands during the Second World War and took over China's industry, which possessed limited resources. When the ruling Nationalist Chinese government lost control of the coastal areas, the economy was driven into an impasse and hyperinflation ensued. In this case, as we mentioned before, it resulted in the communist side/class taking over. The People's Republic of China, founded by Mao Zedong in Tiananmen Square on October 1, 1949, soon found itself in search of a position. Knowing that it had to choose a pole due to the Korean war, China sided with the Soviets. This position taken by the cold war in the bipolar world order opened the doors to the Soviet aid campaign called ‘‘the greatest technology transfer in history’’ to China (Holcombe,2016:304-360).

Although Mao appears to lead a peasant revolution in China, he actually initiated modern socialist industrialization by taking the Soviet model as an example. In 1953, the first ‘‘Five-Year Development Plan’’ has put into practice. However, Mao aimed for the people to develop voluntarily instead of industrialization, technology and economic development that came with these plans. For this purpose, people's communes have established, and economies of scale practice have initiated in both the army and industries. Although the Great Leap Plan was announced and tried to be implemented in 1958, the expected success could not be achieved as a result of lack of education, inexperience and planning. In the months following this plan, the economic recovery plans have replaced by a famine that would last until 1962. According to estimates, at least fifteen million people died of famine between 1958 and 1962, when

the Great Leap was implemented. Nevertheless, Mao did not admit that his policies had failed (Eberstadt,1997: online resource). Although he left the government leadership after a while, he remained an important figure as the leader of the communist party. He used this situation from time to time, starting a Cultural Revolution in 1966 that called students to the streets (Kissinger,2015:244-246). In the cultural revolution, unlike capitalism, state ownership and control of industry are aimed. Instead of capitalists assuming control of industry in capitalist systems, in the case of China, the state organs undertook the control of industry and economic development (Robinson,1968:214-215). As a result of this revolution, government leaders were on trial and sentenced. Under the name of the Freedom Armies of the People, an order has created in which the Chinese students provided order. If we look at the first decade of the People's Republic of China, two important initiatives and their unsuccessful results have revealed. While the Great Leap Plan gave way to famine in the expected significant economic breakthroughs in industry and agriculture (Spence,1990:591-592), the Cultural Revolution led to a leadership race within the country and negatively affected China's development in the process.

China, which was in the eastern block for the first time in the bipolar order of the international system, changed its attitude with Stalin's death. In the early 1960s, the relationship between the Soviets and China had come to the extent of being cut off. As a natural consequence of this situation, support and aid for China has cut. In fact, in the war between China and India in 1962, the Soviet Union sided with India. Towards the end of the 1960s, when the tension between the Soviets and China increased, Chinese leaders began to improve their relations with America (Yahuda,2011:5-6). However, America was a party to the war in Vietnam during this period. It was not easy to improve relations, but if it improved, China would strengthen its hand in the international competitive environment and reduce the US influence in the Vietnam War. Ping pong diplomacy in 1971 was a positive start in American and Chinese relations (Kissinger,2015: 292-293). During these times, China's becoming a permanent member of the United Nations Security Council strengthened its role in the international arena (Ünay,2015:263).

In the international system after the Second World War, bipolarity has mentioned continuously. Nevertheless, China sought to continue to exist as the third power, favouring its old power and new manoeuvres. Although this thesis has evaluated the economy and production processes, these political developments have created effects that cannot be ignored. As can be seen in the fourth part of the thesis, these political developments provide the interdependence that forms the economy's basis. Because the developments in China and East Asian diplomacy; It has shaped by the hostility between the USA and the Soviets (Kissinger,2015:193).

During the process that China relied on the Soviets for industrialization and economic development, it caused a great deal of damage to natural energy resources and the environment. Until a consensus has reached with America in the 1970s, this issue has not emphasized. The United Nations meeting, to which China sent its first representative, was also held to mobilize countries on international environmental construction (Gülmez et. al.,2018:76-79).

Under the title of green economies in the fourth chapter, we will discuss China's plans for industrialisation, the environmental damage it has created in the first 20 years, and the effects of industrialisation efforts nowadays. It is worth mentioning here, too, that China's reforms to become an economic and technological power continued intensively from the years of its establishment to the 1970s. Besides, China tried to maintain good relations with Soviet Russia in its first two decades and tried to establish relations with Asian, African and Latin American countries and supported the freedom movements in these regions. The underlying reason for this is to break the political isolation and create economic ties on these regions. According to the Chinese diplomacy understanding of the period, the world was in three parts. The two superpowers, the USA and the Soviet Union, formed the first world; countries with developed economies such as Japan and Western Europe, but were not aggressive the second world; other countries with underdeveloped economies led by China made up the third world (Yu,1977:1039). With the death of Leader Mao, this understanding gradually lost its importance.

In China, the important effects of the 1970s on industrialization and globalization have witnessed. It had emphasized that they should realize the ‘‘Quadruple Modernization’’, which was designed before the cultural revolution but was far from the focal points due to internal conflicts, in the 20th century. This modernization plan aims to have a significant share of the national economy in the world with the reforms to be made in the national defence, industry, science-technology and agriculture sectors (Kissinger,2015:443). Continuous efforts have made for this purpose, but power struggles for the country’s leadership were an essential obstacle to the success of what has done. In 1978, a new era started for China under the leadership of Deng Xiaoping. Deng’s reforms have made a great contribution to placing a communist order in a capitalist framework. Because Deng was aware that the public was left without education as a result of the call for schools to be dropped during the Cultural Revolution, he thought this was the biggest obstacle to economic progress (Sepence,1990:689-690). China, like other communist countries, continued to work with a central planning system. Deng started the fire of change in the villages in this uneducated and reform-free society. The leader, who tried a production model in China's villages, implemented this model in all of China after the efficiency he received. These practices were far from the egalitarian economy understanding Mao applied; more importantly, they resulted in high productivity. The third world leadership policy, frequently voiced by Mao, was replaced by transferring knowledge and technology from the west. In the modernization of China, the loans given by the IMF and the World Bank under Mao have used (Üngör,2009:27-38).

Studying Deng’s views in detail will help us understand how China has integrated into the global economic system. Deng disagreed by means of Hua Guofeng, one of the leaders of the day. Hua emphasized the necessity of implementing a Soviet modelled production strategy, realizing this with five-year plans and giving priority to heavy industry products. He also underlined the necessity of using mechanization and artificial fertilizers in agriculture. Taking farmers' share of production, the primary production of consumer goods, and sending students to the west were some of them. Aware that no progress can be made in technology and industrialization if education and training have not given importance, Deng had developed special plans in line with

his goals. Deng, who started a voluntary modernization process by encouraging the people without breaking with the traditionalist spirit of China, did not take into account that this process of economic liberalization would bring western-style pluralist democracy. He thought that a multi-party process would again cause the internal disorder (Kissinger, 2015:404-414).

Another political turning point of the 1970s is the Third Vietnam war. In 1979, China was disturbed by Vietnam's invasion of Cambodia and invaded Vietnam (Jian,1995:385). This situation can be perceived as an effort to show China's regional presence and power once again. Because, after his withdrawal from Vietnam, he tried to form a regional coalition against the Soviets and Vietnam, that is, the communist bloc (Kissinger:2015:427).

The trade agreement with Japan at the end of the 70's also benefited both countries in terms of regional peace and interdependence. With this $ 60 billion trade agreement, the doors of foreign investment in China were opened (Aljazeera Türk,2014: online resource).

While it was observed that the industry and factories controlled by the state slowed down the development in the 1980s, it was emphasized that free enterprises should be allowed. Considering the international system under the conditions of the period, even this development was among the best indicators that China followed the international economy better than before. Because, in 1973 the Bretton Woods System collapsed and many economic powers moved away from Keynesian economic practices and adopted neoliberal practices as a principle. China's allowing free enterprise was also a requirement of harmony with this international political system.

While China attaches importance to being in agreement with the USA in its foreign policy in the 1980s, it has followed policies that are equally independent from the Soviet Union. In this process, Taiwan was an important issue that China sees as its internal issue and which has considered an example country in this thesis, emphasized by the USA and China (Yahuda,2011:14). Taiwan was one of the minor obstacles to China's ability to act independently in the global division of labour and recover fully economically and militarily. Maintaining relations with the USA and national interests

were the main reasons underlying China's soft attitude towards Taiwan. In these years, it strengthened the ‘‘third world’’ discourse and its relations with the countries that it calls the third world. In every international political event, China has pursued its efforts to cast itself a role on them (its superpowers) in a bipolar world (Harris and Worden,1986:6-7).

In 1985, China changed its attitude again and became closer to the Soviet Union. They signed a bilateral trade and economic cooperation agreement. As mentioned before, this country, working with central planning in the communist state model, sought to exhibit a development model without breaking away from capitalism and socialism. In accordance with Keynesian practices, the state also adopted free-market rules without breaking away from interventionist economic systems (Kissinger,2015:477-487). It opened its doors to foreign investment by establishing special economic zones. Joining the IMF and the World Bank in 1980 had a significant impact on this (Kim,2016:222). In light of this information, we can say that the important architect of China's transformation is Deng and Deng's reform packages. As a result of these reform packages, a system away from central control, bringing more freedom and responsibility to the people, was created. The positive results also brought some problems with it, while the price reform caused high inflation, the students sent abroad returned to the country with different opinions. Economic reforms revealed the need for permanent reforms in the political structure as well. While these were happening in China, the world was watching the last years of the Cold War. Gorbachev's glasnost and perestroika reforms could not provide the efficiency that the communist bloc would take as an example (Yanık,2013:221).

Events in Tiananmen Square caused China to face international backlash. In fact, it was not possible for the international system to change this perception until 2001. The Tiananmen Events emerged as a reaction of a group of students to inflation, censorship, corruption, and the role of elderly individuals at the state level. The suppression of the events that spread to many regions of the country with the combination of different groups and the use of power in this process has written as a negative value for China's rise in the global system (Holcombe,2016:373). Relations with America, the victor of the Cold War, have come to a breakaway point.

Nevertheless, continued economic development depended on the continuation of mutual relations. China based its new strategic plans on national interests, not on ideological structures. China took the necessary steps to maintain relations. This situation has been one of the most critical proofs that China has fully adapted to the global political system (Kissinger,2015:514).

In the 90s, it has seen that many reforms yielded results, and it has revealed that the people wanted more. The People's Republic of China, which adopts a socialist understanding of democracy, is aware of the need for reform in its industries that are still under state control and is aware that it will not realize these reforms without foreign investment. For this, in 1993, the "Companies Law" was imposed. While this law paved the way for foreign investment, it made significant contributions to the free market economy. / Regulating the economy in the 1990s, legal arrangements have been made in many subjects to prevent unfair competition, Etc. (Çalık,2011:193-195). As a result, although China has a communist rule, it has adopted a free market economy. If we take it in more detail; In 1993, Jiang Zemin's leadership begins. During the Jiang era, many difficulties have experienced, notably the Taiwan Strait Crisis. During this leadership period, it has seen that reform programs accelerated, some legislative changes have made, and both economic and financial power gained in the global division of labour (Dittmer,2000:276-278).

In the 90's, China's economic growth never fell below 7%. China left the 1997-98 Asian Economic Crisis with the least loss, thanks to its financial policies and capital control measures. In this case, it had a positive effect on his regional leadership role. It helped many economies around him with his own model rather than Soviet-based economic models or western-based models (Kissinger,2015:574-575).

The resultant high growth rate of the reformist movements in China in the 1990s is closely related to the third industrial revolution. The world, which has become a global village due to modern technologies, has become interdependent not only in countries, regions but also in economies. Investing in banks and treasury bills of foreign banks has become much easier and more reliable than before. The importance of the computers, internet systems, phones and transportation networks used cannot be

nonignorable in the increase in import and export rates and banking systems (Janicke and Jacop,2013:47-53).

The main subject of this thesis is how an industrial revolution under state control took place in China? To understand the answer to this question, we can once again highlight the three milestones. The first of these has considered being the reforms implemented by Deng in 1978. As a result of these reforms, the domestic market has mobilized, and industrial methods have used for mass production. Private economic enterprise models initiated in the villages also contributed significantly to the process. The second turning point was the Tiananmen events. As a result of the events, the Chinese government used the rural income for urban industrial development plans. The 'labour-intensive growth model' has started to share its power with an 'investment intensive growth model' (Ünay,2015:268). The third turning point occurred in 2001. China has accepted as a member of the World Trade Organization in 2001, with which it has been negotiating membership for 15 years, and at the same time, it has entitled to host the Olympic games to be held in 2008. As a result of these two situations in 2001, it has seen that it opened its doors to the world completely. Especially, after China acceded to the WTO in 2001, it has seen that its economic operations have been brought more in line with international norms (Lam,2006:105,168). At the same time, it made structural changes in its economic order and focused its economy on a growth target for export and investment (Ünay,2015:268). In light of these developments, an industrial revolution took place under state control.

By the 2000s, it has revealed by numerical data that China is one of the main actors of the changing international economic cooperation. Internet usage rate, telephone ownership rate, television ownership rate, automobile production rate gradually increased (Holcombe,2016:370). GNP also had a continually rising line with these developments. Nevertheless, there is a point that should not be overlooked here; China had given foreign investment too many opportunities in the local economy. In 2003, the ratio of foreign investments in China to GNP was around 35%. Most of the profit to be obtained from export revenues, which has an essential share in its economy, was left to foreign investors (Lampton,2008:84-85). Another point to note is that 80% of China's foreign investors are Chinese (Chinese living in other countries)

(Wank,2001:228-229). They received American dollars with new investments made by the state and cash reserves obtained from these foreign investments. China had dollar reserves to meet US foreign debt in the 2008 global crisis (Kissinger,2015:575). In order to prevent the effects of the crisis, in 2008, China bought the US debt bonds and became the country to which the US government owed the most (Bradsher,2009: online resource). It is worth mentioning these foreign investments that contribute to China's dollar reserve. There were three Chinese regions that foreign investors particularly preferred. These; Hong Kong, Singapore and Taiwan. Taiwan and Singapore are exemplary countries in this thesis. The reason Hong Kong was not taken is that it returned to Chinese control in 1997. Therefore, when the region with the highest foreign investment came under the control of China, it both provided a direct profit to the Chinese economy and caused the importance of Taiwan and Singapore to increase. Foreign investors focused their attention on Taiwan and Singapore. These countries, which will be discussed in detail in the further, also play an essential role in the new international business division, although not as much as China (Holcombe,2016:377).

In the 2000s, Hu Jintao was the president of China, and Wen Jiabao was the prime minister. Hu made promises on democratization and legality during his leadership period until 2013. Since these two leaders took office by witnessing many historical events in domestic affairs, they knew the needs of the country, so they formed policies according to these needs. They have taken important initiatives in terms of uninterrupted economic growth and entering the international order. They made significant progress in terms of technology, science and education. Aware that proximity to raw materials is as important as technology and innovation, leaders implemented policies that embraced interdependence and aimed at good relationships (Westgarth,2011:12-18).

The opening of the Olympic Games in 2008 was the announcement of China's presence as an international superpower to the world. The Mortgage Crisis of 2008 had a global impact, and the American fighting in Afghanistan had adverse effects; China's purchase of American debt bonds is a turning point in the international system (Brown,2011: XV-XVI).

In the process until 2008, China's integration into the international system has been in the light of these political and economic developments. As can be easily understood from the information given above, China has made reforms to make its economic institutions inclusive. However, he was unable to transfer these reforms to his political institutions. The People's Republic of China, which is still under the communist party rule, achieved an economic growth due to foreign technology imports, foreign investments, local agro-industry incentives and industrial development plans. However, the sustainability of growth faces some problems; The most important of these is the uncontrolled consumption of natural resources. Increasing economic inequality and widespread corruption within the country are other essential problems faced by the country. At the root of these problems are the attitudes of exploitative political institutions (party-centred administration). The more inclusive the political institutions of a country, the more inclusive and organized its economic institutions. Ensuring the balance between these two situations is very important for the sustainability of economic growth (Acemoğlu and Robinson,2013:419).

In the next title, the areas where China's imported technology and science are useful, especially production systems, will be discussed. The effects of technology-intensive production on economic growth and development will be evaluated in the context of determining variables.

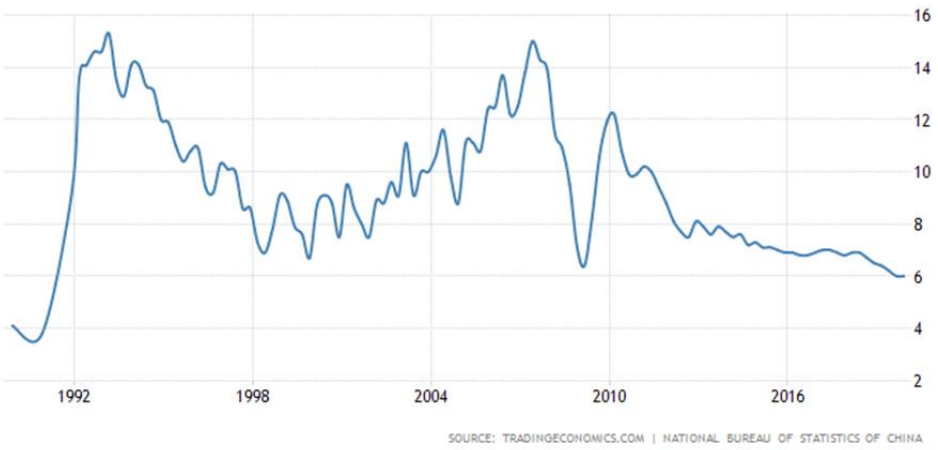
### 2.1.1.3. Evaluation Due to Independent Variables;

China's economic growth rates and development have risen rapidly in decades and have become one of the world’s largest economic powers. In the report published by the World Bank China Office in 2009, the views that China will continue this growth and that it will be the world's largest economy between 2020 and 2030 have discussed with GDP ratio forecasts and growth forecasts. These predictions are that the Chinese economy will be larger than the US economy in 2020, even if China’s GDP rates are one-fourth of the USA. In these evaluations, growth speed and growth rates have presented in the context of production (supply) and expenditure/consumption (demand) data. Especially after the 2008 global crisis, the government started to work on some variables that cause an imbalance in growth.

Foremost among these is making investments more industry-oriented (Kuijs, World Bank Report, 2009: online resource). Many variables such as China's GDP rates, import and export volume will be discussed in order to know and evaluate whether these predictions are realized.

The focus in this thesis is on what kind of a sectoral distribution occurs on the basis of economic growth. For this reason, the ratio of industrial and technology-intensive sectors to all sectors will be discussed and the positive effect of technology-intensive production on economic growth will be revealed.

**Graph 2.1. China GDP Growth Annual**




**Source:** "China GDP Growth Annual", **TradingEconomics** (available), https://tradingeconomics.com/china/gdp-growth-annual , October 10, 2020.

China's population is 1,393 billion (WB: Population, Total- China,2018), with GDP rates decreasing depending on this population density. In the graph (Graph 2.1) given above, the rise of China's GDP values in the 1990s and the rise after the 2008 crisis draw attention. The technology-intensive production and financial reform policies implemented in these periods of rapid rise have an essential effect. Looking at these data, the rise from 2003 to the global crisis and the decline caused by the effects after the 1997 Asian Crisis is remarkable. Looking at China's growth rates between 2003 and 2008, the productive results of macroeconomic management and the positive international impression created paved the way for financial investments. The fluctuation observed after 2008 resulted from policies that turned the effects of the global crisis in its favour. After the economic crisis in 2008, although China pays

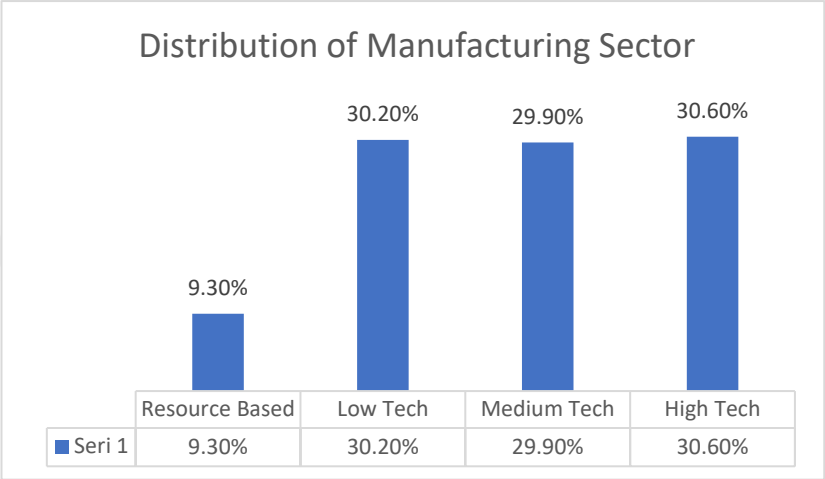
attention to maintain its national independence over monetary policies and exchange rates; It also followed clear policies regarding the entry of free capital into its country, import and export volume (Ünay,2015:266). China has analysed the imbalances in the path of economic growth and the post-crisis period, investments have been shifted significantly to industrial sectors (Kuijs, World Bank,2009: online resource). Industrial investments include high-tech industries and technology-intensive production. The fact that it produces and imports high value-added products due to technology-intensive production also has positive results in terms of economic growth. Research and development investments and innovation capacities are of great importance in producing high value-added products and production systems operating in a technology-intensive system. In this context, looking at China's R&D investments and innovation investments, it was 0.940% of the GDP in 2000, this rate has increased to 1.446% in 2008 and 2.186% in 2018. In 2018, China allocated 526,063 million dollars for R&D investments (OECD, Gross domestic spending on R&D, 2019: online resource). R&D investments are an important variable in terms of China's place in the global economy and its position in the context of the new international division of labour. For this purpose, China has established many sciences, technology and innovation foundations that will be effective in increasing its competitiveness. Increasing its R&D investments every year, China has set many goals to develop science and technology within the scope of the 13th Five-Year Plan and the 13th Five-Year Scientific Plan, and has made policies for their implementation (OECD: G20 Innovation Report 2016: online resource). Within the scope of these policies, it launched a national strategy that supports innovation and entrepreneurship in 2015, and many SMEs benefited from these incentives and supports. China, which has received many foreign investments due to the cheap cost of its workforce, started the "Made in China 2015" project in order to change the sustainability of this situation and China's perception based on ‘‘cheap products and poor-quality production’’. This project aims not to miss the next production revolution and be among the important actors of global production with 30 years of continuity. The project prepared by the Ministry of Information Technologies in 2015 is a roadmap for China's industrial modernization through ten key sectors. These sectors are; new information technologies, numerical control tools, aviation equipment, high-tech ships, new energy

tools (electricity/biogas), medical devices and agricultural machinery on the basis of energy-saving (Made In China 2025: Backgrounder report, 2018: online resource). Within the scope of this project, while it is aimed to transform China into a production base, studies are carried out to create the necessary technological infrastructure for smart production products. This attitude is welcomed in the international system, provided that the global economy abides by China's principles and rules of open markets and fair competition. However, Chinese leaders are implementing policies that violate these competition principles in the domestic market. The main purpose of this is to place Chinese technology companies instead of foreign investments and companies in the country and to ensure that these companies take place in the international market (Wübbeke et. al.,2016:76). With this plan, China aimed to replace low value-added labour-intensive production by high-value-added innovation and technology-intensive industries, resulting in an increase in economic growth and development rates. Another important point of this plan is that it aims to prevent falling into the middle-income trap, based on the book ‘‘An East Asian Renaissance’’ published by Word Bank in 2007 (Gill and Kharas,2007:3-7). The Ministry of Information and Technology has established National S&T Information systems in order to easily access reports and data on R&D projects. In the G20 Innovation Report, twelve sectoral goals of China have been defined with these developments. Among these are ICT, robotics, agriculture, livestock, biological medicine and medical equipment, marine, railway equipment, clean energy, and producing new products. Increasing product quality for a sustainable environment and optimizing the industrial structure are among the main goals. For the industrialization and digitalization of important sectors of the economy, interconnected and remotely controlled systems have started to be implemented. The 'internet plus' initiative has been implemented for this industrial ecosystem since 2015 (OECD, G20 Innovation Report 2016 2016: online resource).

In the ‘‘Competitive Industry Performance Index 2020: Country Profiles’’ report published by UNIDO in 2020, it is seen that China’s GDP rate reached 13,446 billion / 9,419 per capita. It is announced that manufacturing value-added is 3,892 billion / 2,726 per capita and manufacturing exports is 2,405 billion / 1,685 per capita.

In this report, the sectoral distribution of manufacturing is shown in the graphic (Graph 2.2) below by dividing it into percentages (UNIDO, Competitive Industrial Performance Report 2020:76).

**Graph 2.2. China' Distribution of the Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO,** (available) https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B, October 10.2020

**Table 2.1. China' Performance Indexes**

| Performance indexes | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 2 | 0.372 | 0.067 | 2 → | 1990 2018 |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 35 | 0.104 | 0.076 | 36 | |
| Share of Manufacturing Value Added in GDP Index | 4 | 0.819 | 0.343 | 4 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 29 | 0.515 | 0.302 | 30 | |
| Industrialization Intensity Index | 7 | 0.667 | 0.323 | 7 | |
| Share of World Manufacturing Value Added Index | 1 | 1.000 | 0.023 | 1 | |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 58 | 0.046 | 0.103 | 59 | |
| Share of Manufacturing Exports in Total Exports Index | 4 | 0.989 | 0.631 | 5 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 28 | 0.671 | 0.397 | 28 | |
| Index Industrial Export Quality Index | 12 | 0.830 | 0.514 | 12 | |
| Share in World Manufacturing Export Index | 1 | 1.000 | 0.039 | 1 | |

1st DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
2nd DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
3rd DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO,** (available) https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B, October 10.2020

### 2.1.2. Japan

#### 2.1.2.1. Historical Process

The emergence of the Japanese people and the origins of the Japanese nation date back to before Christ. There are ceramics and archaeological remains from 11000 BC, but it took time to reveal its existence as a country (Brown,1993: XVIII). Japan consists of a combination of four major islands. These islands are Hokkaido, Honşu, Shikoku and Kyuşu. The geographical proximity of Japan and Korea has not only interacted but also caused migration from the Korean peninsula to Japan. The impact of the kingdoms living in the Korean peninsula and immigration from this region increased in the 300s BC. These influences are at the root of many cultural and linguistic partnerships. The first written source on Japan has compiled in China (late 3rd century) (Holcombe,2016:111-116-145-152). In light of this information, it has known that Japan began to be ruled by Cinmu, the Sun Goddess, in 660 BC. 300 BC and AD. The period between 300 is called the Yayoi period. In this century, Japan has made up of small communities piecemeal. In the following centuries, there has the Bakufu system in Japan, where a feudal understanding of government dominated by military rulers. In this system, there are military leaders named Shogun. On the other hand, there is also a sovereign in the capital Kyoto (Omms,2009:86-88). As a result of the Portuguese attack on the islands in 1542, Japan realized its lack of technology. However, the Japanese produced similar weapons in a short time. (Diamond,2019:119). The role of the military sector in administration has increased depending on the military power (weapon power) it has. Japan was ruled by the military rule until the end of the 16th century. In the 16th century, the country was gathered under a single sovereignty. During the period of more than 250 years when the Tokugawa family was in power, Japan adopted a management approach that strictly implements the rules of closed feudalism. Two hundred and seventy-six Daimyo regions and each region has

an independent government, money and army within itself. All of them accepted the sovereignty of the Tokugawa Shogun. While this system, which is self-enclosed and has strict rules, increases its internal security; It has strengthened the economic, political and physical authority (Hunter,2002:17-22). Contrary to popular belief, in this isolation period, when it did not establish relations with other countries other than Korea and China, Japan gave importance to its technological progress. The best examples of these are the use of firearms, the use of pocket watches in Japan before the United States, the following of western developments in military and medical terms, and the translation of Dutch books (Holcombe,2016:220). If this process is discussed in more detail; Japan is located in a region with extensive agricultural lands. In fact, commercial development and use of money are based on the rice produced in these lands (Farris,1998:22-23). Since the brass and metal processing subjects were vital in ancient times, Japan gave importance to sea transportation for this need and this situation contributed to its regional development (Farris,2006:237). Until the 7th century, there are many products imported from Korea, especially those made of iron and bronze. It is seen that these commercial relations were reflected in education over time, and Korea and Japan have interacted in terms of literacy (Holcombe,2016:113). The 5th century to the 7th century is called the Yamato period (Omms,2009:1). Like China, Japan adopted the teachings of Buddhism and Confucius during this period. So much so that, in the 7th century, they created a 17-item constitution based on these teachings (Brown,1993:382). On the other hand, Japan is very close to China as well as Korea in terms of location, so it has been very influenced by Chinese culture (Jansen, 2014:4).

Japanese historians treat Japan in three periods; They call the period between the 16th and 19th centuries as ‘New’ *(kinsei)*, the period after the mid-19th century as ‘Modern’ *(kindai)*, and the 20th century as ‘Contemporary’ *(gendai)* (Hunter,2002:10). In this period referred to as "new", it is seen that Japan is a self-enclosed, self-sufficient country. The wet rice used has an important place in the continuity of the country's economy (Omms,2009:108). But they do not have resources in terms of raw materials that can be used in modern industrial areas. At that time, they had great success in silver production, and even silver, which was used as currency between China and

Japan, had significant contributions to the Japanese economy (Brown,1993:434-435). In order to keep the classes under control, the daimyo was forced to stay in Edo (Tokyo), which created a market and mass production culture in Japan. Mass production methods have been applied to meet the needs of elite classes such as nutrition, accommodation and clothing at the same time. Especially in the 18th century, it is seen that technology and production increased, national income per capita increased, and commercial activities shifted from the centre to the periphery (provinces). The people in the provinces started to derive their income from the industries established in the provinces (alcohol, iron production, textile production, soy sauce production and ceramic production, Etc.). (Farris, 2009:195-196). These are a preliminary preparation for the industrial revolution and mechanization of the 19th century (Holcombe,2016:225). Throughout this process, they did not want to engage with westerners in search of ports in the East Asian seas, as this was seen as a constant threat to the establishment of political authority (Only limited trade relations continued with the Dutch in a harbour surrounded by fences). The Tokugawa Shogunate administration, which started in the 16th century, faced some problems in the second half of the 19th century. The most important of these is the deterioration of social order and the invisible difference between class systems, the difficulty of trade based on rice, the Western demands for privilege overseas in this century, the pressure to use Japanese ports. The political power race between the government and the Bakufu system in the interior and the pressures experienced outside ended in 1868. The Meiji restoration took place in 1868, and the winner of the civil war was the sovereign. This situation brought the end of the Bakufu system and shoguns (Hunter,2002:19-25). With the Japanese Meiji restoration, which has been managed with a dual system for centuries, its management approach has changed, and it has continued to work on two primary goals. The first of these goals is to transform into modern industrial society; The second is that international agreements made against the principle of equality in the international system are voided. Meiji restoration; Japan's opening to the West has opened the doors of a ‘‘modern’’ era, in which it made its first international agreement with America and new policies based on its aims were implemented. The Meiji restoration and the Meiji period (1868-1917) are also the most important steps in the

150-year radical transformation that has survived to the present day (Garon,1987:10-20).

The Meiji Restoration enabled Japan to modernize and adapt to the international system. The changes carried out by a group of elderly statesmen have eliminated Japan's obstacles to becoming a central nation-state. If the innovations brought by the process are discussed, at the beginning of these; National anthem of Japan (1870's), Japanese national writing language (1872), transition to central government, compulsory military service (1873), railway construction (1870's), making education compulsory (1872), publication of the first newspaper (1871) (Holcombe,2016:255-266).

The first political parties were established in the 1880s, and European constitutional models were examined for a western-style constitution. A modern western-style assembly has entered into force, consisting of the elected and a cabinet to balance them. The Meiji Constitution, which has prepared in 1889, was put into effect (Jansen,2002:414). These developments have significant effects directly or indirectly on the industrialization of Japan. New factories have been established with technological equipment purchased from the west, and experts who can operate this equipment have been brought in. In this industrialization wave, it would be useful to highlight some political developments with great financial returns (Low,2005:1-9). Korea was an issue of conflict between China and Japan during these developments. In 1876, an agreement was signed between China and Japan regarding their acceptance of Korea as an independent country. (Kanghwa Agreement). However, China intervened in Korea from time to time, as a result of these interventions, both Chinese and Japanese soldiers were in Korea. As a result of peace agreements and reconciliations, there was a religious revolt within Korea, and Korea sought help from China. On the other hand, Japan declared war on the Chinese forces in Korea to show its regional dominance and power and won. As a result of this victory, China had to leave Taiwan to Japan and paid a large amount of war reparations to Japan. With this war compensation received from China, Japan accelerated its technological and economic investments and accelerated the industrialization wave (Holcombe,2016:250).

The success of Meiji restoration modernization, especially in terms of economy and industry, is based on two pillars. The first of these is that Japan has a good imitation capability and, thanks to this ability to imitate, imitates the modern military power of the west. Secondly, this is the realization that he must have a modern economy for military power and industrialization. For these two bases, policies that prevent borrowing from foreign countries have been adopted, and efforts have been made to create the national economy. The determination of the new currency, the transition to the modern banking system, the establishment of the central bank were among the most essential building blocks of the national economy. Japan was aware that economic growth was not just about creating a national economy, but the need for a mechanized industry for economic growth. Although the idea of establishing factories with private incentives was far from the Japanese people, many state-sponsored factories were established. The foundations of two important brands known today and used all over the world were laid during this Meiji restoration period; Toshiba and Nikon. These two factories were established to serve the Meiji army. In the following process, Japanese companies such as Mitsubishi, Yasuda, Sumitomo, Mitsui emerged (zaibatsu). These companies competed among themselves instead of monopolizing a sector and had positive effects on the country's industrialization and economy (Garon,1987).

Demonstrating its regional power in the war with China in 1895, Japan won the war with Russia at the beginning of the 20th century. As the only industrializing country outside the West, it has shown its power in the region and the international system and has been freed from the obligations of agreements that are against the principle of equality. East Asian countries have started to take the Japanese model as an example in terms of technology and modernization and to send students to Japan (Jansen,2002:477-478,709).

The extreme imitation and openness to western knowledge applied in the early years of the Meiji restoration contradicted the Japanese people's nationalist sentiments after a while, and the Japanese administration shaped this knowledge from the west according to its own beliefs and ways of life, especially the Confucian teachings. Continuing with the awareness of national identity, this modernization process reached

its peak in WW1. The second important step following modernization was the democratization process. Japan realized this process in the Taisho period after Meiji's death in 1912. In this process known as ‘‘Taisho Democracy’’, Japan switched to a multi-party parliamentary system of government. The point to note here is that this democracy was realized as a result of the waves of globalization that we dwell on in the introduction of the thesis (Garon,1987:11,55). From a regional perspective, while we see the effects of this wave of globalization in the May 4 events in China, Tasio democracy made these effects visible to us in Japan (Academiachina,2020: online resource).

WWI has created a great opportunity for Japan to open up to new markets. Western states and the USA could not offer products to the market due to the war, or they shifted their production to the arms and defence industry for a while. As a result, Japan's competitor in the market has decreased (Crawcour,1997:52). And export rates tripled during the war. Its GNP has increased by 9% each year (Holcombe,2016:289). But by the end of the war, its international rivals returned to the market, causing many companies to be negatively hit and the Japanese economy was tied oneself up in knots (Jansen,2002:532). Many banks and businesses in Japan collapsed as a result of the decrease in the production of agricultural products, the situation of cheap workers in the textile industry and the last earthquake (Holcombe,2016:289). The 1920s passed with crises in Japan as well as in the whole world. Japan, which experienced another leadership change in this process, focused on its old values again with Emperor Showa in 1926 (Moris,1960:164). The use of modern mass media, i.e., radio broadcasts, is of great importance. Sometime after the first radio broadcast stations were established, the Taisho government had used it to spread liberal democracy (1922). While cities that are at the centre of modernization are open to westernization, villages and rural areas are just as far away from this modernization, and these mass media broadcasts have been used to reinforce and increase national feelings (Hane,2016:75-76). As a result, the empire management was re-adopted, and Shova was brought to power. This process forms the basis of post-WWI ultranationalist attitudes (Armaoğlu,2014:210). As a result of the economic and political crises in 1927, Japan passed to a militarist rule. This administration has begun to take aggressive attitudes for its economic

interests in the Manchuria region. Even if Japan was a party to the Kellogg Briand agreement (Jansen,2002:527)., one of the important agreements of the period, it made three military interventions in Manchuria by taking advantage of the deficiencies of the agreement (Garon,1987:189). Although Manchuria is a region that can provide many economic benefits, it was an area where Japan especially opened a factory and invested. More precisely, it was a region that he used to provide soybeans, timber, coal mine products and wanted to hold. Japan was directing its state-backed companies to this area in order to develop the region and have a strong economy. It also used railway construction and management as a tool in order to maintain his dominance in this region. These three military interventions resulted in the capture of Manchuria in 1931 and being a semi-independent country controlled by the Japanese. In fact, Japan has tried its efforts to create a state-controlled modern economy on Manchuria (Holcombe,2016:298-301). The most important example of Japan's adoption of the state interventionist Keynesian economic model is the Manchurian economy. Japan, which achieved rapid economic growth and modernized, did not pay much attention to the League of Nations, which was established for lasting peace. Other countries have remained unresponsive to these military interventions, fearing Japan's aggressive attitude. This unresponsiveness paved the way for the Japan-China war that would emerge in the following process. This war, which started in 1937, continued contested until the end of WWII. In fact, this process resulted in the Communist side taking over in China and caused Japan to get out of WWII with major losses. Japan was one of the important actors of WWII, it followed nationalist and aggressive policies along with Germany and Italy throughout the process, and it caused great losses in terms of the regional economy and the world economy. The triple pact of these aggressive states pulled America into the war. Japan, which has adopted expansionist policies in the Asia Pacific, poses a serious threat not only to China but also to Singapore and India (which are the exemplary countries of the thesis). In 1942, Singapore was occupied and taken by Japan. India faced similar threats (Hunter: 2002:27-92).

Another important reason for this; It is when the control of zaibatsu is in the old daimyo and the daimyos and politicians abuse the system. It is seen that Japan, which survived the Great Depression with very little damage, weakened due to the war

and army expenses, and even the economy that it developed with exports during the WWI period has become in need of heavy industry imports in the ongoing process. Investments made in war industry instead of industries, changing prices due to war, state control of economic resources have been vital developments in Japan's becoming external dependent. Japan has faced embargoes and sanctions due to its aggressive and expansionist attitude. The embargo on oil and metal required for the industry has made Japan's situation difficult, and this situation gridded industrial production to a halt. Japan, which is difficult to reach raw materials without ships, has been defeated by America, that the increasing industrial power and aircraft carriers. After two atomic bomb attacks in 1945, Japan ended the war and surrendered. As a result of WWII, Korea and Manchuria were freed from being Japanese colonies, while Taiwan was returned to China (Duus and Duss,1976:238-242).

After these developments and thrashing, how did Japan reintegrate into the international system, how did it evaluate the post-WWII process when it was not expected to be an important actor in the global division of labour? The next topic will look for answers to these two basic questions.

#### 2.1.2.2. Integration and Development to The International Economic System

Japan surrendered from WWII with many casualties. Emperor Showa admitted this defeat in 1945 and became a symbolic leader. Based on the agreement signed with America, MacArthur was appointed by the Allied powers to rule/manage Japan. Considering the international order of the period, it is seen that Japan was ruled without disintegration, unlike Germany and Korea (Holcombe,2016:316-317). This has been instrumental in Japan's being a capitalist state and applying the principles that adopt western democracy. Many important reforms have been made under MacArthur's leadership. The most important of these reforms is the regulation and enforcement of an American-style constitution (Gallicchio,2020:178). It was also the first time that women and individuals over the age of 20 were able to vote in elections. In this process, a parliament was formed by taking the example of England and Yoshida Shigeru was elected as prime minister in 1946. Shigeru continued to be the symbolic leader of Japan

during the occupation period (Jansen,2002:676-677). The defeat of the war brought some cities to the brink of famine. Cities destroyed by the atomic bomb and hundreds of men coming from military service increased the scale of this famine. The increase in unemployment as a result of the halt of industrial production and the insufficiency of basic consumption goods created inflation in the country (Dower,1999:96-99). The MacArthur management has had curative effects on the process by providing the necessary external assistance, medicine and food support. In terms of raw materials and industrialization, Japan's economy, which invested all its investments in the war industry, could not recover for many years. Among the MacArthur reforms are practices that include organized organization, trade union rights, collective agreements and the right to strike (Gallicchio,2020:171). In fact, as a result of some laws enacted during this period, the zaibatsu, which had an important place in Japan's economy, dissolved (Jansen,2002:686-687).

The Korean war resulted in the presence of troops in the region (the UN used Japan as a superior) (Holcombe,2016:323). During this period, Japan served as the United Nations' defence atelier, and the currency flow financed the reforms (Jansen,2002:696). Johnson emphasizes the great importance of this war in overcoming deflation. (Johnson,1982:191). This caused the Japanese economy to move and develop slightly. Japan, which opened to the world with the Meiji restoration, lost almost all of its technology and opportunities during this war, and it started everything from the beginning. Turning the defeat out of the war into an advantage, they provided new technology and production systems from the West and the USA - since they had licenses in their hands - at a more affordable price. This has resulted in a profitable outcome in terms of R&D investments of a country that is trying to re-industrialize. Instead of a competitive understanding, they quickly put into practice the new technology and production systems they acquired, with a system that complements and enables them to assist (Holcombe,2016:324; Jansen,2002:754). The fact that the Japanese population is educated and has a working discipline are among the reasons that cannot be ignored. Besides, America provided many facilities to Japan and tried to establish a permanent ally in the region in order to prevent Soviet expansion throughout the Cold War period. He did not receive war compensation and

took an active role in developing the country's economy by granting export privileges. These facilities provided in Japan's transition to a capitalist market economy have an essential share.

The effects of the Confucian doctrine on the people of Japan have had many positive results in Japan's rapid development and industrial growth. The Japanese people had a lifestyle that knew how to save and thus made the tax policies implemented by the state functional. The money of the state increased with these taxes was used for the industrial investments of the country. As can be understood from here, after the war, Japan adopted development through state intervention for a while. But it did this differently than other countries in East Asia and around the world. In his practices, the five-year development plan of the Soviets and the development model learned from Germany, as well as the American experts, created a new mixture (Johnson,1982:45-132).

Japan was kept under control through MacArthur until 1952. The San Francisco Agreement signed on this date has ended this control (Yülek,2015:136). The beginning of the period called the Japanese miracle is accepted as the period after 1955, especially the Prime Minister Kishi Nobusuke period. Nobusuke was a man who had much industrial education abroad and served as the ministry of industry and commerce. In this process, it is seen that state-supported raw material investments, the inclusion of distributed zaibatsu in different names (*keiretsu*) in the industrialization process and increased mechanization in agriculture (Kosai,1986:127,147). However, contrary to popular belief, in the post-war period, it developed not with a capitalist economic model, but with a model of state intervention. The Ministry of Industry and Trade has been transformed into MITI (Ministry of International Trade and Industry. MITI has provided incentives for investments in electronic and technological devices, and the role of imports and exports in economic growth has been preserved. Import and Export Bank and Japan Development Bank loans were used as a tool to increase industrialization (Holcombe,2016: 325-326). Relations with China resumed between the years 1950 and 1960, and Japan provided technological and economic aid to China. (Diplomatic relations with China begin in 1972.) In 1956, it is seen that the Soviet-Japanese relations entered a normalization process. In the same year, Japan's

membership to the UN is the most important indication of its acceptance in the international system. The Keynesian state interventionist economy that continued until 1961 has become more liberal and unclear from that date on (Jansen,2002:754).

Mechanization used in agriculture is also effective in the increase of urbanization rates after the war. In the 1980s, migration to the city and the decrease in the number of people working in agriculture brought many negative consequences in the cities. Rapidly developing industrial cities were face to face with densely populated people looking for good jobs. Production methods had to serve the purposes of these industrial cities. Since Japan was seen as an American ally in the region during the Cold War, it has taken and implemented many production methods from the USA and the west. Taylorist and Fordist production systems, which we especially highlighted in the introduction of the thesis, have reached a different dimension in Japan. In the introduction part of the thesis, the industrial revolutions and globalization waves, whose parallelism we have mentioned, provided many benefits in the Japanese miracle of the 1960s (Kosai,1986:108-120). While the growth rates hover around 10%, it considers 1964 a turning point in terms of its role in the international economy and global division of labour. Because the Olympics took place in Tokyo in 1964 and Japan showed that it had completed its international presence and economical construction (Hunter,2002:57).

If the effective factors of this rapid industrialization are listed, there are reasons such as patriotism, the education level of the workforce, Japanese techniques, the influence of Confucian and Buddhist teachings on the people, economic mobility due to the Korean and Vietnam wars (especially the cheap goods and cheap export of military materials). Japan continued to develop within the framework of these factors until the oil crises in 1973, but as a result of the oil crises, access to petroleum raw materials used in the industry became difficult (Kosai,1986:116). In 1976, a corruption investigation involving politicians caused turmoil in the country (Iga and Auerbach,1977:556-566). Japan has overcome these crises with flexible policies and has become the third-largest GNP country in the world in the early 1980s. In the 1980s, spiritual education was resumed, and restrictions on the country were lifted due to war crimes. Japan's local currency is valued against the dollar (Katada,2008:556). Away

from aggressive nationalist attitudes, the adoption of national identity, the shaping of technology and opportunities taken from the west according to Japanese culture gained importance once again in this process.

In 1983, Japan reached successful rates in export. When Japan realized that it was producing more than it needs, it adopted policies to increase domestic demand. Japan, which achieved export-oriented growth, especially during the Korean and Vietnam wars, started to need new markets for its products. The concept of ‘‘trade wars’’, which is frequently mentioned today, has caused tension between two friendly countries such as America and Japan. Japan was implementing a neo-mercantilist policy in its domestic market. It did not introduce foreigners into its domestic market by ignoring the benefits of the USA for many years. In the post-war period, the failure of a country with military protection and free access to US markets to open its markets to foreigners was the basis of the trade wars of the 80s. As a matter of fact, foreign products were allowed to enter the domestic market in the ongoing process. However, the Japanese people continued to consume the products they are used to instead of foreign products. Not satisfied with this result, the USA and Japan made a ‘‘Plaza Accord’’. However, the Plaza compromise in 1985 resulted in the formation of a bubble economy, causing an excessive increase in real estate and stock market prices and an increase in the costs of export investments (The Japan Institute for Labour Policy and Training, 2006:4-5). Japan, which completed its industrialization in the post-cold war period and was one of the important actors of the global division of labour, remained in great debt. China, which has risen in East Asia in terms of its export-oriented growth model, began to weaken Japan's possible growth prospects.

In the light of developments; The developments that caused the foundations of order-oriented production, discussed in the industry 3.0 section, emerged during the years of this trade war. With the end of the cold war, China remained the only communist country in the global market (Holcombe,2016:370). In the post-Cold War period, America held the leadership in the use of internet and active use of information technologies, depending on industry 3.0. On the other hand, Japan had entered a period of stagnation in economic developments in the 1990s. During this period of stagnation, it is seen that Japanese multinational companies make investments not only in Asia

but also in Europe and North America for market access and opportunity cost (Akram,2014:159). It is a fact that many products used today are Japanese products. Some important products and brands; Sony, Panasonic, Nintendo, Nissan, Isuzu, Mitsubishi, Honda, Toyota, Mazda, Lexus, Subaru, Fujifilm, Etc. (Holcombe,2016:332).

The development model implemented by Japan in two steps has been in constant trouble with population-related problems. When we look at the process after the Meiji restoration, there was a rapid population growth, while this population growth was balanced and slowed down in the period between the two wars. The educated population, which was effective in the industrial development of the country in the second period after 1945, faced the aging problem at the end of the 20th century. Active workforce is decreasing day by day. This is one of the serious problems facing Japan in the 21st century. In the next chapter, technology-intensive production of Japan will be discussed on the basis of variables. Obstacles to the sustainability of economic growth will be evaluated.

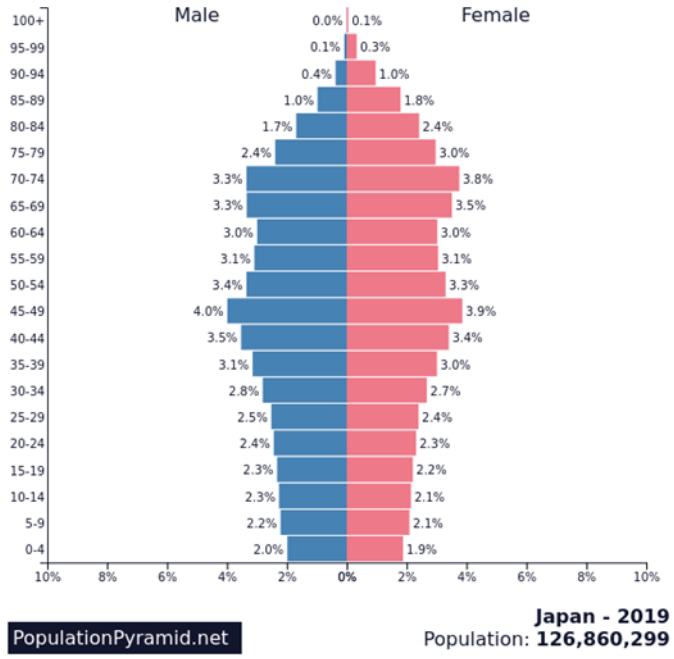
### 2.1.2.3. Evaluation Due to Independent Variables

Japan has played a leading role in the development of East Asian countries. The origins of this situation go back to the 19th century Meiji Restoration. This restoration and industrialization operation, which is highly emphasized in the part of its integration to the global economic system, enabled Japan to assume regional roles as well as create a market and financial resource for the region (Tiryakioğlu,2015:43). Unlike other countries discussed in this thesis, Japan has shown a miraculous economic growth and development after gaining its independence and started to make plans to become the world's largest economy at the end of the 1980s (like the Chinese example today) (Ateş, 2020: available resource). Japan has developed and introduced advanced technologies to achieve high-level automation and higher quality by investing in basic science in this process. It managed to shift its industrial structure from a labour-intensive model focused on industrial production to capital accumulation (Comprehensive Strategy on Science , Technology and Innovation for 2017, 2017:2). Ünay evaluates the industrial policies led by MITI as Japanese Style or

Developmental Capitalism. This evaluation covers the industrialization and socio-economic development moves based on regional codes such as Confucianism of Japan, which started the industrialization operation in the 19th century. It emphasizes that it is a capitalist development model based on sector-society integration as well as an integration between the state and private sector. Japan advancing on the model of developmental capitalism; It has presented a roadmap for industrialization and economic development to Asian Tigers such as South Korea, Taiwan and Singapore (Ünay,2015:164-182). Today, although it has problems with the ratio of the elderly population, it is the third-largest economy in the world based on GDP values (Barboza,2010: online resource). It is one of the five countries in the world that has completed its industrial development.

Japan has a population of 126,860,100 (World Bank: Population, total-Japan,2020). It reveals a different population growth rate from other developing countries of the thesis as it complements its industrial development and economic development. As seen in the graphic (Graph 2.3) below, birth rates are decreasing. Health services that are improved by developing medical technologies are important for the elderly population in the country. So much, so that low death rates stand out as well as low birth rates. The elderly population rate will pave the way for problems in the socio-economic structure in the future (Comprehensive Strategy on Science, Technology and Innovation for 2017,2017:39). Because the elderly population retired, the number of contracted and temporary employees increased, which led to an increase in the rate of irregular employment (The Japan Institute for Labour Policy and Training, 2006:5). Whether industrial and technological development can meet the loss of workforce at this point with technology-intensive production and robots is among the questions sought to answer.

**Graph 2.3. Population Pyramid of Japan**




**Source:** Population Pyramid of Japan, (available), https://www.populationpyramid.net/japan/2019/ January 1, 2021

In the GDP chart (Graph 2.4) given below, fluctuating progress is seen between the period from the 1990s, when the Japanese economy started to stagnate, until today. The decline in GDP revealed the effects of the 2008 global crisis. If we look at these breaking points in detail; The Japanese stock exchange and land values, which showed rapid growth after its establishment, experienced a decline between 1989-1991. This process, called the bubble collapse (collapse of the bubble), has started a period of recession in the Japanese economy that will last for many years. In this period; It has been implemented in various fiscal and economic measures, including increased public spending, tax relief, liberalization, and disposal of bad loans. Despite this, the recession in the Japanese economy could not be prevented, and unemployment rates started to decline only in 1996. 1997 Asian Monetary Crisis affected the financial consistency of regional countries, and as a result of this crisis, the recession in Japan has increased. Depending on this situation, there has been a decreased in Japan's exports (The Japan Institute for Labour Policy and Training, 2006:5-6).

**Graph 2.4. Japan GDP Growth Rate**

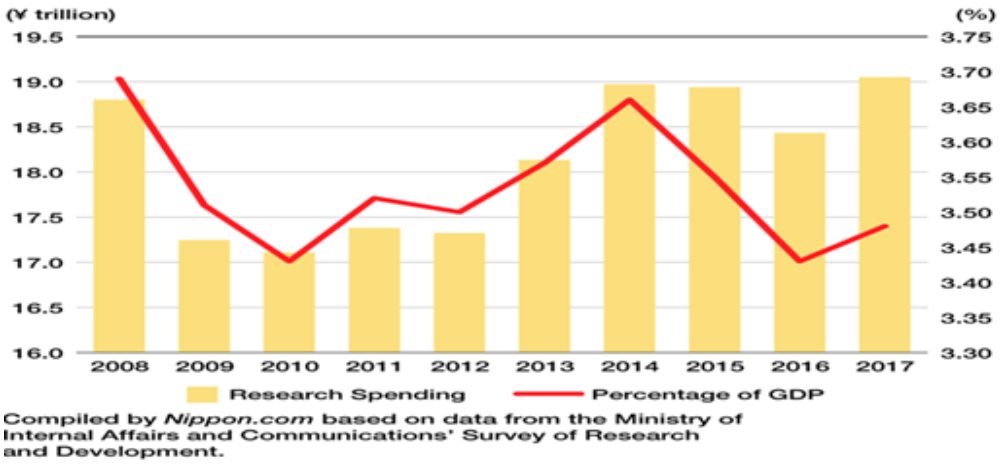

**Source:** Japan GDP Growth Annualized, **TradingEconomics,** (available), https://tradingeconomics.com/japan/gdp-growth-annualized October 8, 2020

Until the 2008 global crisis, it is seen that inflation and export rates increased and decreased, and there was no steady increase. When the global crisis caused a recession in the world economy, Japan's trade values started to decline again. In a report published in 2009, Japan admitted that it was experiencing gradual deflation (The Japan Institute for Labour Policy and Training, 2006:8). It is possible to see the deep economic downfall in 2008 and 2009 in the table taken on the basis of GDP values. One of the most important reasons for the fluctuation in GDP rates in the ongoing process is the Great East Japanese Earthquake experienced in 2011 (Ministry of Economy, 2011:online resource). As a result of this earthquake, many production facilities collapsed in the country, continuing the electricity use and supply process was difficult, in addition to these, the nuclear power plant accident caused regional damages. As a result of this situation, raw material prices increased and trade deficits were seen. Another important reason for the fluctuation of the 2000s is the flood events that hit Thailand. Many Japanese companies that were foreign investors in Thailand suffered from this flood. At the same time, the debt crisis in the European Union (European Debt Crisis) caused declines in Japan's electronic exports (The Japan Institute for Labour Policy and Training, 2006:8).

Japan was included in the first group of countries because it is a country that is the most advanced industrial and technological among the countries discussed in

this thesis and can integrate these developments into many sectors and areas in the country. According to Japan OECD data, it spent 173.282 million US dollars in 2018, and this rate corresponds to 3.264% of GDP ( Japan R&D expenditure,2020:online resource). It is one of the countries with the highest share of R&D expenditures in GDP. It can be said on the basis of the OECD reports that especially China, Japan and Korea's technological investments are increasing day by day and that they are in a position to compete with the technological diversity found in Europe and the USA (Helena et. al.,2019:4). While it ranks third among G7 countries in terms of research expenditures, it ranks second after South Korea in terms of the ratio of these expenditures to GDP (Nippon,2019: online resource).

**Graph 2.5. Science and Technology Research Spending and Ratio of GDP**




**Source**: Science and Technology Research Spending and Ratio of GDP, (available), https://www.nippon.com/en/japan-data/h00388/japan%E2%80%99s-science-and-technology-research-spending-at-new-high.html, April 2, 2020

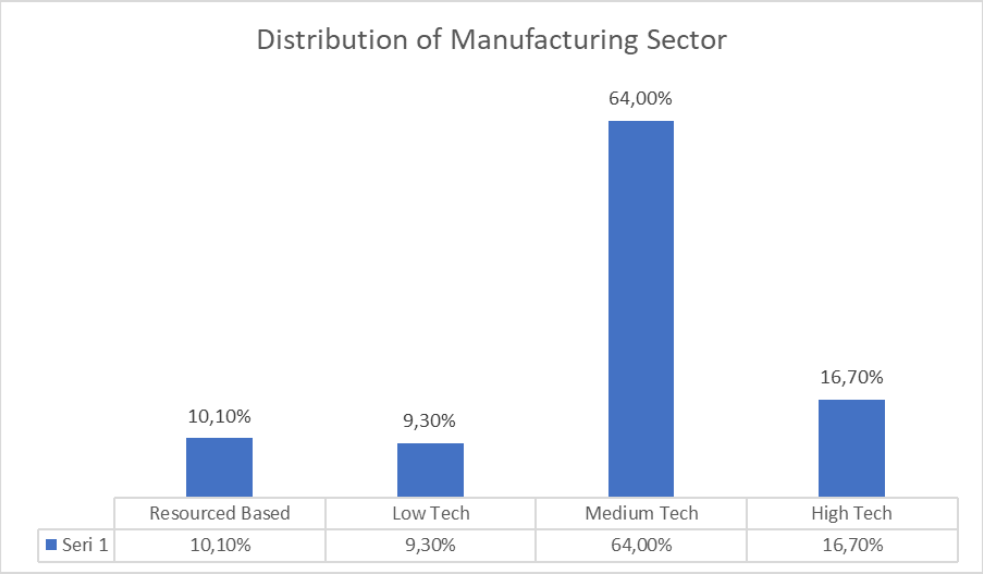
In the context of science and technology studies, Japan has implemented the 5th S&T Basic Plan covering 2016 and 2020. Despite the ageing population, high national debt and other socio-economic difficulties, this plan aims to ensure sustainable development, the safety and security of the country and the people, and the protection of climate change and biodiversity(OECD, G20 Innovation Report 2016: online resource). The 5th S&T Basic Plan, prepared by the government of Japan, aims to promote scientific and technological studies and transform Japan into the most innovation-friendly country in the world. It includes plans for many purposes, such as

contributing to global developments, protecting intellectual property rights, and supporting scientific studies. Since scientific articles and studies, R&D investments, new scientific-technological developments and innovations increase international competitiveness and help economically sustainable development goals, Japan gives high priority to these goals. So much so that it has the most Nobel Prize-winning scientists in the 21st century, which has given Japan a strong stand in the international arena. Besides, it includes preparation plans for future industrial and social transformation (Japanese Government, 2016: online resource). In the context of the guidelines of this five-year plan, it has decided to create a comprehensive plan each financial year. Published in 2017, the Comprehensive Strategy on Science, Technology and Innovation aims at economic progress through a high degree of unification between cyberspace and physical space, ensuring the lives of all citizens with high comfort and prosperity. It aims to create the ‘‘Super Society 5.0’’ by maximizing each individual’s knowledge and potential. As a result of this strategy, technological studies are realized to prevent threats such as the ageing of the population or the decrease in the population. As a result, it has been argued that new business models that create a high added value in all of these sectors will emerge. Eventually, it has been suggested that a paradigm change in economic and social systems is inevitable (Japan Cabinet Decision,2017:1-7).

Industrialization, which we have focused on in this thesis and considered as a process that has been going on since the industrial revolution, has made many new concepts effective in manufacturing, division of labour and economy. Among these are artificial intelligence, internet of things, three-dimensional printers and advanced network-cloud systems. Japan is expanding these practices not only in manufacturing processes, but also in various other areas related to manufacturing to promote economic growth, the formation of a healthy and long-lasting society, and social transformation. While determining economic growth-oriented goals such as supporting exports, it is aimed to create new values such as technology-oriented robots, sensors, biotechnology, nanotechnology and light/quantum technology in the products to be exported (Japanese Government,2016: online resource).

In the ‘‘Competitive Industry Performance Index 2020: Country Profiles’’ report published by UNIDO in 2020, it is seen that the GDP rate of Japan is 4,550 billion / 35,769 per capita. This report states that manufacturing value-added is 961.1 billion / 7,556 per capita, while manufacturing exports is 667.8 billion / 5,250 per capita. Based on this report, the rate of technology in manufacturing sectors can be seen in the graph (Graph 2.6) below (UNIDO, Competitive Industrial Performance Report 2020:152).

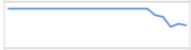
**Graph 2.6. Japan’ Distribution of Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

## Table 2.2. Japan's Performance Indexes

Performance indexes

| | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend 1990 2018 |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 5 | 0.344 | 0.067 | 5 → |  |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 7 | 0.289 | 0.076 | 7 |  |
| Share of Manufacturing Value Added in GDP Index | 14 | 0.594 | 0.343 | 13 |  |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 7 | 0.703 | 0.302 | 7 |  |
| Industrialization Intensity Index | 10 | 0.648 | 0.323 | 9 |  |
| Share of World Manufacturing Value Added Index | 3 | 0.247 | 0.023 | 3 |  |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 34 | 0.143 | 0.103 | 33 |  |
| Share of Manufacturing Exports in Total Exports Index | 21 | 0.927 | 0.631 | 24 |  |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 6 | 0.894 | 0.397 | 3 |  |
| Index Industrial Export Quality Index | 4 | 0.911 | 0.514 | 4 |  |
| Share in World Manufacturing Export Index | 4 | 0.278 | 0.039 | 4 |  |

- $1^{st}$ DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
- $2^{nd}$ DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
- $3^{rd}$ DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

### 2.1.3. South Korea

#### 2.1.3.1. Historical Process

Korea's origins date back to the 2000s before Christ. There are pots and graves belonging to these periods (Nelson,1993:147). Although it is known that people live in the Korean peninsula, there is information about the process after China's transition to written sources. In the war that caused the collapse of China's Qin Empire, an immigrant named Wiman escaped from China to North Korea and established the Kingdom of Joseon (Gojoseon). As a result of the wars, Korea remained under Chinese rule for centuries. In this case, it shows that the Chinese culture and management understanding is effective in the region (Holcombe,2016:107). If we will briefly touch on the pre-kingdom of Joseon; In AD 313, the Korean people took over the kingdom of Goguryeo. This kingdom, which ruled the North Korea region until the 5th century, shared the peninsula's rule with the two kingdoms. These kingdoms; It is the Kingdom of Baekje and the Kingdom of Silla (Seth,2010:7). These three kingdoms have been united under one name from time to time, and they have been separated from time to time. Finally, they reunited under the name Goryeo. These three kingdoms imitated Chinese institutions and state structures throughout their rule. But they continued their cultural and traditional structures according to their own past (Peterson,2009:51-55). While speaking Korean among themselves, they used Chinese in the written language and continued their trade with Chinese money. Korea went through a period of nearly a century under Mongol control due to the Mongol invasions in the region (Barnes,1993:261). The Mongol influence, which continued until the end of the 14th century, took a new form with the establishment of the Joseon kingdom and China’s defeat of the Mongols. In the light of this information, it is easily understood that; The division and collapse of the Chinese empires, and the wars in the region are among the developments that Korea closely followed and affected (Seth,2010:103-105).

Unable to reveal its existence and borders as a country for many years, Korea was founded with the Joseon Dynasty. In the 15th century, its official alphabet and boundaries were determined, and at the same time, military forces were under the

dynasty rule (Peterson,2009:43,85,128,145). Laws were prepared under the name of Joseon reforms. Because Buddhism's teachings were binding between the societies living in the Asian region, they adopted the teachings of Buddhism in Korea. Simultaneously, in the regional context, the country most committed to Confucius's principles is Korea, such that these laws contain many articles based on the Confucian moral order. The most important of these is the principle of competence/merit, which underlies Korea's development, economic growth, and creative country (Holcombe,2016:176-181).

The Korean peninsula was an important actor in the East Asian seas in the 16th century as it was during the three kingdoms, and from time to time, it dominated the Asian sea trade (Seth,2010:203:2010). The underlying reason for this is its openness to technology and creative knowledge. Korea produced the armoured warships used for the first time in the world in the 16th century. But his discoveries and important inventions date back centuries earlier. For example, it has known that the first printing press has established in China, but the world's first mobile metal typefounder used in Korea in 1234 (Holcombe,2016:176).

Korea's modernization movements occurred thanks to the Japanese invasions. Having no relationship with anyone in the region other than China and Japan, Korea could not go a long way in terms of modernization and development, as it has a limited relationship with these two countries. In 1592, Japan invaded Korea's capital Seoul, but Korea prevented shipments to Japan with iron-clad warships used for the first time in the world. With China's sending support, the Japanese had to withdraw. The region's problem was tried to be solved through diplomatic relations, but it was not successful. Japan has prepared its forces for a second intervention. When the Japanese leader of the period Hideyoshi died at this time, Japanese forces abandoned the expedition/intervention and withdrew to their country (Haboush,2016:16,34-35,112-118). In this war environment that lasted for seven years, Japan's aggressive attitude caused to fall out with the Korean people. As a result of this bloody war, the Joseon Dynasty disengaged from the world and started to live in seclusion. This seclusion decision did not only cover regular tax payments to China and a restricted trade relationship with Japan. The dimension of these relations had changed in the ongoing

process. Korea, which was occupied by China in the 17th century, was turned into a state that gave taxes to China. Manchu domination in China pushed Korea to the idea of being the last bastion/fortress of Confucian thought in the region. While defending neo-Confucianism, they were aware of their national identity and national pride. There is a period of progress in 17th and 18th century Korea, developing with these national feelings. There have been some positive developments, especially in the economy and agriculture. They started to apply agriculture with new methods not to make a living but to stimulate the market. Currencies became more usable as the market moved. Compared to China and Japan, in the 19th century, Korea was less developed and still had limited relations with its environment (Holcombe,2016:211-214). The reason why its commercialization has not developed can be shown as the lack of river transport in Korea and the negative attitude of the Confucian elites towards trade. The seclusion policy also has serious negative effects on the underdevelopment of trade. A number of foreign products were introduced to the domestic market during this period. These products are US tobacco, pepper and western telescopes with the clock (Seth,2010:222).

In the second half of the 19th century, America sent merchant ships to Korea as well as to all East Asian countries. However, these attempts proved fruitless/unsuccessful (Peterson,2009:119). In the same year (1866), France sent a fleet of seven ships in response to the missionaries who were in the region and were killed to spread Christianity (Seth,2010:231). When this attempt failed, America sent five warships in 1871. These ships bombed the Korean coast and severely damaged defence systems. However, when the ships returned, Korea saw this as a success (Holcombe,2016:214). Looking at the East Asian countries of this period, it is observed that Japan opened its ports to the West and America as a result of the Meiji Restoration, and China opened its ports to the west. Korea could not resist this situation very much.

If we detail the 18th century; Korea has maintained its existence as a semi-independent country that pays taxes to China (Kim,1980:68-69). However, while doing this, it should not be overlooked that they are not involved in internal relations, they only report everything to China with annual declarations, but China imprisons

Korea in the region like a prisoner. Even communication was made through official ambassadors, and sea traffic between China and Korea was prohibited (Deuchler,1977:25-29). Relations with Japan came to an end in 1811, only trading with a daimyo. Contrary to the practices of the period, this daimyo showed his loyalty to both the Shogun of Japan and the Korean king by paying taxes (Holcombe,2016:250). With the globalization wave of the 18th century, while the two major countries in the region implemented policies open to industrialization and reforms, Korea adapted to the process and tried to implement royal restoration. King Kojong ascended the throne of Korea in 1864. Kojong took control of the country in 1973 after his father's regency ruled the country for a while. Under his father's control, he made reforms to prevent bribery and aristocratic problems in society (Seth,2010:233-241). During the Meiji period, Korea's relationship with the daimyo was break off, and official relations were wanted to be established. However, the fact that Korea is still a country that pays taxes to China during this period has prevented it from establishing relations with Japan. Korea knew that while it was attached to China, it could not establish relations with Japan as its equal. When Japan did not like this, it sent soldiers and warships to Korea. As a result of these conflicts, Korea followed the advice it received from China. Moreover, it officially declared an independent country with the Treaty of Kanghwa, a modern agreement. After the agreement, relations with China were observed to have normalized, while some ports were allowed to enter for Japan (Kim,1980:204). A short-lived coup in 1884 came after this concession to the Japanese. Since some of the Korean people felt more open to the reforms made in Japan, a Japanese minister declared a new administration by holding the king within his knowledge. During this coup period, although many reforms on modernization and industrialization were discussed, they could not be put into practice. Chinese troops captured the king with the attack they organized (Peterson,2009:128-130). Supporting some modernization reforms made to strengthen and develop Korea, China mediated Korea's relations with the west. However, because it could not maintain its neutrality and intervene in Korea, it caused tension with Japan again. China and Japan joined a compromise that agreed to withdraw from Korea in 1885 This peaceful environment continued until an internal religious revolt in Korea nine years later. Even though it is known that it originates from religion, the main reasons for this internal revolt are seen as heavy taxes and an

increase in interest rates in the region. Wanting to suppress the internal rebellion, Korea requested military aid from China. Nevertheless, Japan was not indifferent to this situation and responded to China in Korea with more military units. Although this conflict in the two countries' territories disturbed Korea, Japanese forces took over the palace instead of leaving the country. This was the moves that started the China-Japan war that we mentioned earlier in the China and Japan chapters. War broke out between the two powers of Asia on August 1, 1894. Depending on the period's characteristics, Japan removed China from Korea in a short period of nine months and took Manchuria, thanks to the military technologies it acquired from abroad. In fact, as a result of the treaty of Shimonoseki made in 1895, China had to give Taiwan to Japan. The Manchuria region was left to China as a result of the pressure of the western states and Russia. These two countries, trying to control their regional interests through Korea, made a significant contribution to industrialization as a result of this war. China paid war compensation to Japan and used this compensation it received in Japan for its investments in modernization and industrialization. Again, as a result of this war, China stated that Korea officially recognized its independence. This situation has been among the advantages of Japan in the region. He felt that establishing relations with an independent country would be easier and more beneficial while establishing a Korean relationship under Chinese control was difficult and fragile (Holcombe,2016:250-252).

While the war continued, Korea implemented many reforms (Cabo Reforms) under the influence of Japan (Buzo,2016:20). Among these is the construction of the railway (Japanese-backed), the use of the Korean calendar instead of the Chinese calendar, the prohibition of class distinctions among the people (abolition of slavery), the enactment of new laws enough to constitute a constitution, the adoption of western-style clothing and hairstyles. Some of the Korean people regarded this western style of dressing as contrary to their own beliefs and teachings (Duss,1976:87,142-146). The Queen also tried to express her discomfort among the public about implementing these reforms, but as a result of these attempts, the Queen assassinated in October 1895. While aiming to get rid of Chinese pressure and intervention, Korea, exposed to more Japanese intervention, started to implement some kind of balancing policy. In fact, this

is not the first method used, Korea, which previously used Japan against China, now has pro-Russian attitudes towards Japan. Emperor Kojong took refuge in the Russian embassy and stayed there for a while. Russia's influence has gradually increased in the country administration. In 1897, King Kojong returned to his country and established the Great Korean Empire (Dehan Empire) Korea has implemented a policy of reform and enlightenment for a while by carrying out a policy of balance (exploiting conflict of interest) between Russia and Japan (Holcombe,2016:252). While the nine-article constitution was one of these reforms, the emperor increased his powers in this process. Reforms for the official recognition of Korea's independence include a western-style capital, modern army units for national defence, a focus on trade and industrialization for the financial base, the determination of the national anthem, the creation of flags and symbols, the establishment of the Ministry of Development. In addition to these, there is the use of taxes for schools, factories, etc. for the development of society, and opening schools in many areas, especially in technology and industries. Telephone lines, the establishment of postal organizations, the establishment of railway enterprises and railway are among the important contributions of the Dehan empire to Korea. In generally, Korea entered the 20th century with reforms of technology, national defence, education, and industrialization (Duus,1976:142-143,85-90). But this process did not take long. As a result of the war between Japan and Russia in 1905, Japan once again concentrated on Korea. Britain and the USA did not hesitate to allow Japan to dominate Korea in order not to strengthen Russia in the region. Even Britain and Japan signed an alliance agreement in 1902. The Eulsa Treaty, signed in 1905, defines Japan as the protector of Korea (Gökçe and Gökmen,2016:104). Having signed a new agreement with Korea in 1907, Japan also gained dominance in domestic affairs and prepared for the annexation that will take place in 1910. In Korea, King Kojong resisted this situation, but when he could not make his voice heard, he left the administration to his son. The annexation of Korea in 1910 or the declaration of Japan as a colony of Japan was the result of long-standing guerrilla wars and the assassination of the prime minister (Peterson,2009:139-140: Jansen,2002:444-445).

Korea, which came under Japanese domination, was first divided into 13 provinces and governed by Japanese rulers. Newspaper publications, public meetings,

and declaring of political opinion are prohibited. The region's exploitation has two main aims; to use the raw materials and agriculture on which it is economically dependent. In this process, factories were established with Japanese investments, modern banks were established, and transportation services were developed in Korea. Spectacles were held at King Kojong's funeral rites in 1919. The underlying reasons for these demonstrations are the Wilson declaration and years of colonization. Although the independence declaration of the Korean people was read in these demonstrations, Japan suppressed the demonstrations with harsh interventions (Jansen,2002:517-518). Korea continued to be a Japanese colony until the end of the Second World War. The positive effects of this situation on Korea, especially on South Korea, will be revealed in the ongoing process. Because Japan has always contributed to the modernization of the country and made reforms that paved the way for the application of western knowledge and technology. While westernization comes along with Japaneseization/Japanizing, it is seen that the Korean national identity comes into prominence. Studies have been done on the Korean language (Holcombe,2016:286). Trying to prevent nationalist movements, Japan sent many people into exile. Assimilation policies increased with the conquest of Manchuria in 1935. So much so that the use of the Korean language is prohibited in official institutions (in the period between 1937-39) (Chen,1984:242).

In the 1940s, Korea was directed to the war industry mobilization instead of agriculture for years, and the men entered the war with the Japanese imperial army (Ch'oe,1971:264-266). This 36-year colonial process has increased in the Sino-Japan War and the Pacific War. In this case, while it led to struggles against Japan within Korea, these struggles caused the Korean people to be separated as rightists and leftists. During the Cold War period, the USA and the Soviet Union's decisions on the region instead of Japan draw attention. In the Cairo Declaration in 1943, plans for Korea's future were put forward, and the idea of a unified Korea came to the fore (Ku et. al.,2017:11-17). An understanding of administration under the tutelage of four states after the war is among these ideas. Nevertheless, in the ongoing process, the Cold War's two great powers intervened from the North and south of the country. The USA insisted on the division of Korea into two from the 38th Parallel. Korea held elections

under UN supervision in 1948 after WWII and divided into two countries. While determining a pro-Soviet government in North Korea, the USA in South Korea preferred a government formed of former nationalists. Leaving aside the political situation of the country, South Korea has come of worse of this division. Although South Korea is densely populated, areas, where heavy industries are established, are included in the territory of North Korea. Heavy tanks and weapons obtained from the Soviets remained in the North Korea region again. With these weaknesses, it was attacked by the North in 1950 (Acemoğlu,2013:71). Military and humanitarian aid were provided to South Korea with the UN decision during the occupation process. In the world order reshaped after WWII, the Soviets' failure to veto this decision prevented a possible third world war. The Soviet boycott of the UN in response to China's representative in the UN, indirectly caused it not to use its right of veto and paved the way for the UN to send support forces to South Korea. A ceasefire was declared in 1953 as a result of the air support and military aid of UN forces. However, North Korea and South Korea did not take part in this ceasefire. There is a high-security military zone between the two countries, and the war has not officially ended.

It is seen that the history of Korea, unlike Japan and China, went through a process that was closed to development and was not sufficient to maintain its national independence. Therefore, this situation shows that it is not sufficiently affected by globalization and industrialization. The interests of the countries in the region, especially Japan, on the country have contributed to the bringing of Korea into the international system as a nation-state and provided the infrastructure to become an industrial community with modernization. South Korea, which developed this infrastructure during the Cold War and is now one of the remarkable success stories of the modern Pacific coast, is one of the countries that made positive contributions to the economy of our thesis in terms of technology-intensive production (Gallicchio,1988:5).

In the next title, the process of South Korea gaining nation-state characteristics and integrating into the international system and its economic development due to industrialization will be discussed.

### 2.1.3.2. Integration and Development to the International Economic System

South Korea was one of the world's poorest economies after the war in 1950. Like Japan and China, South Korea has become one of the ''East Asian miracle countries'' by providing industrial and economic development in a short period of half a century. In the thesis, its economic development, its inclusion among the emerging economies with technology-intensive production is due to this great short-term development. In the first elections, a democratic government has established under the leadership of Syngman Rhee. This leader, who has educated at Harvard and Princeton, is an anti-communist leader supported by the United States (Acemoğlu and Robinson, 2013:72-75). Although he is known as authoritarian, he has contributed significantly to establishing S. Korea's market economy based on private ownership. He enacted a law for the land reorganization and limited the amount of land that can be owned. This situation led to the overthrow of the land-based aristocracy while paving the way for a society based on the principle of equality. He has also been instrumental in reshaping economic and political institutions and having their inclusive qualities (Holcombe,2016:345). He attached importance to education and high literacy rates, invested in education. Because it is aware that an educated population has an important role in industrialization and government incentives (Kim,2017:84). During the Rhee Syngman period, the growth rate of the South Korean economy was rather low. High corruption, high inflation rates and dependence on US aid are observed to be high in this process. The import substitution policy has been tried to be followed, but no successful results have been obtained. Instead of getting closer to Japan for industrialization policies, he was hostile. (Seth, 2010: 167-168). The infrastructure that was destroyed after the war was rebuilt with the help of high aid from the USA. (Ku et. al., 2017: 72). He has protested by a group of students who thought that the elections were rig after re-elected with a high percentage in the 1960 elections. The intervention in the protests ended with the death of 125 people and wounded of 1000 people, and the size of the protests expanded. Due to the violence used in the protests, the American and Korean military withdrew support from Syngman. He was resigned in a short time and forced into exile (Hong,1999:139-142). After this resignation, a short (9 months)

period of democracy has experienced, and an authoritarian military administration came with the coup made by General Park Chung Hee in 1961. The military administration suspended the constitution as the first thing and banned political activities and demonstrations. During the first years of this thirty-two years of military rule, newspapers have banned, and censorship has applied in many areas (Brazinsky,2007:113-118). The economic planning board was established, and targets were determined with five-year plans. In order to achieve these goals, the foundations of the economy were laid by establishing the Ministry of Finance and the Bank of Korea (Minns,2006:120-121). Like Japan and China, which we consider in the example of East Asia, Korea has adopted the state-interventionist Keynesian economy. Within the scope of the planning, the public would be encouraged to private ownership, and the way for controlled industrialization would be paved. For this, tax policies and low-interest rates were implemented. Aiming to enter export markets in a short time, S. Korea took care to make technology transfers and to shape its investment capital through technological development (Ku et. al.,2017:76-78). Zaibatsus, which is frequently mentioned in Japan and has survived to the present day, is known as chaebol in South Korea. In the establishment of the Chaebols, US aid has also had a significant effect as well as the state support. The Samsung brand is one of the leading companies that have a successful production capacity and produce products with high added value. Hyundai, LG, Hankook, Kia Motors, Etc. are among the chaebol companies established in post-war S. Korea (Tiryakioğlu,2015:227-233).

The basis of economic and industrial development depends on pluralist central institutions and a strong state. The authoritarian attitude of the Park was effective in establishing central institutions in a short time and providing these institutions with the encouraging environment of the strong state. As well as establishing inclusive institutions, it is necessary to consider many complements of those institutions such as security, contract, law, transportation. Park is committed to advancing them as a whole. In a short time, caebols started to gain a large part of the GNP. The high performance and disciplined productivity expected by the government have easily achieved. By 1970s, Park implemented plans for the need to heavy industry and defence industry for defence and environmental threats. Officially, there was an unfinished war, and in

the event of an attack, South Korea had to make military preparations to protect itself. It started to produce steel, automobiles, ships, machinery parts, and electronic parts for this purpose (Holcombe,2016:346-349).

It is worth mentioning the domestic political problems that developed in the early 1970s. After the coup, elections were held three more times, and General Park won each election. However, the fact that the other candidate had a 45% share in the 1971 election ended with the announcement of martial law by General Park. After the martial law was declared, the parliament was closed, and a new constitution was prepared. When General Park saw the danger approaching as a result of the election, it put into effect the articles preventing the election of the Prime Minister by the people. A more authoritarian era has begun, placing the prime minister at the centre of power (Bransinsky,2007:159-160). As we have stated before, the authoritarian attitudes of Park, unlike other authoritarian leaders, have been directed towards the increase of the national development and economic development of the country. He has imposed loan programs for the government-controlled banks in terms of capital. He gave much power to the private sector, but like other authoritarian leaders, it did not use its dominance over this private sector to enrich itself. Banks have essential contributions to the development and industrial transformation of the country (Minns,2006:120-121).

General Park's martial law ended with the death of Park in 1979 in an assassination. In the period following him shooting and murder by the Korean CAI chief, a period of demonstrations and clashes between different groups occurred. While these events ended with the arrest of the defence minister, S. Korea was subjected to a new military coup rule (Brazinsky,2007:232-233). Major General Chun Doo Hwan declared martial law and closed both parliament and universities. The suppression of the demonstrations resulted in the deaths of 191 protesters, and television broadcasts were also brought under control. In 1980, winds of democratization were blowing in many parts of the world. Globalization has essential effects on this democratization process. The people of S. Korea, who thought that they had completed their industrial and economic development in many aspects, also wanted to be a democratic country. At the root of these demands for change was the influence of years of low-wage employment, they started meeting to ask for a raise in

their salaries. Major demonstrations started to occur throughout Japan, but because of the Olympics to be held a year later, South Korea did not want to attract attention. During this process, Roh Tae Woo made contact with the demonstrators at Chun's request and ensured that the demonstrators were withdrawn by promising improvement in many issues, especially election rights. Elections were held at the end of 1987, and Roh Tae-Woo was elected president. He made remedial reforms on many of the issues he promised, but his administration did not last as long as other military leaders. S. Korea started the post-Cold War years in a more democratic way and felt the effects of globalization in many areas, from art to foreign products (Holcombe,2016:252-253). In 1993, S. Korea elected its first civilian president. Kim Young Sam first pledged to loosen the government's interventionist economic policies and opened the doors of the liberal economy. In this context, he primarily worked on the discipline and restructuring of caebols. In particular, Young-sam increased globalization discourse in the 1990s. During his tenure, he planned policies for the democratization of South Korea and the transformation of the economy into a liberal and free state and put it into practice (Minns,2006:167-169). Five-year economic plans implemented by the state for years have been terminated. During this period, as a result of the merger of the Economic Planning Board with a ministry, it was transformed into the Ministry of Finance and Economy (Holcombe,2016:352). During this period that S. Korea became a member of the UN and established diplomatic relations with many countries. As a result of its liberalisation policies, it opened its domestic market to foreigners and spanned boundary imposed on imported products (Hyde,1988:174). People have been given freedom in matters that are considered treasonous, such as going abroad and investing abroad. At the end of this democratisation process, industrial development, good economic growth rates and the transition to a liberal economy, the Asian Crisis has been a great disappointment for S. Korea. South Korea, which is in the process of adapting to the latest reforms, is one of the countries most affected by this crisis. In the previous years, the state, which provided bank loans for special incentives, reduced its control over banks with economic liberalisation. As a result of the crisis, many investments and important caebol went bankrupt (Wade and Veneroso,1998:1-11). In fact, S. Korea has received a rescue package from the IMF (IMF,1998: online resource).

After this process, the country was opened to foreign investment by following a liberalization policy under the supervision of the IMF. Again, in the 1990s, there was some news of bribery related to chaebols due to liberal economic policies. In order to prevent these, efforts were made to be careful and transparent about the debts of the companies who did not go bankrupt. The restructuring of Chaebols showed its effects on the technological development period brought about by the third industrial revolution and contributed to the economy by producing high value-added products (Tiryakioğlu,2015:233). By means of the measures taken, and these implementations, South Korea overcame this crisis in a short time and recovered economically. By 1997, the democratization movements showed their effects, and an opposition leader won the election. Kim Dae Jung became the new president (Kim et. al., 2008:266-267).

In summary, Korea's integration into the International Capitalist process had accelerated in the 1980s when FDI was encouraged, and liberalization movements were initiated in this way. In addition to political developments, the progress of industrial and technological developments by years is given in detail in the table (Table 2.3) below (Hong,2005:66-67).

**Table 2.3. Development of Industry and Technology**

| | Industrial Development | Technology Development | Highlight |
|---|---|---|---|
| 1960s | Developed import-substitution industries<br>Expand export-oriented light industries<br>Support producer goods industries | Strengthen S&T education<br>Deepen scientific and technological infrastructure<br>Promote foreign technology imports | 1960: $79<br>Labour |
| 1770s | Expand heavy and chemical industries<br>Shift emphasis from capital import to technology import<br>Strengthen export-oriented industrial competitiveness | Expand technical training<br>Improve institutional mechanism for adapting imported technology<br>Promote research applicable to industrial needs | 1970: $253<br>Labour and capital |
| 1980s | Transform industrial structure to one of comparative advantage | Develop and acquire top-level scientists and engineers | 1980: $1.655<br>Capital and Technology |

| | | | |
|---|---|---|---|
| | Expand technology-intensive industry<br>Encourage manpower development and improve productivity of industries | Perform national R&D projects efficiently<br>Promote industrial technology development | |
| 1990s | Promote industrial restructuring and technical innovation<br>Promote efficient use of human and other resources<br>Improve information networks | Reinforce national R&D projects<br>Strengthen demand-oriented technology development system<br>Institutional reforms | 1990: $5.890<br>Technology and Innovation |
| 2000-2003s | Move towards High tech and high value-added industries<br>Develop IT industry<br>Search the next generation engine of growth | Strengthen national and regional innovation systems<br>Internationalise R&D systems and information networks<br>R&D increase in IT, BT, NT, ET, CT | 2000: $9.823<br>Innovation and KBE |

**Source:** Yoo Soo Hong. "Evolution of the Korean national innovation system: towards an integrated model." Governance of Innovation Systems: Volume 2, p.67, **OECD.** (available), https://read.oecd-ilibrary.org/industry-and-services/governance-of-innovation-systems-volume-2_9789264013452-en#page63,October 10,2020

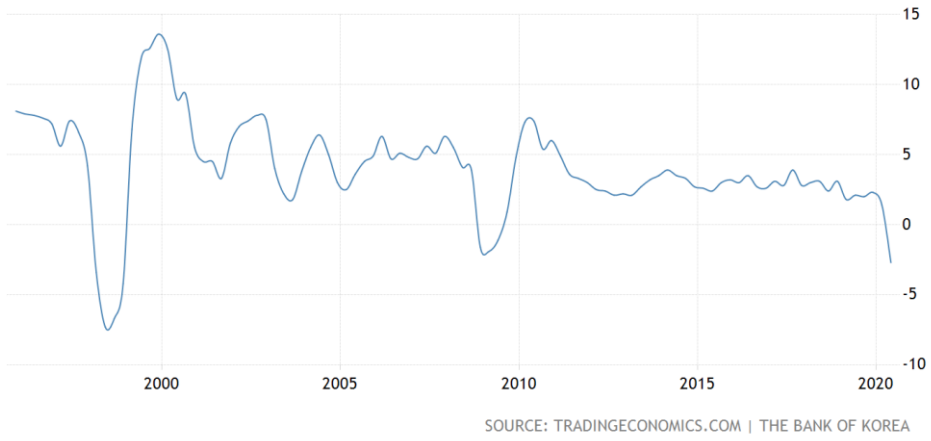
By 2004, S. Korea organized a comprehensive reform of its STI program. MOST (Ministry of Science and Technology), the necessity of establishing NIS (National Innovation and Science) for the reorganization of the ministerial and its functions, and it is planned to serve the vision of ‘‘economy based on science and technology’’ by increasing its function (Hong,2005:75-84).

In light of this information, we see that South Korea's primary goal is industrialization and economic development, and it has achieved this in a short time thanks to the authoritarian military leaders. Secondly, we see that receive the fruits of the efforts to become a democratic and modern nation-state integrated into the global division of labour at the early 2000s. During this period, it has tied in many diplomatic and economic relations. So much so that, by visiting the North Korean leader, it seems that he has taken a peaceful step.

### 2.1.3.3. Evaluation Due to Independent Variables

As a result of globalization and industrialization, South Korea, which is among the Asian Tigers, has turned late development into a great success. Learning, applying and developing new technologies has elevated South Korea to a different position among East Asian countries. When it was separated by its 38th parallel limitation, it started an industrialization process with limited resources, without capital and technology accumulation (Tiryakioğlu,2015:52-53). Today, it is among the three important economies of Asia (Ünay,2015:19). It was the 11th economy in the world in terms of GNP in 2019 (IMF: Korea's Economic Outlook in Six Charts, 2019: online resource). The main reason why South Korea has included in the first group of countries is not an economic growth forecast. South Korea has transformed from a labour-intensive agricultural country to technology and capital-intensive industrial country in the rapid development process achieved by supporting its microeconomic policies with industrialization, education and technology policies. This transformation supports the economic progress and technology-intensive production relationship outlined in the thesis.

**Graph 2.7. South Korea GDP Growth Rate**




**Source:** South Korea GDP Annual Growth Rate, **TradingEconomics,** (available), https://tradingeconomics.com/south-korea/gdp-growth-annual, October 10,2020

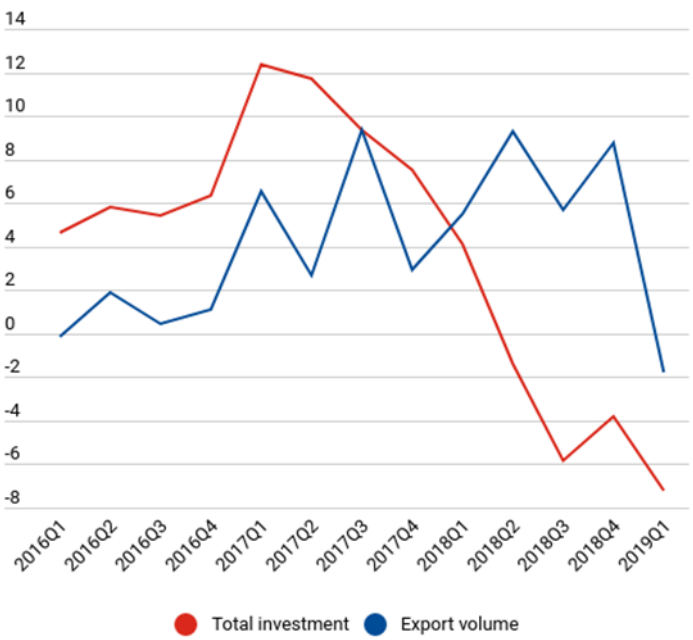
South Korea has a population of 51.6 Million (World Bank: Population,2019: online resource). South Korea's annual GDP growth rates are included in the table

above. While the most significant break occurred during the 1997 Asian currency Crisis, the second-biggest decline was experienced in the 2008 global crisis. In the years before the Asian currency crisis, Korea had made great strides in exports and growth rates. Under President Kim Young-Sam, exports grew by 14%, with growth in international trade surpassing GDP growth. Thus, while the trade-real GDP ratio was 40.2% in 1990, this ratio reached 75.6% in 1997. This foreign dependency of the economy underlies South Korea's impact from the currency crisis. The lack of natural resources caused Korea to exist in the global economic environment with export and industrialization, which increased economic fragility. Look at the year 1995; free trade practices were initiated with the effect of globalization, which brought many positive developments such as domestic market competition, product diversity, decrease in dependence on Japan and the USA. (It was still sensitive to fluctuations in the US and Japanese markets/trade.) Although the trade volume increased due to economic liberalization in the pre-crisis period, it was not easy to maintain the balance of payments. In 1997, S. Korea had a foreign trade deficit of 6 billion dollars (Kim et. al.,2008:5-10). While its imports consisted of capital goods and raw materials, S. Korea's borrowing with foreign currency and trade deficits increased the effects of this currency crisis. After this crisis, Korean companies also changed their business management methods. Under the administration of the new chairman, Kim Dae Jung, FDI has implemented structural reforms with the OECD recommendations on financial market control, corporate governance and regulatory reforms, corruption and privatization (West,2009: online resource). OECD has acted as a communication channel between Korea and the world's developed economies during the development and implementation of these reforms (Witherell,2001:2). These reforms carried out in 1998 reduced the vulnerability of the Korean banking and financial sector in the face of possible shocks and provided the infrastructure for rapid recovery. Korea's ability to recover the decline in the last quarter of 2008 in the shape of V in 2010 was the result of these comprehensive reforms (Sharma,2013: online resource). S. Korea contracted 5.6% in the last quarter of 2008 compared to the previous quarter. Exports declined as a result of the contraction in global demand, which affected consumption and investment rates (Singh,2009: online resource). The answer that the impact of the 2008 global crisis affected a country with strong macroeconomic foundations more

than other Asian countries was that South Korea made foreign investment and foreigners' domestic share purchase without any restrictions. Liberalization of foreign direct investors and open capital accounts was the main reason for this economic recession in 2008 (Sharma,2013: online resource).

Korea has been on the verge of a cyclical and structural change in recent years. Recently, both exports and investment have weakened, although consumption has supported by fiscal policy. While positive results have been achieved in job creation, expected inflation rates are lower than the Bank of Korea's target. Also, potential growth is diminishing with negative demographic data and slowing productivity. It is possible to see the decline in export and investment rates, which have an impact on growth, in the graph (Graph 2.8) below (IMF: Korea's Economic Outlook in Six Charts,2019: online resource).

**Graph 2.8. Total Investment and Export Values of South Korea**




**Source:** Total Investment and Export Values of South Korea**, IMF and CEIC Data Company**, (available),https://www.imf.org/en/News/Articles/2019/05/16/na052119-koreas-economic-outlook-in-6-charts, October 14,2020

According to a statement made by the Republic of Korea in May 2019, for the sustainability of economic growth, domestic demand will be supported by fiscal policy and the government will focus on supporting income, creating job opportunities and innovations. It plans to implement domestic financial incentives to achieve positive results in the short term. The slowdown of global trade and the tensions created by China in trade, especially exports, cause imbalances in the economy. Slowing productivity and negative demographic data have negative impacts on potential growth. It covers 69% of the total population rate of Korea's working population (WB: Labor Force Participation Rate, 2020: online resource). Depending on the ageing of the population, the decrease in this ratio and the decrease in productivity are among the issues that need to be taken precautions. In South Korea, where the working population's age ratio increases day by day, income inequality has become more noticeable. It has underlined that Korea should adopt macroprudential policies instead of monetary policy to manage these financial risks (IMF: Republic of Korea: 2019 Article IV Consultation-Press Release; Staff Report; and Statement by the Executive Director for the Republic of Korea, IMF Staff Country Reports,2019: online resource).

South Korea is one of the best examples of technology-intensive production and economic development discussed in the thesis. According to the ratio of R&D expenditures to GDP, S. Korea was the second country in the world to allocate the most budget for research and development in 2018. S. Korea, which allocates 4.528% of its GDP on R&D expenditures, has spent a total of $ 95.462 Million in 2018. While this rate was $ 46,198 million in 2008, this rate has doubled in the past ten years (OECD: Gross domestic spending on R&D, 2019: online resource). In the context of research and development policies, the 3rd S&T Basic Plan has implemented between 2013-2017. The aim of the plan, conducted by the Ministry of Science and ICT, is to expand national R&D investments and increase efficiency, to develop national strategic technologies and to be one of the top seven countries in the world in terms of science, technology and innovation capacity (OECD, StipCompass International Database on STI policies, 2019: online resource). This plan encompasses the implementation of five high strategies, including long-term action plans for economic and public welfare. These five high priority strategies are; to contribute to new

structural regulations and to support new industries, to help strengthen medium and long-term innovations, to advance in the context of sustainable green economies and to implement global green growth as a goal, to encourage green technologies in R&D studies (OECD: OECD Science, Technology and Innovation Outlook 2014, online resource:365). Besides, it is to increase and develop the innovative capacities of SMEs within the scope of The Creative and Economy Initiative. The Creative Economy Initiative was announced in 2013 by the president Park Geun-Hye (Kohen,2020: online resource). According to the Korean government, the creative economy is defined as follows;

> ‘‘The creative economy is a new economic strategy that makes new industries and markets by integrating/aligning imagination and creativity to science, technology and ICT and creates decent jobs by reinforcing traditional industries (UNCTAD,2017).’’

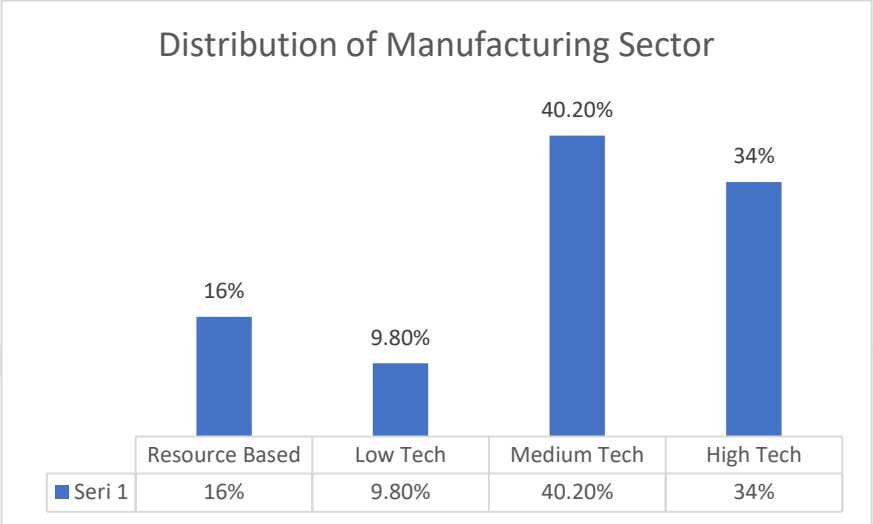
The creative economy strategy has emphasized that creating new added value and developing new jobs and new machines are of great importance for the country to continue sustainable growth. For this, an economic and social model around creativity and innovation is aimed both in the government and private sector. In addition to chaebols, it aims for small and medium-sized enterprises to take part in the global market and advance their development based on technology and innovation. The state finances the institutions to meet the basic technology required for future recruitment. The technology-based studies planned to be developed in the future cover areas such as new drug development, brain science, nanomaterial, renewable energy, space technology, the convergence of IT-BT-NT-ET technologies (UNCTAD,2017:6-20). The Creative Economy is a strategy for shifting Korea's growth paradigm from the industrial economy to the knowledge economy by unlocking the productive potential of national STIs and cultural ecosystems (OECD, G20 Innovation Report, 2016:20). In addition to these; The Ministry of Trade, Industry and Energy (MOTIE) announced that they had completed the 4th Energy Technology Development Plan in 2019. Under this plan, 50 development goals in 16 areas were determined. These determined goals; solar energy; wind power; hydrogen; advanced energy materials; nuclear power; clean energy generation; resource development; recycled resources; energy security; the

energy efficiency of buildings; industrial efficiency; transport efficiency; big data; intelligent energy storage; and cybersecurity (Suk-yee,2019: online resource). The Creative Economy plan and Energy technology development plans are a future plan dominated by South Korea's transition to a green economy and a technology-intensive, high value-added innovative approach.

South Korea has a strong technology advantage in the international division of labour in terms of information and communication technologies, which have an important place in its development. A significant R&D budget is allocated for advanced band systems and the software industry. Many projects have been implemented for the development of the software industry. Some of those; ICT Convergence Flagship Project (e.g., the next-generation game, ScreenX, and Theme Park) and the Software Convergence Project (e.g., shipbuilding/marine engineering and healthcare) (OECD, G20 Innovation Report,2016: online resource).

In the ''Competitive Industrial Performance Index 2020: Country Profiles'' report of UNIDO published in 2020, it is seen that the GDP rate of S. Korea is: 1,506 billion / 29,429 per capita. In this report, it is also seen that manufacturing value-added is 413.6 billion / 8,084 per capita, and manufacturing exports are 588.7 billion / 11,505 per capita. Information on the distribution of technology in the manufacturing sectors can be seen in the graphic (Graph 2.9) below. Based on this graph, it is seen that medium and high technology manufacturing sectors are intense (UNIDO: Competitive Industrial Performance Report 2020:233).

**Graph 2.9. South Korea' Distribution of Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 28, 2020

**Table 2.4. South Korean' Performance Indexes**

| Performance indexes | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend 1990 2018 |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 3 | 0.349 | 0.067 | 3 → | |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 6 | 0.309 | 0.076 | 5 | |
| Share of Manufacturing Value Added in GDP Index | 5 | 0.776 | 0.343 | 5 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 4 | 0.793 | 0.302 | 3 | |
| Industrialization Intensity Index | 3 | 0.785 | 0.323 | 3 | |
| Share of World Manufacturing Value Added Index | 5 | 0.106 | 0.023 | 5 | |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 18 | 0.313 | 0.103 | 15 | |
| Share of Manufacturing Exports in Total Exports Index | 2 | 0.998 | 0.631 | 2 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 9 | 0.823 | 0.397 | 8 | |
| Index Industrial Export Quality Index | 5 | 0.910 | 0.514 | 3 | |
| Share in World Manufacturing Export Index | 5 | 0.245 | 0.039 | 5 | |

$1^{st}$ DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
$2^{nd}$ DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
$3^{rd}$ DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-

2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B
October 28, 2020

### 2.1.4. Singapore

#### 2.1.4.1. Historical Process

Singapore's history goes back to the 7th century. This island, which is not densely populated, was ruled by the Srivijaya Empire between the 7th and 14th centuries. Located between Indonesia and Malaysia, the island state has turned into a trade centre due to its strategic location. Sir Stamford Raffles bought the island from the Malay ruler in 1819 on behalf of the British East India Company and established a port (Acemoğlu and Robinson 2016:28). This island came under the control of the East India Company in a short time and received immigration from the region, mainly from China and India. The effects of Confucian thought and Buddhist teachings adopted by China and India have been influential on this island with the immigration and have adopted in a short time. Over time, the island, which has more Chinese and Indian populations than Malays, has become an important trading port and commercial centre. Singapore, which has also used as a warehouse and container port, has gradually become an essential building block of regional and global foreign trade. A treaty signed with the Netherlands and the British in 1824 (Anglo-Dutch Treaty of 1824) (Heng et. al.,2011:53-54). After this Agreement, the island has seen as a British colony, and this situation was continued by the Bengal Presidency. In 1851, the Straits Settlement was removed from Bengal Presidency control and left under the rule of a governor-general (Abshire,2011:58). The Straits Settlement, the Crown colony became a crown colony directly dependence to London in 1867 (Huff,1997: XX). The presence of two trading countries such as China and India at the region and geographical discoveries increased the island's strategic importance day by day. Particularly, the Suez Canal opening has had an enriching effect on trade transportation to Singapore (Landow,2020: online resource). These products have transferred to countries in need of industrial products via China and India. This process continued until the 1930s. In 1936, depending on the Port Rules, the port borders were expanded. In the period leading up to the Second World War, Singapore made significant strides

in its commercial development as a British colony. During the Second World War, it was exposed to the aggressive attitude of Japan and has bombarded. Japan acquired Singapore on February 8, 1942. While Japan was aiming to control oil and rubber exports in the region by seizing Singapore and Java, ports and many merchant ships have damaged as a result of the bombardment (Holcombe,2016:311). However, as a result of the Pearl Harbour attack, the involvement of the United States in the war interrupted the Japanese domination of the East Asian sea control. The Japanese maintained control of Singapore until the end of the Second World War (Absire,2011:90-97). In 1946, Singapore and Malaysia became two separate colonies, again affiliated with the British Royal family. In 1946, the Ports Council took over the port management. With the end of the Second World War, the peoples living as colonies worldwide sought independence. The idea of being an independent state in Singapore has strengthened after WWII, and as a result of these requests, the first election was made in 1948 to determine the legislative council. Several years of strikes and demonstrations continued. With these demonstrations, strikes and their desire for independence, the Singapore people tried to get the British government to declare a new Constitution with the elections in 1955. When the Constitution was not declared, uprisings, protests and demonstrations increased. In 1959, the election renewed, the Peoples' Action Party (PAP) won, and constitutional negotiations were resumed (Acemoğlı,2016:29).

People’s Action Party (PAP) has taken essential steps to integrate Singapore into the global economic system and industrialize it. It continued to work with the aim of opening the region to foreign investment and multinational companies by reducing the power of trade unions. While acting for these purposes until 1963, Singapore, which continued its desire for independence, was attached to British Malay until 1957. PAP saw this connectivity situation as an economically strategic move. The aim was to expand Singapore's trade area and gain large leverage. However, this could not be done due to the homogeneous population density. When the Chinese and Malay people could not agree, Singapore left Malaysia in 1965 to become an independent state (Holcombe,2016:378). Nearly 76% of Singapore people were Chinese, and the rest were Hindus (%7.5) and Malays (%15), who immigrated from India (Publication in

Brief,2020:20). Having been under colonization for a long time and having a homogeneous population structure, Singapore focused on two basic issues such as identity building (Abshire,2011:141) and economic sustainability. Singapore's integration into the international system has easily accomplished as it had a significant share in the world trade volume. In the next title, Singapore's integration process and transition to a liberal economy will be discussed in detail. ‘‘Have the cold war polarizations had an impact on its political and economic structure? What consequences has the state intervention had for Singapore’s position in the global market?’’ Answers to questions will be sought.

### 2.1.4.2. Integration and Development to The International Economic System

Unlike other countries examined in this thesis, Singapore obtained a large proportion of its economy through foreign trade. However, until the independence process, control and management were in the hands of the British. In 1965, Singapore officially gained independence and Lee Kuan Yew became Prime Minister (Heng, et. al.,2011:90). One of the questions we sought answers was about Singapore's attitude during the Cold War. Singapore declared its independence; in other words, it has expelled from the Malaysian Parliament was the Chinese population living in Singapore. Since China took a communist attitude during this process, the Chinese people living in Singapore have also seen as a communist threat to Malaysia. The PAP party had created the appropriate conditions for the constitution to be prepared and promulgated and the transition to democracy (a multi-party system). So much so that due to the differences of opinion, the PAP party was divided into two and the Barisan Sosialis party was established. However, unlike these developments, it was ruled by a single party for many years. PAP has kept the public under control over the media for many years and applied censorship on many issues. He ruled the country with an oppressive and authoritarian form of government. The only area in Singapore where the PAP administration did not apply restrictions was the sectors that shaped the economy (Rodan,1998:64-67). Thanks to the incentives applied to trade, low taxes and its strategic location, it continued to keep the attention of capitalists after WWII.

Imports and exports were significant to Singapore, as it is dependent on foreign sources in terms of natural resources. Unlike other model countries, Singapore's origins were not feudal in nature, which has used as an advantage in urbanization and industrialization. However, this urbanization and industrialization was a time-consuming issue in terms of water supply and infrastructure services. To make a general summary of the post-independence situation, it was in a situation that could be perceived as a communism threat in the global market, with a high rate of unemployment, being dependent on foreign sources due to lack of natural resources, water and infrastructure problems. Prime Minister Lee requested assistance as a member of the IMF and the World Bank for economic and social development. These memberships brought many positive results in terms of the balance of payments, global confidence in monetary policies and advice/opinions received for the country's economy (HistorySG,1966: online resource). Its economy started to develop in a short time, the inequality among the people has reduced. As we mentioned earlier, even though there is an oppressive and authoritarian one-party government, programs that improve the social welfare of the people have been implemented (Acemoğlu,2016:28-30).

Some institutions have an essential role in the development of Singapore. The Singapore Mint and Jurong Town Corporation are at the top of these institutions. These institutions were established on an industrial basis and conducted extensive studies on the industrial sites and facilities of the country. The penetration of the Singapore industry into wider areas and the integration of technology into industries is a ladder in the transition to technology-intensive production, one of the main variables of our thesis. So much so that it has developed facilities and infrastructures in line with the transition from labour-intensive production to capital-intensive advanced technology industries based on research (HistorySG,1968: online resource). In this process, some regulations were made in the country in order to attract multinational companies to the country. While low tax rates came at the beginning of this, safe and corruption-free conditions were created. Independent trade unions were put under state control, being reshaped under the National Trade Union Congress. Another essential point to be underlined in Singapore's rapid development was education. Technical schools were

established in a short time, and training was received from foreign companies to reduce the number of unemployed in the country. Training resulted in the qualification of workers in many fields including information technology, the petrochemical industry and electronics. Another important step Singapore has taken is that it directed the unemployed, who were not recruited to the industrial area, to the service sector tourism and transportation areas instead of labour-intensive production areas. In light of these developments, Singapore began to globalize by attracting foreign investors and multinational companies to the country at the end of the 1960s (Zhou,2019: online resource). When it comes to the 1970s, it is seen that these practices have positive results, especially on employment and industrialization. In fact, sectoral development and full employment policies have caused a labour shortage, Singapore has become one of the first liberal immigration countries by bringing imported workers. The NWC (National Wage Council) was established in 1972 to remuneration and manage this workforce. The guidance of this institution on workers and unions continues until the end of the 1980s. State control over wages and trade unions is an important move for the sustainability of economic growth. The management of Singapore by PAP has been influential in the continuity of the policies for a long time. This control over capital began to be stretched in 1978, but it can be said that the economic growth of Singapore in 1968-1997 progressed with fiscal measures and control over capital was completely abolished only in 1997. (Abeysinghe and Choy,2007:2-4).

MAS (Monetary Authority of Singapore) has established in 1971 (Huff,1997:342-343). With the stable exchange rate of the foreign currency on which economic relations, especially import and export, were based, the effect on the Singapore dollar decreased. (Import inflation above the dollar has prevented). MAS's policies enabled the oil crises of the 1970s to be overcome without causing high inflation. In 1981, a privately funded unit established under the National University of Singapore, Department of Economics; ESU. The main task of the ESU has been to establish and maintain a structural macroeconomic model of the Singapore economy. The first ESU model has put into practice in 1988, and annual data were used based on this model. This has followed by short-term forecasts, economic analysis, conferences, seminars and economic growth equations. Over time, the equations of

these models started to be renewed in quarterly periods. ESU model; It contains 62 equations, 36 behavioural equations, and 26 identities. However, the Asian financial crisis revealed that the data it obtained on Singapore's trade partners was not objective and that the trade partners in the region became more dependent on each other than is known (Abeysinghe and Choy,2007:3-7). In this modelling process, Singapore has been able to achieve sustainable growth by analysing possible results by making predictions and policy analysis. Physical capital with concrete technology and educated human capital with technical knowledge have also been the two main factors that facilitate the implementation of economic growth models. Due to its strategic location and various economic infrastructure, Singapore is dependent on foreign direct investment, unlike other exemplary countries. There are important oil refining centres and trade ports in the region, thanks to the oil refining centres, the petrochemical industry is developed. Being one of the successful examples of the re-export economy, Singapore is dependent on imports in terms of production and has a structure that can re-export through imported products, since it does not have natural resources. Besides, due to its strategic location mentioned earlier, it is an important trade point on a regional basis. So much so that the product imported from trade partners can be directly exported without any processing. The Asian Financial Crisis that took place in 1997 took place in the region, including the Singapore island. At the root of the crisis is financial fragility due to foreign investment. It has arisen due to the rapid development of countries in the Asian region due to foreign capital investment, the sudden withdrawal of capital from these countries, and has brought many negative consequences (Abeysinghe and Choy,2007:31-31).

Singapore’s integration with the international system has developed after independence. In this integration process, IMF, World Bank and multinational companies’ incentive and investment funds were used to balance domestic and foreign economic effects (Kanchoochat,2019:60:). Over time, it has undertaken multinational companies’ production and distribution activities and has become a regional actor (Huff,1997:320). The training received for information technologies and industrial sectors combined with a good justice system and made Singapore a financial and stock market area in a short time. Here, the rule of law principle is reassuring for foreign

investors. Singapore started to liberalise in the 1970s and made progress in democratisation with the renewal of its Constitution in 1991 (Abshire,2011:5).

The effects of globalisation and industrial revolutions are seen in Singapore's developing industrial sectors, with ports and refineries adapted to high technology, and developed banking and stock exchange systems. A regional interaction, depending on the dependency policy in the Asian Financial Crisis, is also among globalisation effects. Singapore's economy today is based on four pillars. Trade is at the top of these; Since it is overly dependent on imports and exports, it maintains foreign trade balance and earns a high income. Second, the industry sector comes; Shipbuilding, petroleum refineries, electronic equipment production, petrochemical products, pharmaceutical and biomedical products, textile, food and timber production make a significant contribution to the national economy. Tourism and fishing are two other sectors on which the Singapore economy is based. Singapore is among the largest economies in the world and one of the most liberal countries. Due to its economy being based on trade and its openness to the outside, it has exposed to the effects of the 2008 global crisis. A precautionary package was prepared in order to reduce the effects of crises (DEİK: Singapur Ülke Bülteni,2014:6).

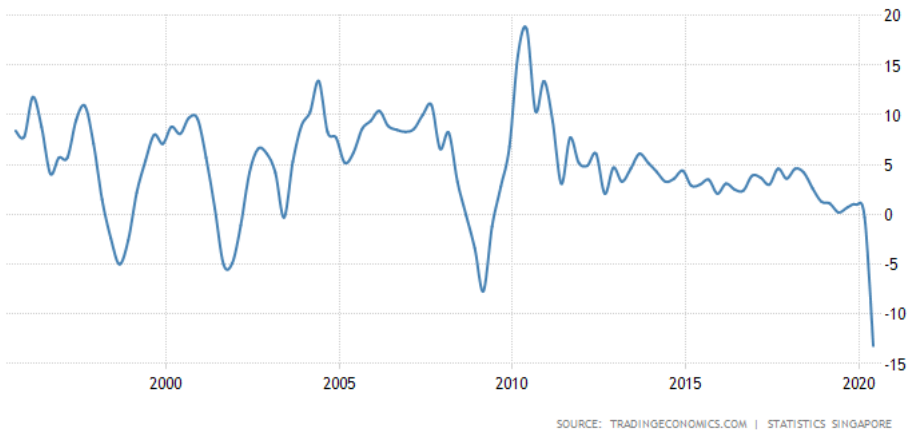
In the next title, the Singapore economy's relationship with technology-intensive production will be discussed according to variables. Unlike the second group of countries, the results of industrialisation and technology-intensive production capacity on economic development will be analysed through the data.

### 2.1.4.3. Evaluation Due to Independent Variables

Considered as the most successful country among the East Asian tigers, Singapore supports the view that Keynes' planned development is a ‘‘more efficient’’ alternative. In this thesis, one of the main reasons for Singapore to be included among the first group of countries is the positive change created by the use of technology and state intervention in the country's economy. Economic plans made with state intervention have played an important role in Singapore's development (Huff,1995:736). While Singapore is the 8th most innovative country in the world

according to the 2019 Global Innovation Index, it ranks first among countries in the Asia Pacific region (WIPO, Global Innovation Index ,2019: online resource). These indicators help it come into prominence both with its increasing importance in the Asia Pacific region and with the economic and commercial roles it assumes in the context of the new global economic division of labour. Singapore, which achieved its industrial and economic transformation in a short time with government intervention, has become one of the leading petrochemical and electronics manufacturers and one of the world's leading transit trade centres. One of the main reasons for taking Singapore among the first group of countries is that it applies industrial developments in these transit trade processes and continuously improves it to benefit the country's economy.

**Graph 2.10. Singapore GDP Growth Rate**




**Source:** Singapore GDP Growth Annual, **TradeEconomics** ,(available), https://tradingeconomics.com/singapore/gdp-growth-annual, October 27,2020

Singapore has a population of 5,850,342 according to United Nations data (Worldometer: Singapore population, 2020: online resource). The graph (Graph 2.10) above includes Singapore's annual GDP rates. Based on this graph, deep breaks are observed due to the 1997 Asian Financial Crisis, the 2001 electronic restructuring and the global economic crisis in 2008.

Adopting the export-oriented economy model, Singapore was adversely affected by the Asian Financial Crisis and the 2008 Financial Crisis due to its high trade volume and openness. Since Singapore has a small domestic market, it has built the foundations of its economic development strategy on attracting multinational

companies and increasing these export rates. As in other countries of the Asian Tigers, it has provided rapid and sustainable economic development in Singapore from 1959 to 1997. The PAP administration did not anticipate structural changes and economic imbalances in two events after the Asian Financial Crisis in 1997. These; 2001 was the restructuring of the electronics sector and the 2008 recession brought about by the international financial crisis (Austin, 2009:271).

The Asian Financial Crisis in 1997 resulted in speculative pressure on the Singapore dollar and depreciated against the currencies of the USA, Europe and Japan. At the same time, the Singapore dollar has had an increasing value against regional currencies. Since it was a regional trade superior, it was adversely affected by the developments stemming from the financial crisis and then maintained its successful economic performance. According to Ngiam, Singapore's transformation of these effects into positive economic performance in a short time was effective on strong macroeconomic foundations, concrete macroeconomic policies and timely and effective policy measures against the adverse effects of the crisis. So much so that during this period, the Singapore authorities implemented financial reforms and liberalization policies, and these policies were a move to increase international competitiveness in the future. During this period of the Asian currency crisis, regional export demand decreased, which negatively affected the Singapore economy. Singapore weakened during this crisis as banks lent to countries in the region. Ngiam underlines that there is a regression against the country in terms of Singapore's regionalization investments. Export, banking, investment Etc. These declines in these moments caused negative growth in the Singapore economy, creating a significant break, as seen in the graph above. Even if this decline in the Singapore economy is evaluated as negative for the country, it is seen that it is one of the countries with the best growth rate when evaluated in regional terms. Two important factors came to the fore in Singapore’s recovery. The first of these was the strong growth in global electronics production (covering two-thirds of the Singapore economy), the other was the strong transformation in regional economies. Strong macro-economic fundamentals, a flexible exchange rate and an adjustable wage system, accelerated the three strong fundamental recoveries (Ngiam,2000:142-164).

The second breaking point occurred in the restructuring process of the electronics sector in 2001. Many companies invested in IT between 1990 and 2000; by 2001, there was a significant contraction in IT investments. The reason for this shrinkage is that the IT product cost is much lower than other investment costs and the resulting increased demand. There was a contraction in 2001 as the gap between actual and projected IT investments widened (Doms,2004:21). It is clearly seen in the break in the GDP chart given above that Singapore was also affected by this development in the field of American information technology. During this process, mass layoffs were experienced in Singapore, and many political and economic problems arose in society. PAP management has provided an implicit industrial policy to the sector by providing a wide range of financial and technical support (Austin, 2009: 273).

Based on the GDP table, the third big break coincides with the 2008 global crisis period. The Singapore economy experienced a sharp contraction at the end of 2008. In the fourth quarter of 2008, GDP decreased by 4.2%. Singapore's GDP fell by 9.5% in the first quarter of 2009, the sharpest contraction. Exports fell by 21% and imports by 19.2%. When the Singapore economy is considered structurally, high import and export rates draw attention. The table (Table 2.5) below shows the expenditures made in these areas in 2008. This country, whose imports and exports have a significant impact on the country's economy, has been deeply affected by the global crisis (Doraisami,2011:33-34).

**Table 2.5. Singapore-gross National Product by Expenditure Shares**

| Component | % Share |
|---|---|
| Private Consumption | 41.00 |
| Government Consumption | 10.69 |
| Gross Fixed Capital Formulation | 28.49 |
| Changes in Inventories | 2.39 |
| Net Exports of Goods and Services | 19.07 |

| | |
|---|---|
| Exports of Goods and Services | **234.34** |
| Imports of Goods and Services | **215.26** |
| Statistical Discrepancy | -1.65 |
| Total | 100 |

**Source;** Anita Doraisami. "The global financial crisis: countercyclical fiscal policy issues and challenges in Malaysia, Indonesia, the Philippines, and Singapore." (2011). p. 35

The slowdown in the GDP growth of trade partners such as China and India have further increased the impact of the crisis in the region. Contrary to the Asian crisis, a synchronized decline occurred all over the world rather than regional effects. While Singapore's commodity exports decreased by 10% and 13% respectively during the recession periods in 1998 and 2001, it decreased by approximately 30% in the 2008 global financial crisis (Bhaskaran and Wilson,2001:20-24). The falling prices in the stock exchanges and the sharp decrease in industrial production negatively affected the city-state economies that were dependent on exports (Jordan,2009:95).

In the table (Table 2.6) below, Singapore's export rates other than oil are given according to specific destinations. The sharp decline in exports to G3 countries and a large decline in exports to ASEAN countries are noteworthy. Although these rates create short-term adverse effects for Singapore, which adopts an export-based economic growth model, it is seen that the durability of monetary and financial systems reduces these effects in the ongoing process.

**Table 2.6. Non-oil Domestic Exports by Selected Destination 2007-2009**

| Y-O-Y % chg | 2007 | 2008 | 2009 |
|---|---|---|---|
| Total | 2.3 | -7.9 | -10.6 |
| Electronics | -9.2 | -11.7 | -18.0 |
| G3 | 1.5 | -41.8 | -59.6 |
| NIEs (1) | 1.2 | -11.2 | 11.6 |

| | | | |
|---|---|---|---|
| ASEAN-3 (2) | 3.7 | -18.5 | -55.1 |
| China | 0.7 | -2.3 | -7.7 |

(1) Hong Kong, Korea, Taiwan

(2) Indonesia, Malaysia, Thailand

**Source:** Bhaskaran, Manu, and Peter Wilson. "The Post-crisis Era: Challenges for the Singapore Economy." Challenges for The Singapore Economy After the Global Financial Crisis. **World Scientific**, 2011.p.24

After the crisis, the Singapore government introduced a number of loan implementations and programs. ‘‘Special Risk-Sharing Initiative (SRI)’’ undertook to cover 75% of the insurance risk of loans provided for government working capital and trade finance. Within the scope of this initiative, many programs have been prepared for SMEs and microcredits. In addition to these, there are financial measures implemented by the government to reduce the effects of the crisis (Keat,2009: online resource). An incentive package, one of the biggest measures in the Asia-Pacific region for the revival of the financial sector and the protection of existing sectors, has been announced. This incentive package implemented by the government has a budget exceeding SGD 20.5, which corresponds to 8% of the city-states GDP. Within the scope of this incentive package, it has aimed to prevent layoffs, help low-income households, provide commercial cash flow, increase competitiveness, and support education, infrastructure and health services (Jordan,2009:104-105).

After the Asian crisis, Singapore avoided excessive dependence on a particular region, instead of maintaining its global economic integration by diversifying markets and resources. The aim is to be active in all global markets and less affected by a possible crisis in any of them. This theory mentioned by Austin in his article is important for the Singapore economy to achieve sustainable development. However, the 2008 global crisis showed that this market and resource diversification practice was not effective (Austin,2009:272).

Booming economic growth up to the 2008 global crisis is not only a result of PAP’s effective policies. In this success, there is the economic structural change in Asia, and some situations brought about by it. There has been a process in which products and services are increasingly directed towards local and regional needs, not

just for export to the West. This situation has implemented on the basis of diversifying the market and resources that Austin stated in his article (Austiın,2009:273).

Electronic production and industrial production have gained more importance day by day in terms of market diversification. In this case, it was reflected in technology and innovation investments and programs in Singapore, as in many countries of Asia. According to OECD data, the ratio of Singapore's R&D expenditures to GDP in 2001 was 2.009%, and 4.374 $ was spent. This rate was 2.597% in 2008, with a total budget of $ 7.180. In 2018, while R&D expenditures were 1.844% of GDP, a total budget of 9.890 $ was allocated (OECD: Gross Domestic Spending on R&D,2020: online resource). As a result of this investment made in the field of R&D, a competitive advantage is provided in the international system both in terms of economy and innovation. Singapore, which is in the first group in innovation and technological development, has attached great importance to multinational companies, unlike S. Korea, Japan and China. They have taken an open attitude toward foreign investment for industrial development (Gezikol and Çiftçi,2017:79).

**Table.2.7. Singapore' Research and Innovation Budget**

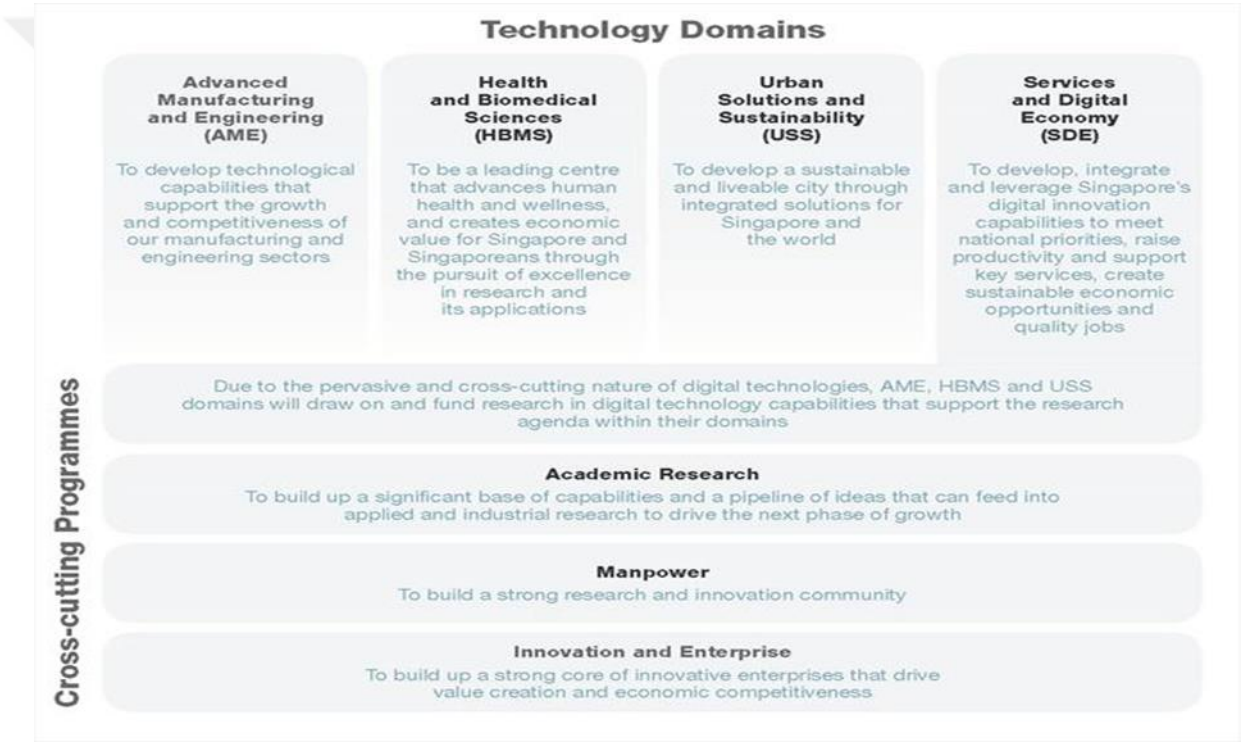
| **Plan** | **National Technology Plan 1995** | **National Science & Technology Plan 2000** | **Science & Technology 2005 Plan** | **Science & Technology 2010 Plan** | **Research, Innovation and Enterprise 2015 Plan** | **Research, Innovation and Enterprise 2020 Plan** |
|---|---|---|---|---|---|---|
| **Budget** | $2 billion | $4 billion | $6 billion | $13.5billion | $16 billion | $19 billion |

**Source:** Research Innovation Enterprise 2020 Plan-Winning the Future through Science and Technology. **National Research Foundation.** p.2, (available) https://www.nrf.gov.sg/rie2020 August 28, 2020

Having adopted the strategy of developing an economy and society based on knowledge and innovation, Singapore has given great importance to research, initiative and innovation. The table (Table 2.7) above includes the budgets of the plans for technology development, R&D and innovation for the last 25 years. Within the scope of the Research, Innovation and Enterprise (RIE) 2015 plan, the Government of Singapore has aimed to make Singapore a global research and development centre, and a budget of 16 billion dollars has been allocated between 2011 and 2015. A total

budget of 19 billion dollars has been allocated for the RIE 2020 Plan covering the period 2016-2020. Within the scope of these studies, successful outputs were obtained in the information and communication technology sector. R&D investments not only had an impact on economic activities but also made the start-up ecosystem alive. In the Global Startup Ecosystem Report published in 2015, Singapore ranked first in the Asian region among the best Start-up countries and ranked 10th worldwide (Research Innovation Enterprise 2020 Plan, 2016: online resource).

**Figure 2.1. Technology Domains of Singapore**




**Source:** Research Innovation Enterprise 2020 Plan-Winning the Future through Science and Technology. **National Research Foundation.** p.2, (available) https://www.nrf.gov.sg/rie2020 August 28, 2020

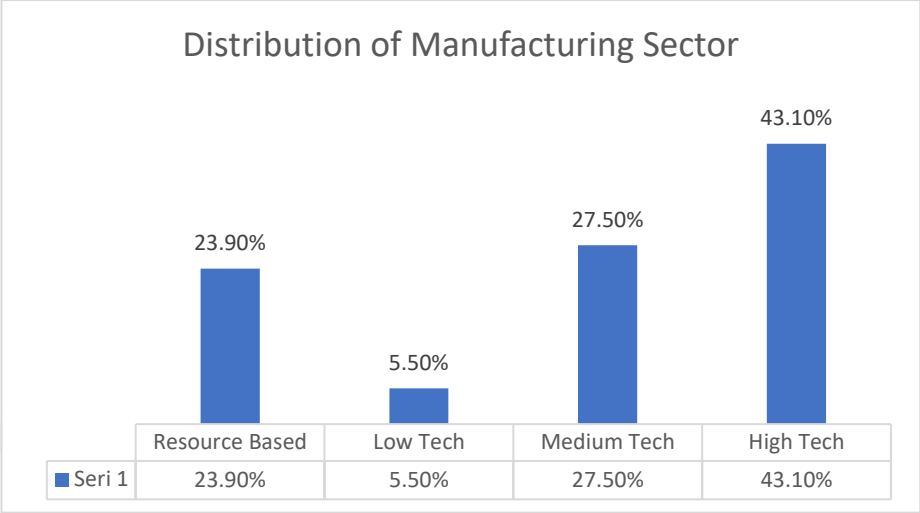
The RIE 2020 Plan aims to gain a global competitive advantage and take a more active role in the international business segment by working in four strategic technology areas, as shown in the table (Figure 2.1) above. Studies in the fields of production and engineering with advanced technologies, health and biomedical sciences, urban solutions and sustainability, services and the digital economy are supported by scientific/academic research, specialized human resources and

innovative initiatives. The difference between economic development and economic growth, which we mentioned in the first part of the thesis, stands out here. Singapore implements inclusive plans and practices for economic growth in the context of these plans. The necessary studies for a smart nation are put into practice in terms of infrastructure and politically, and the ecosystem is developed (RIE 2020 Plan, 2016: online resource).

The Government of Singapore aims to combine capabilities and innovation in the technological field to advance industrial development and fulfil needs. These programs are also beneficial in terms of reaching new markets and easing the daily workload; carries out studies on many issues such as accreditation of technology companies, data security in the digital economy, combining the changing supply chain with the application of blockade and creating green ICT targeting energy efficiency. The Digital Services laboratory aims to bring together digital service experts and industry employees to develop this link between digital technologies and the economy and continues to work to develop strong technology capabilities in sectors that dominate the economy (Infocomm Media Development Authority, 2020: online resource).

In the ‘‘Competitive Industry Performance Index 2020: Country Profiles’’ report published by UNIDO in 2020, it is seen that Singapore's GDP rate is 332.8 billion / 57,799 per capita. In the country profiles included in the report, it is seen that Singapore has a manufacturing value added of 63.2 billion / 10,974 per capita, and manufacturing exports is 186.2 billion / 32,344 per capita. The distribution in the manufacturing sector of Singapore, which we evaluated in the first group, is shown in the graphic (Graph 2.11) below (UNIDO: Competitive Industrial Performance Report 2020:252).

**Graph 2.11. Singapore' Distribution of Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B, August 30, 2020

**Table 2.8. Singapore' Performance Indexes**

Performance indexes

| | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend 1990 2018 |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 9 | 0.259 | 0.067 | 9 → | |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 3 | 0.420 | 0.076 | 3 | |
| Share of Manufacturing Value Added in GDP Index | 21 | 0.532 | 0.343 | 21 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 1 | 1.000 | 0.302 | 1 | |
| Industrialization Intensity Index | 4 | 0.766 | 0.323 | 4 | |
| Share of World Manufacturing Value Added Index | 30 | 0.016 | 0.023 | 30 | |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 3 | 0.881 | 0.103 | 2 | |
| Share of Manufacturing Exports in Total Exports Index | 30 | 0.916 | 0.631 | 29 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 13 | 0.783 | 0.397 | 10 | |
| Index Industrial Export Quality Index | 11 | 0.849 | 0.514 | 11 | |
| Share in World Manufacturing Export Index | 23 | 0.077 | 0.039 | 23 | |

1st DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
2nd DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
3rd DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-

2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B, August 30, 2020

## 2.2. The Developing Countries Which Implementing Resource-intensive and Capital-intensive Production Systems

Many growth and development data of the IMF and World Bank have revealed that the world economic power balance has begun to be positioned towards Asia. It is predicted that US hegemony will be replaced by a multi-polar division of labour, and developing countries will rise in the world's economic power ranking in the next decade. According to the report published by Standard Centered Bank in 2019, two of the ten largest economies in the world in 2030 will be emerging economies of Asia, such as India and Indonesia (Desjardins,2019: online resource). In the first group, countries that industrialized early and carried their development focused on technology-intensive production to advanced points have discussed. The countries selected for the second group are among the emerging economies of Asia, and the economies that are late industrialized, unable to use their technological and industrial development comprehensively in every sector in their country, but still growing will be discussed. The different progress and development processes of India, Indonesia and Taiwan discussed in this section are covered in detail in the historical process and integration processes into the international economic system, while the sectoral distribution of their economic developments, GDP values, R&D expenditures they allocate to industrial and technological investments are included in the evaluation of variables will be given. While Indonesia has an economy shaped by natural resource exports, it is seen that India has developed this with the software industry and information technologies. In the case of Taiwan, even though the economy has based on agriculture, it is seen that the processing, import and export of technological intermediate parts have significant contributions to the country’s economy and development.

### 2.2.1. India

#### 2.2.1.1. Historical Process

India has a history dating back to 2000 BC. The oldest known written source has emerged in this geography. Known as the Rig Veda, the work in the period of the Maurya empire has a religious nature and contains information about the history of the region and the life of the people of the region (Avari,2016: XVII). We can base it on this first written source that it has an earlier history than the other sample countries we have considered. Previously, it has emphasized that China was one of the oldest empires (China-historical process). Hegel used the following expressions for the rich sources of Indian literature.

> ‘‘It strikes every one, in beginning to form an acquaintance with the treasures of Indian literature, that a land so rich in intellectual products, and those of the profoundest order of thought, has no history; and in this respect contrasts most strongly with China an empire possessing one so remarkable, one going back to the most ancient times. India has not only ancient books relating to religion, and splendid poetical productions, but also ancient codes; the existence of which latter kind of literature has been mentioned as a condition necessary to the origination of history and yet history itself is not found’’ (Hegel,2001:33).

India consists of a plain surrounded by mountains between the Ganges and Indus rivers. It also has a peninsula feature due to the coastal part of the sea. The region consists of 16 autonomous city-states including Mahenjo Daro and Harabba BC. These city-states have food stores, planned urbanization, advanced irrigation, sewage systems, and measurement systems used in trade. (Bayur,1987: 25-58). This information shows that the development was very advanced even in BC. In Harabba and Mahenjo Daro, there are findings that especially trade has developed and metalworking has carried out. The Indian peninsula received immigration from Central Asia in 1500 BC These immigrants, called Aryan, are divided into class categories. These classes, including farmers, nobles and priests, have significant influences in

shaping Hinduism. In fact, over time, this classification has brought more classifications that will have an effect on the people of India for a long time. Caste system; It consists of *Rajas (*kings), *Brahmins* (priests and rites), *Kshatriya* (prince and soldiers), *Vaisya* (peasants, artisans and farmers) and *Sudra* (workers). Due to this rigid class structure of the caste system that is the basis of Hinduism, Buddhism has easily found its place in society (Lal,2005:20-24).

The Mauryan Empire was founded in the region in BC by Chandra Gupta. This empire dominated the city-states in the region for many years and furthered the society in terms of wealth and culture (Avari,2016:106). Ashoka, the third leader of the Mauryan empire, dictated columns and enabled Buddhism's teachings to influence most of society. This period is essential in Indian history because the importance of the clergy decreased during this period, so the privileged practice of the caste system has also reduced for a while (Metcalf and Melcalf,2006: XVII). In the 200s BC, the Maurya kingdom collapsed when it could not meet the cost of dominating the region. After that, until the 3rd century AD, the Indian peninsula went through a dark period of religious tensions. In the 3rd century, Chandra-Gupta founded the Gupta Empire. The leadership of two names from the same family using the same name is important at turning points in Indian history. The Gupta Empire controlled the city-states (except the southern ones) in the region, it ruled until the early 6th century (Avari,2016:106-107). What distinguished the Gupta empire from Maurya was that, unlike Maurya, Gupta supported Hinduism and the caste system. To put it more clearly, they brought together some of the features they got from the religion of Buddhism with Hinduism and created a new formation. The Gupta found decimals. It is known that with the collapse of the Gupta, a lot of city-states emerged in the region and a period of chaos prevailed again. Although there was short-term domination until the 8th century, regional unity could not be achieved (Belge,2017:450-451).

It is a fact that religion has a significant impact in the Indian region and can be handled within a religious framework in political developments. In addition to Hinduism and Buddhism, which were influential in the region, Islam started to spread in the 7th and 8th centuries. Although it is a peninsula, the Indian region, which does not give importance to seamanship, has been invaded by the Arabians due to an Arab

ship sunk in its waters. This invasion enabled the religion of Islam to spread in the region. Arab traders had positive effects on the development of trade after the spread of Islam (Avari,2016:212). By the 9th century, it is seen that Iranian influences in the region increased. It is known that Mahmud of Ghazni settled in the north of India in this period and occasionally organized raids for booty. Mahmud of Ghazni continued to spread in the region until the 12th century (Kulke and Rothermund,1997:116). However, when he died in 1206, his son took the lead instead. Meanwhile, the Chola Empire, which emerged in the south, made great raids and plundering on the coastal area. It has captured many coastal areas. Chola empire continued its rule until the 13th century. In the north, the Ghaznavids entered a period of collapse upon the death of Mahmut of Ghazni. Throughout these centuries, Islam has spread throughout the region. During this period, Arabian horse, Indian silk and Indian spices were the main trade products between Arab nations and Indians (Belge,2017:456-457). In the century, an authoritarian regime prevailed under the leadership of Sultan Ghiyasuddin Tughluq. Upon the death of Ghiyasuddin Tughluq, his son Muhammed tried to establish an Islamic union in the region. Due to the oppressive rule of Muhammed Tuğluk, many uprisings were faced. The Ghaznavids lost control in a short time. In this process, if we look at the economy and caste system, the economy was shaped by trade. There was a tax system, and the caste system left its place to rules shaped by the Muslim belief. To understanding the region, it will not only be enough to examine the managerial continuity; It is necessary to know the teachings of Hinduism, Buddhism and Islam. As in China, Japan and Korea, there has not been a management approach to implement a policy of seclusion, and due to its regional location, it has been open to many raids and plundering. It is known that the Mongols came to India at the end of the 12th century (Robb,2011:59-60). They plundered the city of Delhi and captured the artisans and skilled workers in the area. This situation caused an important pause in trade in the region. It is known that the Mongols withdrew from India in the middle of the 14th century and replaced them with politically weak leaders. India, which faced a new invasion in the 16th century, this time found the Mughal people. The important point here is that the Mughal people used cannons and rifles in this invasion. These weapons, unknown in the Asian region, were obtained from the Ottomans at that time (Belge,2017:495). With the help of these weapons, the Mughals dominated many small

rulers in the region (between 1556-1605). The Mughal Empire continued its territorial rule under the name of the Mughal Empire for nearly 500 years (Robb,2011:88-92).

During the Mughal Empire, there was a political unity and scientific developments in India. Observatories were established, and studies were conducted on the unification of religions. Especially in the third leader Akbar period, as a result of these religious studies, the Karma religion was introduced. Karma is a mixture of the teachings of Islam, Hinduism and Christianity. Mughal Empire is the third empire that succeeded in ruling India for a long time. During this period, there was a system based on agriculture and land, significant contributions were made to India in terms of taxation, army building, religious tolerance and culture. Again, the taxes collected during this empire period were used for the development of the empire. Even though there were throne fights within the empire, its sovereignty continued until the beginning of the 19th century (Belge,201:463).

The industrial and technological progress on which the thesis is based has not made much progress in this society. As a result of the cannons and rifles used in the establishment of the Mughal Empire, it made India realize its backwardness in this regard (Robb,2011:81). On the other hand, in the 15th century, European states started to make discoveries on the sea. As a result of these geographical discoveries, Portuguese ships also reached the Indian coasts. In the ongoing process, ships going from Portugal and Spain to India also went to colonization in African countries in the region and created a safe route for themselves (Bayur,1987:55-56; Kulke et. al.,1997:106). In this way, many European states, especially the British, started to use India's coasts in commercial terms. Representatives of the European states also tried to establish relations with the Mughal Empire of the time, but internal turmoil and the empire's fights for throne caused this situation to be ignored. During this colonization process, Britain provided arms to some elites in order to guarantee trade relations. Armament paved the way for the formation of armed units in a short time. England maintained its position relative to the balances in the region in order to achieve economic capitulation. British trading companies established on the coast in the 17th century led many European countries to establish companies in the region over time (Lal,2005:121-123). It is seen that diplomatic relations with Europe started in this

period. The British ambassador of the period was Sir Thomas Roe (Metcalf and Metcalf,2006:47).

Mughal Empire collapsed during this colonization process of India. By the middle of the 18th century, many states such as England, France and the Netherlands desired sovereignty. The companies of these countries continued their progression away from the wars in Europe in the early days. However, the ongoing conflict has spread to this colonial region as well. The British against the French took over most of India. In this process, India's unstable political structure and the absence of sovereign power in that period were effective (Belge,2012:501).

From the 18th century until the middle of the 19th century, there was a period when Britain did not intervene in the region, did not contribute to the region, and carried out its taxes and trade through local elites. When the industrial revolution was taking place, and England was in development, England did not do any work for the development of India. The region continued to exist only with agricultural income, far from industrialization (Robb,2011:107-110). England increased taxes in order to earn money from these colonized lands. The peasants, who paid a large part of their earnings as taxes, had to borrow money from usurers. The people disturbed by these situations started to take up arms in a short time (Belge,2012:501). The centralization policy implemented by England in the region resulted in an uprising in 1857. Even if this uprising has suppressed, this process is one of the most important indicators that India wants a change (Metcalf and Metcalf,2006:92). England, which made all the profits of the trade on spice, poppy and cotton, could not prevent social changes in the process. While some traditions of the Hindu community were banned, a section of the Indian society who spoke English emerged in terms of managing things. In many areas, especially in the army and the justice system, British rule and rules have started to be implemented. A social change created by living together for many years has been inevitable. The 1857 Uprising also found a place in this ground and led to the development of nationalist feelings. During the ninety years that followed this great uprising, small-scale conflicts and uprisings continued. Opponents to Britain completed their organization in this process and got stronger. These opponents sought a right in the modern world by speaking the universal language of English

(Lal,2005:124-132). The most fundamental problem in India for industrialization; the money earned was going to another country. Japan was carrying out the Meiji Restoration, which has located in nearby geography during the period of this uprising. However, Japan did this with the help of its political integrity and tax money. India did not have such a chance until the end of WWII.

If look at the details of India's developments after this uprising; After 1858, England enacted an Indian Government Law and the Ministry of State has established as a result of this law (Kulke and Rothermund,1997:267). The opposition gathered the Congress Party in 1885 and formed an organized structure. Opponents have established a structure that tolerates religious and class differences. They founded this modernization operation, which included Hindus, Muslims, Buddhists and Christians, on this organization. The prominent names of this party were educated in England, and for many years they acted with the idea that the modernization and industrialization of England would be implemented in their own land. However, the process showed that this change did not occur. Gandhi's return to his country (1914) and the WWI that happened in that period were a turning point in terms of the independence operation (Metcalf and Metcalf,2006:164-165). Gandhi became the symbol name of the independence movement in the country in a short time. Although there was no uprising against Britain during the First World War, it became the most important figure of the uprisings after the war. So much so that Gandhi gave passive resistance to many practices of the British Government and had an impact on the masses with his passive resistance (Namboodiripad,1986:350-355). He acted around the principles of Satyagraha (power of truth) and Ahimsa (do no harm) and demanded that Indian society abides by them in resistance (Singh,2009:50). In 1920, the people of India did not cooperate with Britain and increased resistance. One of the main reasons for this resistance was that British soldiers opened fire on unarmed civilians and 379 people died. At the same time, this resistance covered many areas (Bayur,1987:529). According to the rules of resistance, foreign fabric and clothes made of this fabric were not used, the elections were boycotted. After two years of demonstrations and resistance, Gandhi was arrested (Kulke and Rothermund,1997:295-297). During this period, the Congress Party had differences of opinion, which paved the way for the

emergence of the Svarac Party. This party entered the parliament and did positive work. Meanwhile, Gandhi was released early due to health problems. However, he did not enter politics until his official detention period expired. Gandhi, who took action in 1930, initiated the first civil disobedience process. Although he was 60 years old, he had taken a long walk. (produced salt). As a result of this movement that spread in the country in a short time, Gandhi and his friends were arrested. Civil disobedience was ended a year later, this was due to both the effort to protect the reputation of Britain and the decline of the resistance power of the Indian people. The British Government agreed to negotiate with the Congress party. After this meeting, another meeting took place. After these negotiations with positive results for the Congress party and India, Britain changed its attitude in 1932. As a matter of fact, Britain's harsh manner and attitude had positive results in 1934. It began to easily rule the lands of India, which it could not dominate as a whole, by creating differences of opinion within himself (Belge,2017:500-520). Religion was at the root of these differences. (Hindus and Muslims). The elections held in 1937 resulted in the victory of the Congress party. Within this period, Muhammed Ali Jinnah came up with the idea of 'Pakistan' (Metcalf and Metcalf,2006:197-207). During this period, when the Second World War started, the British Government tried to contain the events by making many arrests. However, the Japanese threat in the region accelerated the independence process. In post-war Britain, the workers' party formed a government. The changed administration soon gave India the independence it wanted. In 1947 the Indian state was established independently (Berend,2011:118). However, the happiness of independence did not last long, two days later, religious turmoil broke out, and a massacre occurred within the country. As a result of these developments, the independence of Hindu India and a Muslim-majority Pakistan was recognized (Berend,2011:257).

It is beneficial to look at the economic developments as well as the political developments of the interwar period. During this period, a flu epidemic (1918), affected the country and experienced a great depression affecting the whole world in 1929. It has seen that the relatively good economic data in the 1920s declined with the great depression. The value of the products grown has fallen, and the overseas agricultural product market has contracted. Industrial centres have spread out of

settlements in western India, and production has started to be invested (Metcalf and Metcalf,2006:198-199).

In 1948, Gandhi has assassinated, and after Gandhi, India has led by his case-friend Nehru. Nehru, the Indian National Congress Party founder, started work to create the Indian constitution in 1950. It adopted policies close to Soviet-style socialist progress and did central planning (Belge,2017:527).

India's integration into the international system can be discussed after this independence movement. Previously, it was observed that it did not show significant industrial and economic development, could not provide a political unity due to colonization, and therefore did not have developed diplomatic relations with other countries. The next title will explain India's role in the international system, its economic development, and the foundations of its development in a short time.

### 2.2.1.2. Integration and Development to the International Economic System

India gained its independence on 15 August 1947. Its declaration of independence brought along many economic, social and political developments. Unlike our first group of analysis countries, India could not implement a rapid industrialization policy while integrating into the international economy. Because, unlike other countries, India did not create an industrial infrastructure in the colonial process. The main reason for this is that it lacked the capital to create the infrastructure required for transportation and power. Its lack of technology and capital has prevented it from investing in metals and basic goods. Even if a plan for industrialization was prepared in 1944, it could not be implemented but this was a preliminary preparation for the industrial policies made in 1948 and 1956 (Kumar,2017:32). As in many countries discussed in the thesis, the economic development of India has realized with liberalization as a result of a process that followed state-interventionist public policies. In the first years, the emphasis has placed on individual entrepreneurship. In terms of industrialization, the Bombay Plan has put into effect. The aim of this plan is; was to protect the state's existing industry, to improve and develop it with state intervention. Simultaneously, the government has set up a Planning Commission to find out which

plan to adopt economically. The Commission first implemented the five-year development plan implemented by the socialist countries. The first five-year plan launched in 1951 on the basis of the agricultural economy (Livemint,2019: online resource). As a result of these credits, agricultural production increased, and the foundations of irrigation and agriculture were laid (Harrod Domar model; development with state intervention) (Nayak,2007:117). A gradual liberalization has been implemented on imports and exports (Arvind,2004:13). It seems that this plan has been successful, and the Indian economy has grown during the planning process. The second plan focused on increasing industrial investment by reducing agricultural investment. It aims to develop plans for heavy industry and steel (Braeu et. al.,1957:302-303). While preparing the second five-year plan, ideas were raised about the importance of free-market and liberalism, and that not using imported substitute products would be positive for the industrialization process. The second plan is based on the Mahala Nobis model, supporting the heavy industry. Mahala Nobis, the chief adviser to the Planning Commission, promoted not only industrialization practices but also founded the Indian Statistical Institute. Industrial Policy, which was put into practice in 1956 based on the Mahala Nobis model, is a turning point for India's transition to a modern economy. With this plan, industries are divided into three groups on the basis of public control, semi-public control and private sector. It is seen that India applied a mixture of many models between 1950 and 65, especially socialist and state intervention economies. In the second planning process, where rapid industrialization was given importance, production in the farms decreased, inflation increased, and the people reached the level of famine (The Indian Economy Since Independence, w. date:1-2). This scarcity has indirect effects on his political events; The war between China and India not only weakened the country economically but also enabled it to review its central policies. After 1964, there is a government that attaches importance to agricultural policies and private enterprise. In this process, foreign investment has been paved. (A regulation has been made so that the foreign investor share ratio is limited to 40%.) India being the victor of the war between India and Pakistan, was an important development for the country's self-confidence and rapid development. One-year development plans were implemented between 1965 and 1969 (Metcalf and Metcalf,2006: 247-251).

Between 1967 and 1973 a green revolution took place with agricultural land at the centre (Kulke and Rothermund,1997:336). If the conditions under which the green revolution arose were reviewed, in colonial times, farmers were indebted to loan sharks due to high taxes collected. Within the first five-year development plan framework, the state worked for farmers and the plan was successfully implemented. However, the second five-year plan focused on heavy industrialization, while the country had gone through two wars. In addition to these, when there was corruption in India, which Arun Kumar called the ‘‘black economy’’, the country was on the brink of famine (Kumar,2017:31-33). With the victory of the Pakistani war in 1965, the government determined new policies. Instead of overcoming the country's basic food shortage with imports, they started a green revolution with agricultural support. Due to this revolution, the genetic structure of agriculture has been improved, high yield seeds have been used, and the irrigation infrastructure has been developed. In this process, credits for agricultural supply have applied to encourage the public to agriculture. With loans, the use of technological tools in agriculture has been expanded, and high efficiency has been achieved. In 1969, the government nationalized 14 private banks to apply for agricultural loans more easily under state control (Binswanger and Khandker,1995:236). The spread of commercial banks in the 1970s has made positive contributions to this process. Before mentioning the oil crises in the 1970s and their effects, it should be emphasized that Indira Gandhi devalued the Indian rupee in 1966. Indra Gandhi devalued the rupee, which was used as the currency in the country, under pressure from the world bank. The rupee was devalued by 57% (Dugal,2016: online resource), and the indifference to exports in India was wanted to be avoided. Because when there was no export, the foreign trade deficit was high. However, the intended success did not materialize, instead, inflation rose. Increasing inflation caused the people of India to react, and liberalization plans were delayed until the end of the 1970s. Consequently, import controls were tightened to ensure foreign trade balance (Metcalf and Metcalf,2006: 249-251).

In 1980, Indira Gandhi made reforms aiming at licensing, industrialization and economic liberalization, especially import and export, in order to obtain credit from the IMF (Jha,2008:130). When Indira was assassinated in 1984, his son Rajiv Gandhi

continued as prime minister (Metcalf and Metcalf,2006:306). In the 1980s, India saw the green revolution results previously implemented in the agricultural field in GDP and growth rates (Jha,2008:22-23). In 1981, it has seen that the Reserve Bank of India established NABARD (National Bank for Agricultural Development) and IBDI (Industrial Development Bank of India). These two banks play an essential role in the proactive development of India. They have established intending to support the agricultural and industrial development of India (Nayak,2007:213). On the other hand, the first car has produced at 1983. A partnership agreement has been signed with the Suzuki Company of Japan for this manufactured car (D'costa,1995:488-489). Most importantly, India has made progress in information technology and communication with the effect of globalization in this process.

The Indian economy has grown with these reforms and the green revolution, but human development has lagged considerably. Economic developments have caused the formation of a middle class in India (Galguly-Scrase et. al.,2009:33). At the same time, unavoidable corruption and bribery incidents occurred in many areas. Public investment has not used for business that benefits the public. These investments were either used by the management sector for different purposes or used for individual wealth. This situation made it difficult to reach objective data on the Indian economy and caused it to have a continuous fiscal deficit (Kumar,2017:12-32). In Japan, which is among the primary group countries, the opposite has experienced. The Japanese people have implemented austerity policy in many areas for the development and wealth of the country and have adopted the Confucian teachings as a way of life.

In the second half of the 1980s, Rajiv Gandhi regulated domestic licenses, promoting the import of capital goods (raw materials). He took a more liberal attitude in industrial settings, far from strict rules. He rationalized the tax system; Tax rates for companies have lowered, while exemption limits for income tax have raised. Arvin Panagiriya, in his article comparing the reforms made in the second half of the 1980s and the 1990s, emphasizes that the reforms made on economic growth in the 1980s were fragile and unsustainable. He emphasized that compared to this, the reforms introduced in the 1990s have a more systematic character. The article also includes the views of Delong and Rodrik. These economists emphasized that the origin of the

economic reforms made in the 1980s was the change of political attitude. In the 1980s, especially in the second half, India achieved a rapid economic growth rate, these growth rates were very low until the 1990s. has progressed (Arvin,2004:3-5).

Due to the economic stagnation in 1991, India entered the liberalisation path with many systematic plans and reforms. Reforms have made under the leadership of finance minister Manmohan Singh. Before the reforms, it is useful to summarise the situation in India; The cold war in the international system is over, and the Soviet Union collapsed. The collapse of the Soviet Union directly affected the Indian economy. Because the Soviet Union was one of India's important trading partners and a cheap oil supplier. There was an oil crisis in the region due to the Gulf War, the country had foreign debt due to unsubstituted raw materials and machinery, and the Reserve Bank of India reduced the value of the rupee twice in 1991, two days apart. (The value of the rupee has reduced against the dollar, with the first 9% and the second 11%.) After this, the task of calibrating the value of the currency has left to the Reserve Bank. It requested 400 million loans from two countries, the Bank of England and the Bank of Japan (in return it shipped 46.8 million tons of gold to these banks) ((Livemint, 2019: online resource). If we look at the economic liberalization targets and reforms in the light of this information; India has lifted its control over the market, reduced planned economy practices and allowed privatization. The aim is to open the way for commercial agreements, attract foreign investors and make foreign investments. The secondary aim is to make stable progress in macroeconomic terms in order to avoid the fiscal deficit mentioned earlier (Metcalf and Metcalf,2006:292; Ganguly-Scrase et. al.,2009:34). The economic problem that Kumar conceptualizes as "Black Economy" should be underlined here once again. At the root of macroeconomic instability are corruption, bribery and tax evasion, involving people of all countries (Kumar,2017:11-18). The Indian government has implemented information technology in many areas to prevent this. Thanks to technology, it has planned to prevent this corruption. However, even today, there has not been a complete success in this regard. Manmohan Singh lowered the tariff levels within the scope of the reforms and rearranged the exchange rate policy. In order to attract foreign investment, it liberalized its industrial license policies and regulated the share ratios that foreign investors can have. As a

result of these reforms made in the 1990s; the balance of payments improved, foreign debt decreased. Information technology and electronic services have spread over many areas. A significant expansion has achieved in export services associated with the software. The economic development in the 1990s has positioned in the service sector (Metcalf and Metcalf,2006:283).

Jagdish Bhagwati and Amartya Sen emphasized that India needs an egalitarian development plan while evaluating India's economic growth. While Sen claims that social structure and elements play a constitutive role in the developmental process, Bhagwati underlines that social elements such as literacy and education play a developmental role rather than an initiator in the development process. Basic education, literacy rate, health services, land reforms have an increasing effect on people's participation in the economy. Sen states that these social factors have slowed India's participation in the economy as much as Southeast Asian economies. For economic growth and development of the service sector, it has emphasized that India firstly needs institutional reforms (The Indian Economy Since Independence, w. date: online resource).

The fact that institutions are not inclusive creates the basis of microeconomic problems. Daron Acemoğlu demonstrates with an example that extractive institutions and policies in India are obstacles to welfare. The non-governmental organization called Seva Mandir has carried out an incentive program on health services and health centres implemented in Rajasthan. This program was also recorded with electronic systems, and a payroll application was started for the nurses in the region according to the entry and exit times. The application gave a successful result in a short time. However, the local health administration in the region prevented the implementation from continuing. Because, if the practice continued, many healthcare workers would not be absent, and their wages would change. Acemoğlu also emphasized that the change of institutions is difficult with this example (Acemoğlu and Robinson:2013: 425-426).

To sum up, India has become one of the important economies among the BRICS countries today (Rajan and Kelly,2006:4). Although it was integrated into the

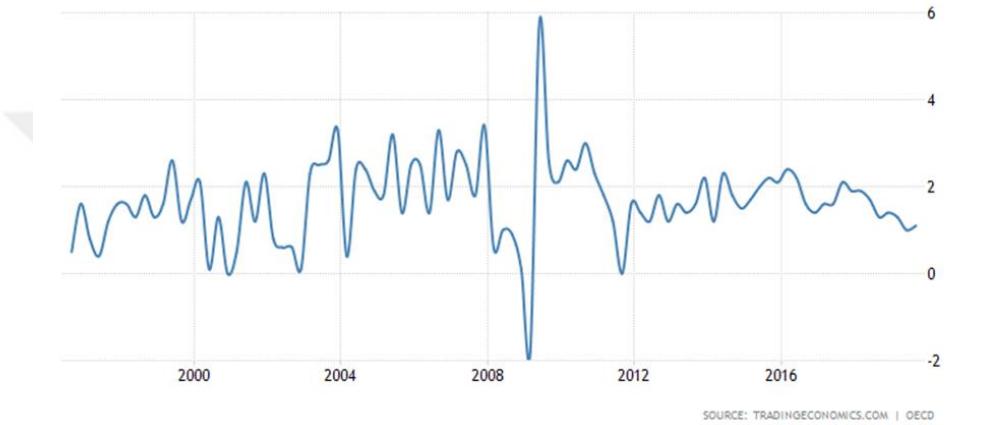
international system and gained its independence, it took its place in the system as an economic actor with the liberal economic policies implemented after the Cold War. However, it faces many problems, the most important of which is corporate corruption and defraudation called the black economy. Second, it is not possible to achieve consistent growth across the country. Rural areas are far from the growth rates in urban areas. Mahatma Gandhi Rural Employment Program implemented in 2006 to develop rural areas (Zepeda et al,2013:10-12). Besides, the country's economy depends on the information technology and service industry, but investments have not made in the manufacturing sector as in China and Japan. Although countries invest in India for software and cheap R&D opportunities, India does not have sectors contributing to the economy as a product or company with high added value. (Japan; keiretsu, S. Korea; chaebol). Based on the example given by Acemoğlu in terms of education, health services and social environment, it would be useful to emphasize the need for a radical institutional change. Although India's growth rates were high in the 2000s, it is still a developing country in terms of social living standards. In the next title, while evaluating India's economic growth based on variables, areas, where technology-intensive production has used, will be discussed. The important effects of the software industry on the national economy will be examined. Natural resources and the contribution of exports of these shelters to the economy will be discussed.

### 2.2.1.3. Evaluation Due to Independent Variables:

India is a country that has attracted attention in recent years with its fast-economic growth rates and rapidly growing population. According to the forecasts in the report of PricewaterhouseCoopers published in 2017, India is expected to be the third-largest economy in the world in 2030, while it is expected to become the second-largest economy in the world after China in 2050 (Hawksworth et. al., 2017: online resource). In light of these predictions, the growth of the Indian economy will be analysed, and the sectors and developments that impact growth will be discussed. India's GDP rates, import and export volumes, and the share of technology-intensive production sectors in the economy will be discussed, while the innovation and R&D investments of the Indian government will be examined.

This thesis deals with the effect of technology-intensive production on economic development across two groups of countries. India switched to technology-intensive production systems later than the countries in the first group. A large part of the country could not complete its economic development contrary to the economic growth rates stated in the previous section.

**Graph 2.12. India GDP Growth Annual Rate**




**Source;** India GDP Growth Annual/ TradingEconomics
https://tradingeconomics.com/india/gdp-growth

The population of India is 1,380 billion (Worldometer: India Demographics 2020: online resource) and depending on the population density, GDP rates are decreasing like China. According to World Bank data, it is seen that China and India have a good national income compared to industrialized countries such as the USA and Germany. According to the 2019 IMF data, India ranked fifth, leaving the UK and France economies behind (IMF: World Economic Outlook Database October 2019: online resource). However, due to population density, it is seen that the welfare level, economic development and GDP rates are very different. India has been integrated into the world economy with the economic reforms implemented in the '90s. With the positive effects of globalization, the use of foreign resources and foreign capital and technology transfer have increased. The most striking decrease and increase rates in the graph (Graph 2.12) above include the 2008 global crisis and the post-crisis period. India, one of the BRICS countries and attaining a rapid economic growth momentum before the global crisis, was negatively affected by the crisis due to the high foreign

capital inflows. Despite this, India has been able to turn the effects of this process in its favour in a short time with the fiscal policies and fiscal incentive measures implemented. The table (Table 2.9) below shows the situations between 2008 and 2009 in six quarters by variables (Pandit,2015:108).

**Table 2. 9. Indian' Macroeconomic and Monetary Development Data on Various Issues**

| Indicators | 2008-09:Q1- Q4 | | | | 2009-10:Q1-Q2 | |
|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Real GDP Growth (Y-o-Y) (%) | 7.8 | 7.7 | 5.8 | 5.8 | 6.1 | 7.9 |
| Industry | 5.1 | 4.8 | 1.6 | -0.5 | 4.2 | 9.0 |
| Services | 10.0 | 9.8 | 9.5 | 8.4 | 7.7 | 9.0 |
| Inflation (Y-o-Y) (%) | | | | | | |
| WPI | 12.0 | 12.1 | 5.9 | 0.8 | -1.1 | -0.2 |
| CPI- Industrial workers | 7.7 | 9.8 | 9.7 | 8.0 | 9.3 | 11.8 |
| Foreign Trade | | | | | | |
| Export Growth (%) | 37.6 | 39.5 | -15.0 | -22.3 | -30.0 | -21.0 |
| Import Growth (%) | 31.6 | 60.5 | 2.1 | -29.1 | -35.0 | -33.6 |
| Balance of payments (US dollars billion | | | | | | |
| Trade Deficit (-) | -25.3 | -39.1 | -34.0 | -20.2 | -26.0 | -32.2 |
| Current account deficit (-) | -3.3 | -12.6 | -11.7 | -1.2 | -6.0 | -12.6 |
| Net Capital flows | 4.9 | 7.1 | -6.1 | 1.4 | 6.0 | 23.6 |
| FDI | 9.0 | 4.9 | 0.5 | 3.2 | 7.0 | 7.1 |
| Inward FDI | 11.9 | 8.8 | 6.3 | 8.0 | 9.7 | 11.3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Outward FDI | 2.9 | 3.9 | 5.9 | 4.8 | 2.6 | 4.2 |
| FPI | -4.2 | -1.3 | -5.8 | -2.7 | 8.3 | 9.7 |
| Of which FIIs | -5.2 | -1.4 | -5.8 | -2.6 | 8.2 | 7.0 |
| ADR/GDR | 1.0 | 0.1 | 0.0 | 0.02 | 0.04 | 2.7 |
| Reverse outstanding (end period) | 312.1 | 286.3 | 256.0 | 252.0 | 265.1 | 281.3 |

**Source:** B. L. Pandit, **The Global Financial Crisis and The Indian Economy**, New Delhi, Springer India,2015, P.110

India has met the reforms required for its integration into the international system with the increasing impact of globalization, with the revenues from technology transfers. The Indian economy has become one of the centres of foreign portfolio capital and foreign direct investment in these 2000s. In this growth process that started in the 1990s, trade gradually gained importance and developed on the basis of the service sector, especially in the 2000s. The service sector has also gained a cross-border dimension, not only at the national level, as a result of the success of using and developing information technologies (Pandit,2015:113). One of the main reasons why we take India among the second group of countries is that it has implemented industrialization and globalization through software, stock exchange, banking and international call centres instead of producing high value-added products like the countries in the first group. It is noteworthy that among the BRICS countries, the industrialization process of India is progressing slowly, especially the sectoral transformation of industrialization is quite slow (Ünay and Kayıkçı,2015:31). As mentioned in the part of India's integration to the international system, many reforms have been implemented on agriculture. Today, the agricultural sector still has an important place in the economy. Based on this information, India's industrialization process continues, especially in the field of information technologies, but the results of this are not inclusive of the country. This situation shows that even though technology-intensive production and studies affect India's economic growth, it still has deficiencies in economic development.

Despite India's rapid growth rates, poverty remains a major problem due to population density and the absence of inclusive institutional reforms (the inclusiveness of reforms cannot be achieved due to black economy situations of corruption, bribery and nepotism). Innovations and R&D studies are of great importance in terms of improving the socioeconomic status of India and ensuring sustainable development. The Science and Technology Department and the Ministry of Human Resources Development have implemented many projects to improve the socioeconomic structure. These projects cover topics such as health, information and communication technologies, energy, sustainable living space, water resources and river systems, security and defence, environment and climate (OECD: G20 Innovation Report 2016: online resource). The National Innovation Foundation provides incentives to support innovative initiatives. Within the scope of these incentives, there are operations facilitating agriculture and herbal technology manufacturing plants. The Ministry of Science and Technology of India conducts extensive studies in the development of science and technology, R&D studies in industrial areas, technology transfers and biotechnology. So much so that TIFAC (Technology, Information Forecasting and Assessment Council), affiliated to the Indian Technology and Science Department, published a roadmap in 2015 that plans how developments in science, technology and innovation should progress until 2035. In this document, published under the name of Technology Vision 2035, there are predictions about at what stage India should be in 2035 in terms of technology. It aims to carry out R&D studies on twelve privileged topics, to develop production, materials and information-communication technology on the basis of technology. These twelve concession subjects; Among the basic needs; It covers transparent and effective governance targeting air, water, food, natural resource use, energy, transportation and socioeconomic structure (Technology Vision 2035, 2015: online resource).

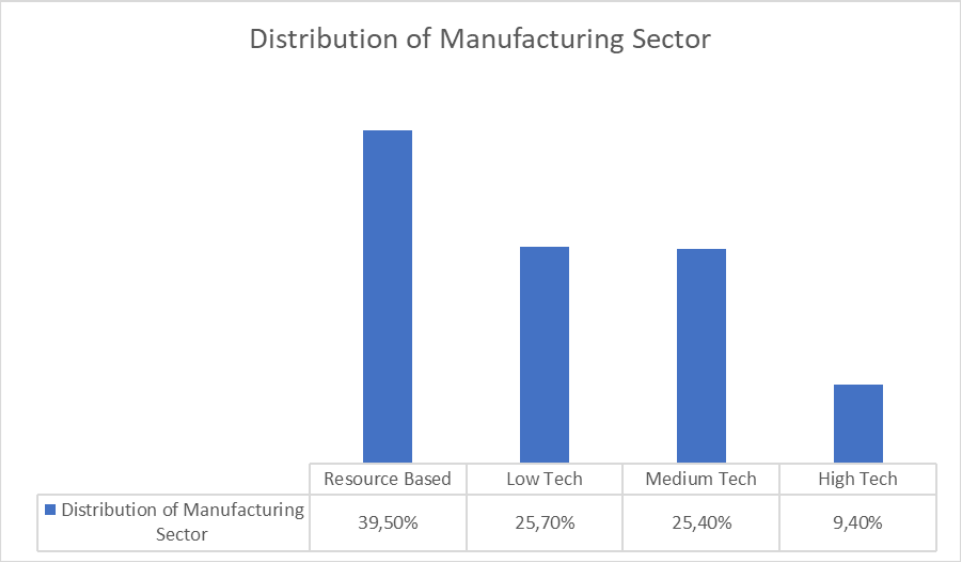
In the ‘‘An Indian Economic Strategy to 2035’’ report published in 2015, it has emphasized that India and China have different growth structures, and the evaluation should be made on these different building blocks. Due to India’s multicultural and multilingual nature, East Asian countries are far from an authoritarian and one-party political structure (e.g., China). It has stated that progress

can be made with Australia in technology, innovation and artificial intelligence, and this has based on economic interdependence (An Indian Economic Strategy,2015: online resource).

Within the scope of the ‘‘Start-Up India’’ program launched in 2016, it has planned that these R&D and innovation studies will not be limited to cities only but also include rural areas. This program aims to support agriculture, education, manufacturing and other social sectors and initiatives in these sectors, rather than focusing solely on digital sectors. These studies show that India's economic growth plans to equalize the economic development and socioeconomic dynamics in the whole country, and studies are carried out for this. It took India among the second group of countries because its late industrialization and growth are not export due to this industrialization. India's economic growth is mentioning that technology impacts the economy as the service sector covers software fields, but this effect cannot be addressed in the context of technology-intensive production (Start-Up India,2020: online resource).

In the ‘‘Competitive Industry Performance Index 2020: Country Profiles’’ report published by UNIDO in 2020, it was announced that India's GDP rate was 2,619 billion / 1,936 per capita. This report announced that manufacturing value-added is 404.2 billion / 299 per capita, and manufacturing exports is 281.1 billion / 208 per capita. The sectoral distribution regarding the use of technology in manufacturing has distributed at the rates given below (Graph 2.13) (UNIDO: Competitive Industrial Performance Report 2020:136).

## Graph 2.13. India's Distribution of Manufacturing Sector




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

## Table 2.10. India's Performance Indexes

| Performance indexes | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 42 | 0.078 | 0.067 | 42 → | 1990 2018 |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 105 | 0.011 | 0.076 | 107 | |
| Share of Manufacturing Value Added in GDP Index | 45 | 0.430 | 0.343 | 45 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 28 | 0.515 | 0.302 | 29 | |
| Industrialization Intensity Index | 30 | 0.472 | 0.323 | 30 | |
| Share of World Manufacturing Value Added Index | 6 | 0.104 | 0.023 | 6 | |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 111 | 0.006 | 0.103 | 112 | |
| Share of Manufacturing Exports in Total Exports Index | 40 | 0.893 | 0.631 | 46 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 77 | 0.385 | 0.397 | 76 | |
| Index Industrial Export Quality Index | 53 | 0.639 | 0.514 | 53 | |
| Share in World Manufacturing Export Index | 14 | 0.117 | 0.039 | 14 | |

$1^{st}$ DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
$2^{nd}$ DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
$3^{rd}$ DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-

2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020.

### 2.2.2. Taiwan

#### 2.2.2.1. Historical Process

The origins of the island of Taiwan date back to the 3rd century according to Chinese sources. For many years, it is known that Taiwan aboriginal tribes have survived in the region (Manthorpe,2005:22). Chinese fishermen thought that this island was ‘‘unpropitious for living conditions’’ in the 16th century and ignored the island (Hsu,1980:5-10). In 1557, the Portuguese saw the island during their expeditions to the base they established in Macao and named the island ‘‘Ilha Formosa’’, mean is the beautiful island (Davison,2003:5). With the arrival of Dutch sailors to the island in the early 17th century, Taiwan became the colony of the Netherlands. During this colonial period between 1624 and 1662, the Dutch have oppressed by Chinese pirates. In 1683, Taiwan again demonstrated its commitment to Chinese rule and became a part of China (Manthorpe,2005:8). However, the independent state established in the post-colonial Taiwan Island has great importance in laying the foundations of the current Taiwan structuring and economic development. In the 17th century, there was a lot of immigration from China's south coast to Taiwan. Among the immigrants are intellectuals, civil servants, workers and farmers, who emigrated due to pressure in the region (Manchu pressure) (Chen,2016:75). This human resource has made it easier for the island to become a small-scale state in a short time (Atik,2019:19-20). This formed state system is in the Chinese model. Between 1662-1681, the leader Zheng Jing carried out various studies for the economic and agricultural development of Taiwan Island. During these 20 years of becoming an independent state, tea, sugar and rice plantings were encouraged, and soldiers were allowed to produce in these lands. Also, in this period, navy and shipyards were built in Taiwan and trade was given importance. Trade with Japan and Spain continued through these ships. Chinese-style schools have established, and emphasis has placed on education. After Zheng's death, the island was disturbed, and

as a result of these two years of confusion, the island has reconnected to China (Davison,2003:18-21). Until the end of the 19th century, it continued to exist as a province of China. In 1987, the provincial governor (Liu Ming Chu'an) carried out many projects for the modernization of Taiwan, including infrastructure and financial reforms. Meiji Restoration in Japan has accelerated its modernization movement, industrialization and its use of technology according to the conditions of the period, and this situation has also affected Taiwan. In the historical processes of China and Japan, we talked about Taiwan's handover between the two countries. In the China-Japan war in 1895, Taiwan has left to Japan due to China's failure. It continued to exist as a colony of Japan until the end of WWII. Japan attached importance to Taiwan's development in line with its colonial modernization strategy, and contributed to its strengthening, especially in the field of trade (Brown:1993,224-230). Education reforms, transportation networks, electricity systems and health reforms are the basis for rapid modernization after 1950. The rising nationalist attitude in Japan has also been effective in Taiwan, and the public has subjected to assimilation (Chen,2016:517).

Considering Taiwan's regional and population information, it is seen that it is located 100 km east of China, has no natural harbours and intersects with the Taiwan Strait. While more than 98% of its population is Khan Chinese, very few Indonesian and Malaysian populations have located in the area. Due to the fact that its population consists of Chinese and China has dominated it for many years, it has many features in common with China. Besides Confucian thought and Buddhism teachings, Taoism also influenced the beliefs and social life of the people of the region (Holcombe,2016:383).

Taiwan is better known as the Republic of China in the international system and is not recognized by many countries today. The roots of being known as the Republic of China date back to the Second World War years. When Japan suffered a significant defeat in WWII, it had to leave Taiwan to China as per the promises made in the Cairo Agreement (Üngör,2016:503). Considering the conditions of the period, it is known that there were internal conflicts between Nationalists and communists in China. While these conflicts resulted in the success of the communist section, the unsuccessful nationalists retreated to Taiwan Island and declared the Republic of

China there. For these reasons, two political authorities have emerged in the international system regarding China. In the 20th century, this island state was recognized by western countries representing ancient China, and the Republic of China / Taiwan became one of the founding members of the UN. However, depending on the relations between the People's Republic of China and the USA and the balances of the Cold War, the relations between the USA and the People's Republic of China improved in the 70s. Accordingly, the PRC has started to replace the Republic of China in the UN. On the other hand, the USA recognized the Republic of China / Taiwan after the Korean War to ensure the Cold War balance of power (Akçadağ, 2010: online resource). Taiwan, which was a conflict zone between Japan and China in the 19th century, continued to be a conflict zone between the USA and China in the 20th century, especially during the Cold War.

In the next title, the essential points regarding Taiwan's integration into the international economic system will be mentioned, and the applications on the state intervention rapid industrialization process, technology and natural resource management will be discussed. Unlike other countries, Taiwan is not officially recognized by many countries. How this situation affects commercial and economic relations and how it affects economic development will be evaluated.

#### 2.2.2.2. Integration and Development to The International Economic System

Taiwan’s foundation has initiated by the arrival of Chinese nationalists to the island in some sources in 1949. In some sources, it is accepted as the establishment of China in today’s Chinese territory in 1912. Chinese nationalists who retreated to the island in 1949 faced many problems. The effects of the war on the region brought refugees with it, inflation and high unemployment rates emerged. Chinese nationalists in Taiwan declared a state of emergency and formed the government in a short time. They intervened in these economic problems after the government has formed. They banned parties from opening and censored the media. It has taken significant steps, especially in agriculture, to stop the feudal structure and corruption. Production incentives and import substitution production methods have applied to reduce inflation.

Taxes and restrictions have imposed in order to improve local production and not to export these products (Holcombe,2016:384-385). By changing the currency, the Taiwan dollar has put into force. These developments gave positive results, especially in the economic field. While inflation was 3000% in the year that the nationalists came to Taiwan Island, in 1952, this rate has reduced to 8.8% (Wang,1999:324). Between the years 1950-60, a rapid state intervention industrialization movement is observed. Land reform indirectly opened the doors to economic development. As productivity and income increased in the countryside, the government used it for industrialization. Unlike other example countries, Taiwan has provided rural industrialization. This has been an essential step for agriculture and industrialization to make progress at the same time (Lee,1990:146). US aid has an essential role in this development. In the 1960s, the export-oriented model was adopted instead of the export alternative developmental model that protected local production. Tax incentives and discounts have been introduced to increase export rates. In 1966, special tax-free export areas were established in Taiwan, and accordingly, it developed its commercial relations in a short time.

Since it has accepted as the Republic of China in the international system, it has been recognized by many countries in the first 20 years, and it has developed mutual relations. In fact, the Mutual Defence Treaty, which has signed between the United States in 1954, was signed due to the Cold War's stance against the Communist Bloc (Fell,2009:530). In accordance with this agreement, the USA has committed to ensuring the security of the Taiwan / Republic of China. This process, which continued until the '70s, was turned into an opportunity by the Taiwan administration. In the '70s, Taiwan was not recognized diplomatically in the international arena and lost its former importance, as the UN and the USA recognized the PRC in accordance with the ‘‘Single China Policy’’ (Kissinger,2015:203).

In the 1970s, many small Chinese-style family companies play an essential role in the manufacturing process (McCord,1996:44-45). These companies produced technological products with industrialization and globalization instead of focusing on heavy industry, and they primarily focused on computer production (Holcombe,2016:385: Davison,2003:103). During this period, the nationalist leader

Chirang Kaisek died, and his son Jiang Qing-Kuo came to his place (Manthorpe,2005:208). Having taken office in 1978, he has taken many necessary steps towards democratization in Taiwan. The most important of these is the abolition of martial law in 1987. Subsequently, the censorship on the press has lifted, and the bans on the establishment of political parties have lifted (Davison,2003:102-103). Kuo started negotiations to recognize the People's Republic of China officially. Travel permission has given to China through other countries (Manthorpe,2005:210-215).

Kuo's moderate management approach turned Taiwan into a country with an educated middle class, high living standards, and high urbanization rates in the late 70s and 80s. It not only caught a rapid growth momentum in the global economy but also democratized and turned into a modern state (Davison,2003:105).

At the end of the Cold War, the agreement known as the ‘‘1992 Consensus’’ has signed between the People’s Republic of China and Taiwan (Chen,2016). According to the agreement, PRC and Taiwan have defined as parts of a country. This situation cast a shadow over Taiwan's identity and search for independence once again. The Taiwan problem is still not resolved today. Even if discourses of independence are sometimes supported depending on the government changes in Taiwan, these discourses result in the damage of bilateral agreements and relations in the international system. For example, after the 2016 elections, Leader's attitude caused Panama and the Dominican Republic to recognize the People’s Republic of China instead of Taiwan (Pekcan,2019:546).

Since Taiwan is not recognized as a 'de facto' state in the international system, it has no membership in many international organizations. In economic development, the application of the export-oriented economic development model is based on the existence of industrial development foundations (Ku,1997:66). Due to cheap labour and technological applications, cheap production is vital in the development of the country's economy. Again, the education of the population, Confucian thinking and working order depending on the Buddhist teachings are among the vital building blocks of this development that took place in a short time. In the 1980s, it has made industrialization on the basis of capital and technology by switching to high technology.

As a result of the developing relations with China in the 1990s, Taiwan became a foreign investor in the PRC and used the cheap labour force in China for manufacturing (He,2020:178).

When looking at Taiwan in the light of this information, even though very few countries recognize it, it has maintained its economic and diplomatic relations with many countries in the world through consulates, cultural units and offices. It has become one of the leading names in electronic products such as computers within the scope of information technologies. 70% of China's electronics production was made by Taiwan-invested companies (Holcombe,2016:388).

#### 2.2.2.3. Evaluation Due to Independent Variables

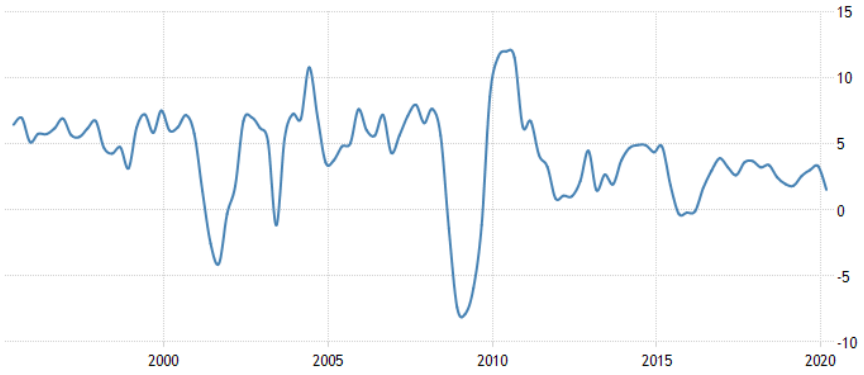
Taiwan has transformed from a traditional agricultural society to a modern industrial country and has been among the Asian Tigers that came to the forefront in East Asia, thanks to the successful economic developments it demonstrated in the 1970s (Chen,2016:518-520). Unlike the countries discussed in this thesis, China has been an obstacle to Taiwan's economic development for many years. The main reason Taiwan is among the second group of countries to be examined in the thesis is that although it is among the Asian Tigers, China's political problems affect economic growth indirectly. In the ‘‘The World's Richest and Poorest Countries 2019’’ report prepared by Global Finance Magazine based on the IMF World Economic Outlook 2019 data, it is seen that Taiwan ranks 17th among 191 countries. While preparing this report, the result was reached by proportioning variables such as Taiwan's per capita income and inflation rates to purchasing power parity. (Everington, 2019: online resource). Based on this report, Taiwan has become one of the top 20 richest countries in the world, despite long years of pressure from China and other economic factors. Taiwan has an important place in the context of industrialization and the global division of labour. It is the 4th largest electronics manufacturer in the world (Coface for Trade- Major Macro-economic Indicators, 2020: online resource). Taiwan ranks second in the world after China in terms of electronic component production (Euromonitor Internal,2018: online resource). In terms of the effect of technology-intensive production on economic development, Taiwan sets an example with both its

rapid industrialization and its implementation of economic reforms and its development in electronic component production, which constitutes an important part of today's technology-intensive production.

Taiwan is not an officially recognized country, as we have stated in the previous section. Taiwan has a population of 23,816 million (Worldometer: Taiwan Demographics,2020: online resource). Taiwan's exports of goods and services, whose economy is mainly for export, constitute 70% of the GNP (Atradius, Asia country report Taiwan 2019: online resource). Approximately 40% of this rate is obtained from electronic device exports. During the years of integration with the international system, Taiwan, which first developed import substitution industries under the guidance of the USA, used the international factor equalization mechanism more effectively as the USA reduced economic aid and went to liberalization in exports (Chen,2016:518). As can be seen in the table of GDP rates below, the export-based economic growth has been realized without significant breaks until the 2000s.

Taiwan has included in the second relatively less affected volatility group in the 1997 Asian currency crisis. Although it actively intervened in the foreign exchange market during the months of the crisis and implemented a strict interest rate policy, after October, a neutral exchange rate has adopted by the Central Bank of Taiwan, and the exchange rates adopted by market forces have implemented (Wu, 1998:529-533).

**Graph 2.14. Taiwan GDP Growth Annual Rate**




**Source:** Taiwan GDP Growth Annual. **Tradingeconmics**, (available), https://tradingeconomics.com/taiwan/gdp-growth-annual, December 22,2020

If we look at the GDP-based economic situation on the graph (Graph 2.14) above, it is seen that Taiwan survived this crisis with a slight break compared to other countries. Some important reasons are underlying Taiwan being less affected by this crisis compared to Southeast Asian countries. One of them is Taiwan's economy to be based on solid foundations. Taiwan has been cautious in relying on foreign capital in terms of economic development, foreign capital in Taiwan has generally concentrated around production activities. Unlike Southeast Asian countries, Taiwan has less investment in the stock market and real estate. In this process, while the stock and stock indexes of many countries in the region decreased, Taiwan's stock indexes increased by 9.97% (Wu, 1998:533-539).

It is seen in the annual GDP chart above that the second big fluctuation was experienced in the 2008 global crisis as in the whole world. The 2008 Global Crisis affected the Taiwan economy relatively less. In this limited effect, Taiwan is less internationalized compared to other countries. Taiwan's phase of being affected has resulted from its export-dependent economy. During the global crisis, the effect was a contraction in the economies of the USA and Europe, and a significant decrease was observed in purchasing power. The unfavourable economic situation in these regions, which are the main export markets of Taiwan industry, led to a decrease in import demand. This crisis, which caused significant changes in Taiwan's foreign trade structure, also affected the industrial structure. Because; Taiwan's manufacturing sector concentrated on export-oriented studies. The decrease in import demand due to the global crisis resulted in the capital contraction of these developing sectors. Although he turned to the idea of regional integration in the Asia-Pacific region in this process, the diplomatic isolation process stemming from China made it difficult. Wang examined the imbalances in Taiwan's industrial structure affected by the crisis period in four sections. First, the Taiwan industry’s dependence on IT and electronics industry is considered, and the situation before and after the global crisis is compared. While the ICT, chemical industry and metallurgy industry constituted 70% of Taiwan's GNP and 60% of its exports before the crisis, there were significant decreases in exports based on the ICT industry after the crisis. Secondly, the problem based on Taiwan’s intermediate goods production instead of high value-added products and brands was

addressed. Before the crisis, 70% of the products exported were intermediate goods. The patenting process is not based on products, but on production process technologies. (Wang,2010:254-256). This is one of the main reasons why Taiwan is among the second group countries in this thesis. In the first group countries, high value-added products and global brands have great importance in the positive effect of technology-intensive production on the economy.

The most important reason underlying Taiwan's economic decline in the crisis of 2008 is its limited internationalization due to the Chinese barrier. As Taiwan's domestic market is small, it has had a major impact on its export-oriented economy. Taiwan's low competitive power in the international market and domestic market, its inability to adapt quickly to industrial developments, and the low number of R&D investments have also pushed the Taiwan government to make new short-medium and long-term policies after the 2008 global crisis (Wang,2010:255-258).

Even though the Taiwanese economy experienced a short-term recovery in exports in 2010 and 2011, it cannot be ignored that it grew negatively after the 2008 global crisis. In 2011, it was seen that the Gini coefficient reached 0.35 and the Oshima Index reached 6.39 and depending on these data, the growth-with-equality model was also observed to change (Zheng,2013:832-833).

Until 2010, Taiwan was restructured industrially, and this structuring data showed itself, especially on the percentage of employees in the service sector. While the rate of employees in the service sector to all sectors was 38.8% in 1981, it is seen that this rate was 58.6% in 2011 (Zheng,2013:831). The percentage of the service sector in the total working population has increased to 59.4% in 2018 (Statista, Taiwan: service sector workforce shares 2018,2020: online resource).

In the light of this information, even though a large part of Taiwan's GNP belongs to the service sector, the lack of development of R&D studies and the obstacles to the internationalization of the country prevented the technology-intensive development of the Taiwan economy. Taiwan, which allocated 2,018% of its GNP to R&D expenditures in 2001, allocated 2,665% in 2008 and 3,462% in 2018. The budget of $ 12,903 in 2008 was increased to $ 41,105 in 2018 (OECD: Gross domestic

spending on R&D,2020: online resource). In terms of R&D expenditures, it ranks third after Israel and South Korea (Taipei Times,2020: online resource). According to the Global Competitiveness Report of the World Economic Forum (2019), Taiwan ranks 12th among 141 economies, and 4th in terms of innovation capacity. Taiwan, which ranks 13th in the International Institute for Management Development (IMD) World Competitiveness Yearbook (2019) in terms of technological infrastructure, is ranked 8th in terms of scientific infrastructure (DOIT-Department of Industrial Technology, 2020: online resource). In the World Digital Competitiveness Yearbook, it ranks 5th in terms of R&D expenditures on 63 economies (IMD World Digital Competitiveness Ranking 2020,154-156).

Taiwan's R&D studies are carried out by DOIT (Department of Industrial Technology), which was established by the Ministry of Economic Affairs in 1979. DOIT aims to develop industrial technologies with local and global partners. The technology development programs they implement are made for non-profit research organizations, academia and industries, as seen in the figure (Figure 2.2) below, and strengthen its position in the development of the industrial structure and the international market (DOIT- Technology Development Programme,2020: online resource). The studies carried out under DOIT aim to create an innovation ecosystem while improving the industrial development capabilities of the country (DOIT- About DOIT,2020: online resource).

**Figure 2.2. Taiwan' Technology Development Programme**

**Source:** Ministry of Economic Affairs- DOIT- Technology Development Programme, (available),https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=5440, October 20, 2020

Within the scope of its technological development programs, DOIT launched the ‘‘The A + Industrial Innovation R&D Program’’ in 2014, which is a continuation of the industrial technology development program. In this program, it is planned to promote industrial technology development in areas with high added value. Moreover, Taiwan aimed to establish R&D centres and develop R&D partnerships globally. (DOIT-TDP for Industry,2020: online resource).

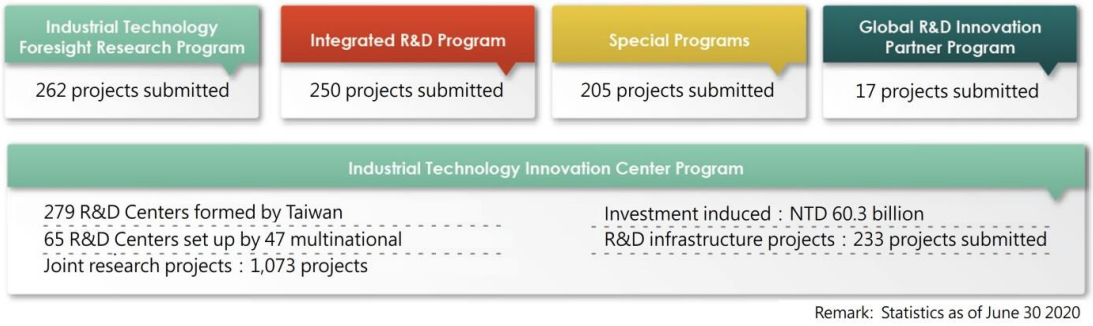
There are many programs that the Taiwan government has undertaken to improve its industrial capacity and R&D work. These programs include; The Industrial Technology Foresight Research Program aims to carry out research and play a key role in the international economic business division for the next 3-5 years to produce manufacturing that will meet market demands based on technology, products and services. The integrated R&D program aims to create a horizontal and vertical integration between enterprises for a holistic R&D study and create an industry chain in a systematic order. The Industrial Technology Innovation Center Program aims to encourage enterprises to establish their infrastructures on the basis of innovation and R&D and to determine technology roadmaps in the short-medium-long term. The Global R&D Innovation, Partner Program identifies shortcomings in technology, R&D studies and innovation by following the government's industrial policies. In the context of the data it obtains, it creates a basis for mutual cooperation between local and foreign businesses in the field of Innovation and R&D. The main goal is to improve the industrial ecosystem and create a win-win situation in the global division of labour (DOIT-TDP for Industry,2020: online resource).

In addition to these studies, there are special programs in Taiwan where R&D and innovation studies are carried out. Chief among these is the International Innovation and R&D collaboration program. This program aims to establish international strategic partnerships for local businesses in innovative studies and gain a global perspective by participating in international R&D programs. The program aims to create high value-added products that can be effective in the relationship between technology-intensive production and economic development, expand the

international industrial market, and increase business opportunities by responding to international demands. There are R&D and innovation collaborations with the European Union, Israel, Spain, Germany and Czechia (DOIT-TDP for Industry,2020: online resource).

According to the data of the Ministry of Economic Relations of Taiwan, industrial-technological development programs are carried out not only in the fields of R&D and innovation but also in the field of artificial intelligence. These programs; AI Startups Pilot Program is AI on Chip Research Grants Program and Autonomous Vehicle Technology in Empirical Operation Subsidy Program. These programs aim to increase Taiwan's power in the international competitive environment but also aim to create industrial and technologically innovative products and services (DOIT-TDP for Industry,2020: online resource).

**Table 2.11. Taiwan' Project and Investment on R&D**




**Source:** Ministry of Economic Affairs- DOIT- TDP for Industry, (available), https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=5442., December 12, 2020

The table (Table 2.11) given above shows the projects and investments made by Taiwan in the field of R&D and innovation. In addition to the production of machinery, equipment and intermediate goods, Taiwan products are used in many brands used today with its integration capability. For example; iPhone, Nike Etc. (Nike put smart clothes on sale) (Seren,2019: online resource). Taiwan's branding strategy emerges as a result of the fact that it takes a large part in producing these products but provides less income in terms of economic return. Although they are highly competitive in OEM (original equipment manufacturing) and ODM fields, they have

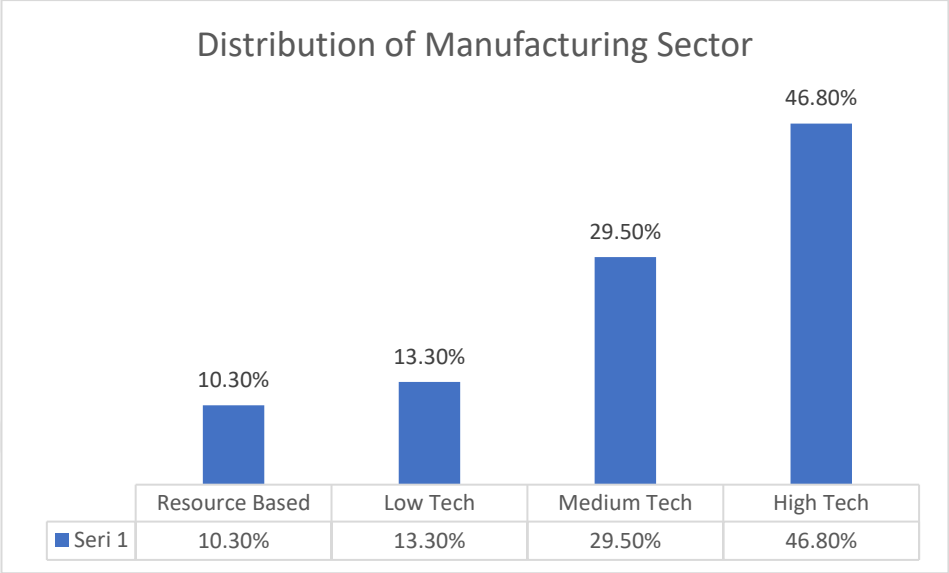
given more importance to international branding due to the attitude of Chinese companies (Tsai and Hung,2007:83-84).

Despite the widespread effects of the US-China and Japan-Korea trade wars, Taiwan's global brands grew 0.7%, according to data published in 2019. Many Taiwanese brands such as Acer, Asus, Advantech, Giant, Gogoro, MediaTek, Synnex, Delta Electronics are in the global market. MediaTek, Advantech and Delta Electronics, which are high-tech brands, act with Artificial Intelligence and 5G trends and increase their value day by day. Interbrand, appointed by the Ministry of Economic Affairs' Industrial Development Bureau (IDB), recommended the development of four trends in order to improve branding and increase brand value. These are to catch the trend in market knowledge and agility, create bold forecasts and create demand, maintain the customer base while providing a bidirectional experience, have the courage to change the existing order and achieve extraordinary success (Industrial Development Bureau, Ministry of Economic Affairs,2019: online resource).

In addition, the 5 + 2 Innovative Industries Plan is being implemented to promote and improve industrial transformation that will have a positive impact on Taiwan's economic growth. Within the scope of this plan, sustainable development is aimed by taking into account the principles of innovation, employment and equitable distribution. This plan covers seven industries and projects. These are smart machines, Asia Silicon Valley, green energy, biomedicine, national defence and aviation, new agriculture and circular economy. Focusing on these areas is expected to move Taiwan from contract manufacturing to a new commercial model focused on high value-added business, services and solution (5+2 innovative industries plan,2020: online resource).

UNIDO published the ''Competitive Industrial Performance Index 2020: Country Profiles'' report in 2020. In this report, it is announced that Taiwan's GDP rate is 564.5 billion / 23,790 per capita. It is also stated in the report that manufacturing value-added is 177.6 billion / 7,485 per capita, and manufacturing exports is 323.6 billion / 13,640 per capita. When looking at the sectoral distribution of manufacturing (Graph 2.15), it is seen that the production of high technology products has a large place with 46.8% (UNIDO: Competitive Industrial Performance Report 2020:74).

**Graph 2.15. Taiwan's Distribution of Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

**Table 2.12. Taiwan' Performance Indexes**

| Performance indexes | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend 1990 2018 |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 8 | 0.284 | 0.067 | 8 → | |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 9 | 0.286 | 0.076 | 9 | |
| Share of Manufacturing Value Added in GDP Index | 3 | 0.891 | 0.343 | 3 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 2 | 0.864 | 0.302 | 2 | |
| Industrialization Intensity Index | 1 | 0.878 | 0.323 | 1 | |
| Share of World Manufacturing Value Added Index | 13 | 0.046 | 0.023 | 13 | |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 14 | 0.371 | 0.103 | 14 | |
| Share of Manufacturing Exports in Total Exports Index | 6 | 0.988 | 0.631 | 4 | |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 7 | 0.847 | 0.397 | 6 | |
| Index Industrial Export Quality Index | 2 | 0.917 | 0.514 | 2 | |
| Share in World Manufacturing Export Index | 12 | 0.135 | 0.039 | 12 | |

1st DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
2nd DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
3rd DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-

2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B
October 25, 2020

### 2.2.3. Indonesia

#### 2.2.3.1. Historical Process

Indonesia provides fragmented evidence for the first eight centuries. It seems that the first archipelago states emerged due to trade to the archipelago in the first eight centuries (Brown,2004:13). The underlying reason for hosting hundreds of tribes and communities is their migration. While the first wave of immigration to the islands comes from the Northern regions, namely Asia, the second wave consists of Australians from Southeast Asia (Hannigan,2015:20). There are 13.600 archipelago in the region (Brown,2004:5). It has known that the Kutai and Tarumanegara empires that came to these islands in the 2nd century have Indian-origin kings, so the islands received immigration from India and were affected. It has known that it received immigration from Malaysia in the fourth and fifth centuries. Due to these migrations, Hindu religion and tribal religions have been influential in shaping society (Brown,2004:17-18; Hannigan,2015:145). Indonesia has become a region open to migration, as it has a geostrategic position in commercial terms. By the 7th century, Malacca and Sunda Straits, which were essential for Indonesia, were captured by the Buddhist king Sriwijaya. Until the 13th century, trade in the region continued under the control of the Srivijaya empire on the island of Sumatra and the Medang Empire on the island of Java. In particular, the Sriwijaya empire was one of the important centres for Buddhist teaching and managed merchant ships between China and the Indonesian islands. Arabs and Malaysians who came for trade were influential in spreading Islam on the islands (Brown,2004:31-32).

In the early 16th century, the Portuguese occupied Malacca, and Spain destroyed the Portuguese fleet (Yenigün and Duran ,2010:468). This small-scale conflict that emerged at the beginning of the 16th century stems from the fact that the Indonesian Islands are one of the essential crossing points of the Spice Road. In 1590, the Netherlands established companies in India and these islands to dominate the

regional trade. Dutch ships have come to the islands many times to buy spices (Dick et. al.,2002:40; Brown,2004:33-45). Within a few years the Netherlands, Spain and England occupied the island. The reason for these invasions was not only its geostrategic location (along the Indian road) but also its natural resources. The occupations that continued from 1602 to 1680 ended with the Dutch agreement with Spain and England, and Indonesia became a Dutch colony (Yenigün and Duran, 2010:466-470). In 1830, the Netherlands made some changes in the systems implemented in Indonesia for agricultural production for export. Reducing rice production used these areas for the production of coffee, indigo, tea, and pepper Dick et. al.,2002:64-65). In the 1870s, the Netherlands started free trade on these islands. Until the 20th century, the Netherlands transferred the region's natural resources to its country by ships (Hannigan,2015:133-140). However, at the beginning of the 20th century, nationalist movements and anti-imperialist independence quests also emerged in Indonesia. In order to keep its commercial interests in check, the Netherlands has allowed several changes in Indonesia. The most important of these is that in 1911 the commercial language was the local language and the establishment of the first political party.[1] The public is allowed to participate in the government, albeit limited. They have also invested in education, health and infrastructure services (Dıamond,2019:201-203; Ricklefs,1981:232). With the invasion of the Indonesian Islands by Japan in 1942, many pressures applied by the Netherlands have eliminated. So much so that the Indonesian people did not resist the Japanese occupation forces because they saw this occupation as a way to escape from Dutch pressure. However, while Indonesians thought they would support the Japanese in their quest for freedom, they became a Japanese colony. The difference between the Japanese and the Dutch colonization is that they focus on natural resources, support the people's search for independence and nationalist movements. This two-year colonial process gained a different dimension when the Japanese realized that they would lose the war. After this period, the Japanese supported Indonesian independence (Brown,2004:138-139; Hannigan,2015:183). As a result of the atomic bomb dropped in Japan in 1945,

[1] There are 250 different languages in the region, Bahasia Language was created by combining common parts of different dialects, this was accepted as the official language after independence.

Indonesian administrators went to Japan and received approval for independence. Ahmet Sukarno was appointed as the head of the independence preparatory committee, and Muhammed Hatta was appointed as vice president. Indonesia declared its independence on August 17, 1945 (Vickers,2013:95; Hannigan,2015:194-195). However, the Netherlands did not recognize this independence, and the people of the region revolted against Dutch pressure. Before Indonesia could ensure its institutional and political unity, the Netherlands sent troops to the country. The people made two great uprisings in 1947-48. However, the Dutch police put down these riots and sent Sukarno into exile (Vickers,2013:85-101). Since these islands, which are essential for the international economic system, will enable the Netherlands to become an economically powerful actor, the USA has involved in the process. The USA stated that the Netherlands could benefit from Marshall aid in return for recognizing Indonesian independence (Dick et. al.,2002:170-171). Although Indonesia's natural resources seem more attractive to the Netherlands, it recognized this independence on 27 December 1949 due to international pressure (Hannigan, 2015:206).

The next title will examine how Indonesia’s two military leaders have integrated into the international system during long martial law processes. The economic and political problems faced by this country, which did not belong to a pole in the bipolar order of the cold war process, will be discussed. The main problem we seek to answer is whether its industrial development is sufficient and how important it is in the international division of labour in the context of a resource-intensive economy.

### 2.2.3.2. Integration and Development to The International Economic System

The United States of Indonesia officially declared independence on December 27, 1949, with the recognition of the Netherlands. Sukarno became president of Indonesia, ruled by parliamentary democracy between 1950-1958. Indonesia was ruled by a guided democracy between 1959 and 1966 (Dick et. al.,2002:170). Sukarno had a semi-dictatorship administration (Vickers,2013,5). During his twenty years of rule (between 1945-1965), Sukarno attempted to create a nation-state from Indonesia's ethnic wealth and implemented controlled democracy, especially after 1957. Sukarno

has increased its governance power and reduced the power of the parliament due to this practice (Brown,2004:186-191). The Sukarno period covers a period in which Indonesia was facing hyperinflation, low growth rates and low GNP. The high level of dependence to agriculture in socioeconomic terms proves that the level of education is low while bringing together the density of rural population (Dowling and Yap,2008:475-476). Even though the Netherlands recognized independence, its colonialism continued through its companies in the region for many years. To prevent this situation, the Sukarno government nationalized all Dutch companies in 1959(This nationalization contributed to the army instead of enriching the people) (Yenigün and Duran,2010:468). Also, in these years, the Sukarno Government adopted communist policies and allowed the communists in the country to be armed (Vatikiotis,1999:17-20). This armament was instrumental in Indonesia's exposure to a pro-communist coup in 1965. During the Cold War, Indonesia's position has been significant at this point, which is one of the questions we seek to answer in this title. Because, Sukarno got closer to China and Vietnam in the 1960s and tried to be taken under control by the communist bloc (Ricklefs,1981:333-337). However, a successful result could not be obtained. General Suharto took control of the situation with a counter-coup at 1966 and formed a government within two years (Hannigan,2015:233-234). It maintained a disconnected policy in the ongoing process. The Suharto government first drew up plans for the legitimacy of the nation-state and the economic development of the country (Brown,2004:200). Efforts to create a nation-state have faced with problems such as human rights violations, massacres and civil strife (heterogeneous ethnicity) leftover from the previous administration, and Suharto struggled to solve these problems in the first four years after the coup. In 1968, he made many reforms, including domestic and foreign policy, under the name of ‘‘new order’’. Suharto took place in the UN again, with moderate changes in Indonesian foreign policy. Although the ethnic conflict and the search for order in the region overshadow the economic development, the reforms made have impacted the socioeconomic status of the people (Ricklefs,1981:342-355). Suharto brought together the economic minds in the country and implemented a strategy with the goal of international development. The basis of this practice was the green revolution that would stimulate growth, the protection of macroeconomic policies, pursuing regional balances of interest and calming group

conflicts (Dowling and Yap,2008:477). Suharto improved his relations with the West, bringing in foreign aid. He provided extensive financial aid, including villages, in order to keep the people under control. The aim here was for the people of the country to recognize the central government. As a matter of fact, these investments reflected positively on the election results (Vickers,2013:184,189-190). Suharto won all five elections and continued to lead for many years.

Indonesia's economic development gained momentum thanks to the oil shocks, one of the critical events of the Cold War period. Providing agricultural and macroeconomic development until the 1970s, Indonesia started exporting oil to the whole world as a resource-intensive economy in this process. The first and second oil shocks contributed to the development of the Suharto Government in terms of socioeconomic terms, with high revenues and by making more public investments with these revenues. In addition to family planning, education, health and infrastructure problems, investments have made in transportation and communication (Dowling and Yap,2008:477; Dick et. al.,2002:201).

The industrial sector in Indonesia has developed depending on agricultural productivity. The excess of natural resources and agricultural products that have primary importance in world exports negatively affected the development of industries in Indonesia, and even no significant progress has been made for many years. Since the existing industrial areas have established in rural areas, they have seen as a side income for farmers, and it became difficult to provide specialization. The long-term implementation of sufficient conditions in terms of electricity in the country also negatively affected the industries' development. It strengthened its role as an important oil exporter in the international economy due to the oil shocks. There was an increase in agricultural growth in the 1980s, and the country has come to a position to ensure its self-sufficiency in terms of rice production. The balance of payments deteriorated as a result of the decrease in oil barrel prices ($ 25 a barrel in 1985, $ 13 a barrel in 1986) due to the Plaza Agreement in the mid-80s. Since the 1970s, import substitution policy is in its second phase at this stage. Import substitution policy has reshaped with the priority given to the oil refining and resource processing industries. In this period, seen as the second stage of import substitution, State Economic Enterprises (SOE) got

powerful, and state-owned companies provided value to the economy by regulating according to needs. Indonesia's need for industrial investments has understood in this economic breakdown period. In the mid-1980s, Indonesia made arrangements to accelerate industrialization. In this context, discounts have applied at ports and customs for export and import, and export incentives have given for export-based growth. They have opened their doors to foreign direct investment. Affected by the Plaza Agreement, Japan shifted its labour-intensive manufacturing sector to these islands. (Low skilled-labour-intensive exports have applied due to the low level of education). While Japan was the leading foreign investor of Indonesia until the Asian crisis, investments have decreased after the crisis (Dowling and Yap,2008:477-479).

Suharto was protested by student groups due to the increasing corruption, favouritism and secret agreements in the 1990s. These protests and the Asian Crisis of 1997-98 laid the groundwork for Suharto's resignation. Moreover, on May 21, 1998, the new government was formed under Jusuf Habibie (Dick et. al.,2002:234-235). Indonesia's democratization reforms also started with this new government. In the economy, the principles of freedom of the press and the distribution of powers in the regions, including the welfare of the people as well as liberal and transparent practices, were adopted. Also, it has clarified that the elections to be held in 1999 should be repeated every five years and the president could serve for two terms at most. However, ethnic and religious conflicts arose between people with multi-ethnic composition. Aceh (Sumatra), Irian Jaya and East Timor regions did not want to be subordinate to a central authority. In these regions, there have been some problems between the Indonesian government in the past years. The processes of independence in these regions will not be covered in detail in this thesis. However, it should be known that these three regions were strategically and naturally important regions for Indonesia. East Timor gained its independence in 2002, and the Aceh region signed a Peace Agreement with the Central Government in 2005, after long years of uprisings, and the search for independence failed. This problem resulted in Aceh accepting to be an autonomous administration instead of independence. (Aceh is Indonesia's third region in oil production.). In Irian Jaya, on the other hand, there were conflicts based on religion, and the central government kept the region under constant control due to gold

reserves. (The world's largest gold centre has located in this region.) (Yenigün and Duran,2010:473-476).

Indonesia has received development aid from the IMF during the democratization process and used it in accordance with sustainable economic development plans (IMF,1997: online resource). Indonesia is the largest economy in Southeast Asia and is among the G20 members (Levis and Chan,2020: online resource). The reason why Indonesia is among the developing economies of East Asia in a short time is not that it puts industrial and technological developments into practice in its country in a short time. In order to understand this development, in the next section, we will discuss the effects of the natural resource wealth of the Indonesian Islands on the economy. Indonesia has soils rich in natural resources. Besides oil and natural gas reserves, forests are covering a large part of the islands. These forests make a significant contribution to the economy in terms of timber, rubber, quinine and palm oil production and export. The gold-silver deposits, coal-bauxite-magnesium deposits in the region are enough to bring Indonesia to the top in world production. The export of these products in the international market constitutes an important advantage in Indonesia's economic development. (Yenigün and Duran,2010:463-482). The development of agriculture and mining has delayed Indonesia's orientation to industrial development. However, today there is an ever-increasing industrial development in oil refineries, iron and steel industry, rubber, cement, quinine and textiles. Indonesia is an important regional actor in the assembly industry, even if it cannot produce successful outputs in terms of high value-added product production (Ng and Yeats,2003:61-62). Especially East Asian economies such as China, Japan and Singapore, which have an effective development process, positively affected the Indonesian economy.

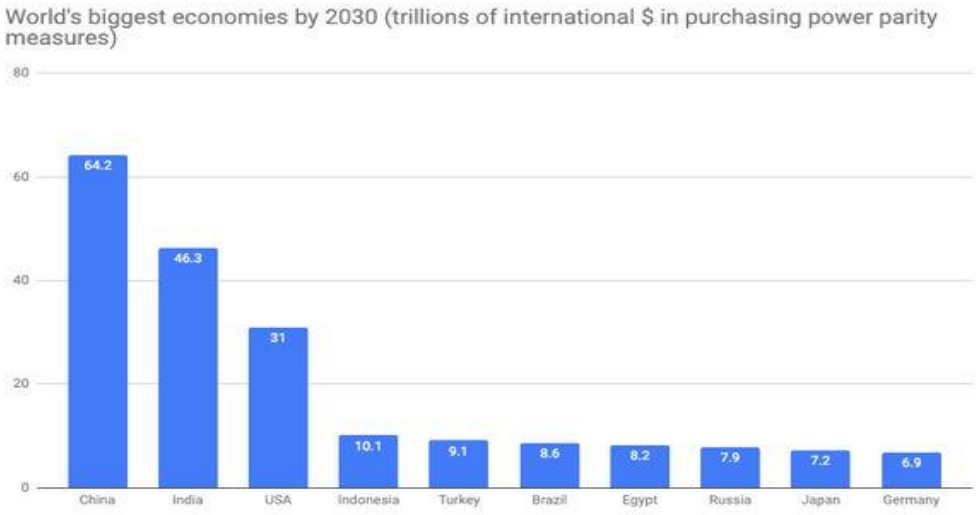
In the light of this information, it has understood that Indonesia, which we consider as a resource-intensive product-based economy, has a growth based on natural resource exports rather than an economic growth due to industrial revolutions and globalization. Globalization has been particularly effective in the banking system and communication networks. Its colonization due to its geo-strategic position and its administration with dictatorial regimes nearly 50 years after the colonial process

negatively affected its industrial development. In the next title, the economic development of Indonesia based on certain variables will be discussed.

#### 2.2.3.3. Evaluation Due to Independent Variables

Considering the economic growth values, Indonesia is just below China in the growth ranking of G20 countries. While improving the living conditions day by day, its focus on industrial production and its richness in natural resources has caused the country's share in world GDP rates to increase in the last two decades (The Standard Chartered SDG Investment Map Contents,2020:24-27). According to the estimates published in 2019 by the multinational Standard Chartered Bank in London, many developing countries (2030 and beyond) will be the powerhouse of the economy in the future. Within the scope of these estimates, it was stated that Indonesia could become the fourth-largest economy in the world in 2030, based on GDP rates. As shown in the table below, Indonesia is among America's and Turkey economy with 10.1 trillion value (Desjardins,2019: online resource). On the other hand, the predictions in PricewaterhouseCoopers' report, published in 2017, are that Indonesia will become the fifth-largest economy in the world in 2030 (PWC,2017: online resource). The economic growth of Indonesia, which has expected to be an important actor in the world economy in the future, the sectoral distribution of its economy, the share of natural resources in this economic growth and the effects of technological developments will be examined. The effects of these variables on economic power ranking change will be discussed.

**Figure 2.3. World's Biggest Economies by 2030**




**Source:** Will Martin. "The US Could Lose Its Crown as the World's Most Powerful Economy as Soon as Next Year, and It's Unlikely to Ever Get It Back." ***Business Insider*** (2019). (available), https://www.businessinsider.com/us-economy-to-fall-behind-china-within-a-year-standard-chartered-says-2019-1, January 26,2021

Indonesia is a country with a population of 267,663 million (World Bank: Indonesia Data,2020: online resource). Below is a graph (Graph 2.16) showing the increase and decrease in Indonesia's GDP rates.

**Graph 2.16. Indonesia' GDP Growth Rate**


**Source:** Indonesia GDP Annual Growth Rate, **Tradingeconmics**, (available), https://tradingeconomics.com/indonesia/gdp-growth-annual, April 9,2020

The Indonesian economy is among the countries most affected by the Asian financial crisis in 1997. In the Indonesian economy, which rose to the position of a

middle-income country in 1996, this crisis caused shrinkage of 13%. However, as a result of the policies followed after the 1997 Asian currency crisis and the IMF guidelines, it is achieved better growth results than the previous periods. Since 2005, the Central Bank of Indonesia has been implementing monetary policy by targeting annual inflation. With the effects of the global crisis of 2008, there was a break in the economy, and in 2009, the Central Bank lowered the interest rates by slightly stretching these monetary policies. One of the striking points in the table was the increase in the GDP ratio after 2004. This rise coincided with the period Indonesia gained not only economic but also political stability. (elected head of state for the first time by the popular vote). The second breaking point was experienced with the 2008 global crisis that affected the whole world. However, after the crisis, Indonesia became one of the countries with the highest growth rates among the G20 countries and showed a growth rate of 6% in 2010. So much so that GNP per capita has increased by 70% in the last twenty years (OECD: Indonesia Economic Snapshot,2020: online resource). In these growth rates of the Indonesian economy, the effect of foreign investors who want to benefit from consumer demand depending on the population density is also high (DEIK: Türk- Endonezya İş Konseyi Endonezya Bülteni, 2014: online resource). Political and economic reforms experienced in the 2000s have had positive effects on Indonesia's capital market development and gaining foreign investor confidence (OECD, Science and Innovation: Indonesia,2012:316-319). The Indonesian economy has implemented incentives to protect this foreign investment and investor (DEIK: Türk- Endonezya İş Konseyi Endonezya Bülteni,2014: online resource).

As mentioned before, the Indonesian economy is based on natural resource export. Oil and natural gas export have an important place in its economy. While Indonesia's BERD intensity was 0.01% in 2008, this rate has increased day by day. The proportion of technology-intensive manufacturing and industrial sectors has increased in the Indonesian economy (OECD: Science and Innovation: Indonesia,2012:316-319). Indonesia's R&D investments constituted 0.238% of GDP in 2017, while it constitutes 0.265% in 2018 (World Bank: Research and Development Expenditure, 2020: online resource). Indonesia, which has infrastructure problems because it is a state consisting of islands, has implemented several incentives and

studies to develop broadband systems and their integration into the global information network (OECD: G20 Innovation Report 2016,2016: online resource). At the beginning of these, The Vision and Mission of Indonesia S&T Statement (2025) was published to further increase its strength in the global competitive field and make progress in information technologies. Seven targets have determined for Indonesia's 2025 science and technology vision. These goals; to develop advanced material production, to develop the pharmaceutical industry and medical material production in the health sector, to develop defence and security technologies, to develop information and communication technology, to ensure transportation technology and management, to organize techno-economic studies for the use of energy resources and sustainable energy resources, food safety It includes technological studies to be carried out on agricultural fields and agricultural products (Sukara and Aiman,2012:online resource). Because, The Vision and Mission of Indonesia S&T Statement is a long-term statement, plans are published every five years that reorganize priority goals. In the Second National Medium-Term Development Plan covering the years 2010-14, it was highlighted that Indonesia should focus on the quality of human resources and R&D capabilities. It aims to implement and commercialization of R&D plans to address current national socioeconomic needs while emphasizing that R&D capabilities and innovation capacity in international competition are prerequisites for economic competitiveness (OECD: Science and Innovation: Indonesia,2012:316-319).

The Third International Medium-Term Development Plan aims to encourage sustainable growth and accelerate the development of STI in 100 regions (OECD: G20 Innovation Report 2016: online resource). Masterplan for Acceleration and Expansion of Indonesia’s Economic Development (MP3EI) / Indonesia’s Economic Progress and Expansion Master plan has been put forward to accelerate and expand Indonesia’s economic development in addition to long and medium-term plans (Indonesia Investments,2020: online resource). It covers the reforms and studies to be carried out in the period from 2011 to 2025. These reforms are increasing Indonesia’s ability to add value and expand value to industrial production processes, promote efficiency and effective marketing strategies to achieve global market share, achieve high competitiveness for Indonesia’s manufacturing output, innovation and breakthroughs

to achieve and sustain competition in the industrial production spectrum are to encourage (Strategy,2013: online resource).

Scientific and technological developments of Indonesia have begun to be guided through the development of markets dominated by them. As it has mentioned before, it has global leadership in products such as rubber and palm oil, on this basis, it implements the Agrifarm Training program in order to protect the food sector (against flood and drought) and to move it forward technological and scientific developments (sustainable productivity). While the government provides seed capital and training services under this program, it has aimed to develop technology-oriented initiatives. Various research areas are also supported in this context to produce electric cars, bio-refineries and bioethanol (OECD: G20 Innovation Report 2016: online resource).

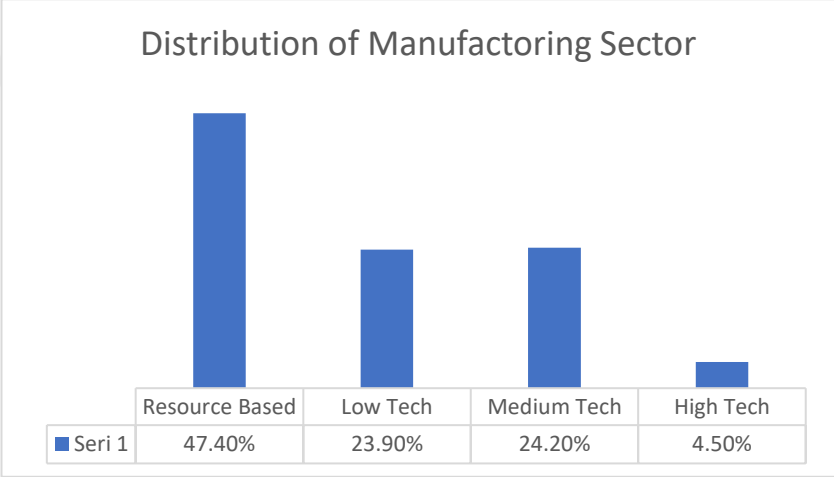
Because Indonesia consists of thousands of islands and a very crowded population, the internet connection and broadband system has not developed much. Indonesian Broadband Plan is a plan that covers the years 2014-19 and aims to eliminate the deficiencies in this regard. So much so that the broadband system and innovations have seen as the driving force of national development to be included in the international economic division of labour. The Broadband Plan aims to use the internet connection that is always open and the use of this connection in E-Government, E-Health, E-Supply, E-Logistics and E-Supply processes (Tayyiba, 2015: online resource).

Despite its high education spending, Indonesia, which cannot achieve an economic and social growth momentum based on knowledge and information technologies, continues to work to create a more educated and qualified society. The Science for all Program has enriched with training in procurement and entrepreneurship. This program has made implementations that encourage the public about innovation and entrepreneurship (OECD: G20 Innovation Report 2016: online resource).

UNIDO published the ‘‘Competitive Industrial Performance Index 2020: Country Profiles’’ report in 2020. It is seen in this report that Indonesia's GDP is 999.1

billion / 3,733 per capita. Manufacturing value added is 207.3 billion / 774 per capita, and manufacturing exports is 124.1 billion / 464 per capita. While the use of technology in the manufacturing sector is quite low compared to the first group countries, it has seen that the rate of resource-intensive manufacturing is quite high. These data have given in the graphic (Graph 2.17) below (UNIDO: Competitive Industrial Performance Report 2020:138).

**Graph 2.17. Indonesia' Distribution of Manufacturing Sector**




**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

## Table 2.13. Indonesian's Performance Indexes

Performance indexes

| | Rank 2018 | Score 2018 | World Average | Rank 2017 | Trend 1990 – 2018 |
|---|---|---|---|---|---|
| **Competitive Industrial Performance Index** | 39 | 0.080 | 0.067 | 38 ↓ |  |
| Manufacturing Value Added Indexes | | | | | |
| Manufacturing Value Added per Capita Index | 72 | 0.029 | 0.076 | 75 |  |
| Share of Manufacturing Value Added in GDP Index | 16 | 0.583 | 0.343 | 15 |  |
| Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index | 44 | 0.439 | 0.302 | 44 |  |
| Industrialization Intensity Index | 21 | 0.511 | 0.323 | 21 |  |
| Share of World Manufacturing Value Added Index | 11 | 0.053 | 0.023 | 11 |  |
| Manufacturing Export Indexes | | | | | |
| Manufacturing Export per Capita Index | 89 | 0.013 | 0.103 | 92 |  |
| Share of Manufacturing Exports in Total Exports Index | 78 | 0.705 | 0.631 | 78 |  |
| Share of Medium and High-Tech Activities in Total Manufacturing Export Index | 86 | 0.318 | 0.397 | 89 |  |
| Index Industrial Export Quality Index | 76 | 0.512 | 0.514 | 74 |  |
| Share in World Manufacturing Export Index | 29 | 0.052 | 0.039 | 29 |  |

- $1^{st}$ DIMENSION: CAPACITY TO PRODUCE AND EXPORT MANUFACTURES
- $2^{nd}$ DIMENSION: TECHNOLOGICAL DEEPENING AND UPGRADING
- $3^{rd}$ DIMENSION: WORLD IMPACT

**Source:** Competitive Industrial Performance Report 2020, CIP Index, edition 2020: Country and Economy Profiles, **UNIDO**, (available), https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B October 25, 2020

# CHAPTER THREE

# A THEORITICAL OVERVIEV OF THE NEW GLOBAL DIVISION OF LABOUR AND THE FUTURE OF SUSTAINABLE ECONOMIC DEVELOPMENT

## 3.1. Modern World System Theory

International political economy has gained importance in recent years and is considered based on three theories. One of these theories, the Modern World system theory, has essential effects on the shaping of national and international economic relations. Marxism has a lot of influence on this theory. Gilpin defines the modern world system theory as follows; ‘‘the world market is essentially a mechanism for the economic exploitation of the less developed countries by the advanced capitalist economics’’ (Gilpin,1987:66). This theory, which has different views on many issues with the Marxist thesis, analyses the structure and functioning of the global economy by a neo-Marxist approach (Heywood,2011:101). The integration of the exemplary countries discussed in this thesis into the international system gained momentum during this period of neo-Marxist studies. This thesis, the new international division of labour, will study according to the Modern World Theory. In the previous section, the focus was on the technology-intensive production, industrial situation, R&D studies and economic conditions of the seven countries selected. The international division of labour discussed in the thesis will be analysed in the centre-periphery pattern, depending on the technological development level, high manufacturing industry capacity and natural resource capacity of many countries in the capitalist system.

‘‘The capitalist world-economy had then been in existence for some two centuries already. The imperative of the endless accumulation of capital had generated a need for constant technological change, a constant expansion of frontier geographical, psychological, intellectual, scientific’’(Wallerstein,2006:2). Kaye states that the origins of the capitalist world economy developed in the 16th century, due to the full development of market trade and the emergence of economic superiority.

Wallerstein sees the modern world economy and capitalism, which emerged with the development of market trade in the 16th century, as the explanation of the same indivisible phenomenon by different characteristics (Wallerstein,1974:391-392). According to this theory, the formula's put forward by Wallerstein; production, capital accumulation and the market must be far from political control for the emergence of the modern world system. With the rise of the nation-state system, the pluralist balance of power system in Europe has reduced the influence of bureaucracies on capital accumulation, productive investments and economy. The replacement of the nation-state system for these pre-modern imperial economic and political systems are allowed market forces to escape political control. Thus, the market is set free to develop and transform the world economy according to its internal logic. Although this theory of the Modern World System suggests that a pluralistic state system is a primary prerequisite for the formation of the world economy, it sees the interaction of international trade and investment as the primary mechanism for the continuation of its structural features (Gilpin,1987:68-72). Wallerstein and Hopkins evaluated the development of the modern world system over six vectors. These vectors both formed the structural framework of modern world theory and developed in connection with each other. As stated above, the first of these vectors is the interstate system (nation-states). Besides, there are the world structure of production, the form of the world labour force, the human welfare patterns in the world, the power of states to ensure social unity and knowledge structures ((Wallerstein and Hompkins,2000:10-11). Wallerstein states that the ‘‘essential feature of a capitalist world-economy... is production for sale in a market in which the object is to realize the maximum profit’’ (Kaye,1979:408). Based on this definition, which focuses on maximum profit and production, it is obvious that today technology-intensive production maximizes profit and its use in production processes contributes positively to the economies of the country. The modern world-system as it stands did not exist until the decades just before the First World War when the dominant industrial economies emerged. Countries that were important before the First World War seem to be still core economies after 1945. Much of the land that Wallerstein and others would later allocate to the environment was largely ignored by traders and investors until relatively recently (excluding slaves and precious metals). The new international division of

labour between the industrial North core and the non-industrial Southern periphery took shape at the end of the last century (Gilpin,1987:84). In Wallerstein, he expresses that East Asian countries were added to the modern world system later, and he starts the process in which the modern world system covers the world as a whole, with the addition of East Asian countries to the economic division (Wallerstein, 2001:35). There are different opinions on this issue. Frank and Gills advocate that China and India are not outside of the system and are part of the Global division of labour, even if it is looser than Singapore and South Korea (Frank and Gills,2003:539). According to the modern World System theory, the international division of labour takes place at the state level between three stages (Main-zones-tiers of states). These are the core/centre, the semi-periphery, and the periphery arranged hierarchically. According to Skocpol, each major region of the world economy has its own unique mix of economic activities (e.g., industry plus differentiated agriculture in the centre; monoculture in the environment) and the characteristic form of ‘‘labour control’’ (e.g., skilled wage labour) based on an economic structure (Skocpol, 1977:1078). Wallerstein defined this theory as a kind of social system with a single division of labour and multiple cultural systems (Wallerstein,1974:390). Wallerstein expresses the defining feature of this social system as follows; ‘‘the existence within it of a division of labour, such that various sectors or areas within are dependent upon economic exchange with others for the smooth and continuous provisioning of the area’’(Kaye,1979:407). While it is appropriate to view the world economy as a hierarchical structure or system consisting of the centre and the periphery, it should be noted that the geographic location of the core and the global distribution of economic activities have been continuously changing over the past three centuries (Gilpin,1987:85). Braudel led the development of economic modernity back to the 15th century, emphasizing the profitable industries, capitalist agriculture, banking, and good trade relations in the core countries. He states that we can observe that Venice in the 15th century, Amsterdam in the 17th century, London in the 18th century and New York in the 20th century had the technical knowledge, scientific and technologies (Braudel,1979:89-93). Nowadays, this power centre seems to be shifting towards the pacific region. The emergence of new industrial forces in Asia and Latin America has led to fundamental changes in the structure and actors of the international political

economy, one of which has transformed the international division of labour. Gilpin states that understanding this dynamic process and its cause-and-effect relationships is a necessity in terms of economy and politics (Gilpin,1987:85).

‘‘The core states tend to specialize in manufacturing, the periphery is relegated to the production of raw materials, and the semi-periphery is somewhere in between.’’ The driving force of this system is the powerful core countries that have political power and capital. According to Robert Gilpin, this theory states that the core and the periphery are very closely related. Besides, the international division of labour creates dependent economies in the periphery that prevent class and state structures and economic development. In this theory, it has stated that there is an inverse proportion between the world economy and the economic development of periphery countries. It has been emphasized that global market forces are in an oppressive position for periphery countries. The fact that periphery countries get rid of the old perceptions and try new economic expansions on the reshaping of the global division of labour shows us that there will be changes in the centre-periphery relationship in the countries emphasized in this thesis (Gilpin,1987:92). Asia Tigers, China and Japan have made new initiatives, especially in industrial areas and manufacturing. They have allocated significant R&D and innovation budgets for that initiatives sustainability (compliance with the Industry 4.0 process).

It is possible to see the hegemonic power change in the context of the modern world system in the table (Table 3.1) below. In the table, the countries that were central in the period from the 18th century to the 21st century and their situations are given periodically. The fundamental contradictions of the capitalist system have been tried to be explain through several cyclical processes. As can be seen from the table, these cycles are evaluated according to two different systems. We have covered the details of the periodic development of the Kondratieff cycles in the first part of the thesis while explaining industrialization and the transition to technology-intensive production. These cycles include periods of 50-60 years that occur between the production area of profit sources and the finance area. Besides, there are 100-150 years of hegemonic cycles that express the rule of hegemonic powers. The table emphasizes the new world order in the 21st century in terms of hegemonic cycles and a

multipolarity depending on this order. The rise of China in terms of the geopolitical world order has given (Wallerstein, 2001:35).

**Table 3.1. Paired Kondratieff Waves and Geopolitical World Orders**

| Kondratieff Cycles | Hegemonic Cycles | Geopolitical World orders |
|---|---|---|
| 1790/98<br>A-phase | British Hegemonic Cycle<br>Ascending Hegemony (grand alliance) | (Napoleonic Wars as French resistance to Britain's ascending hegemony) |
| 1815/25<br>B-phase | Hegemonic Victory (balance of power through Concert of Europe) | Disintegration<br>WORLD ORDER OF HEGEMONY AND CONCERT<br>Transition (1813-15) |
| 1844/51<br>A-phase | Hegemonic maturity ('high' hegemony: free-trade era) | Balance of power in Europe leaves Britain with a free hand to dominate rest of the World) |
| 1870/75<br>B-phase | Declining hegemony (age of imperialism, new mercantilism) | Disintegration<br>WORLD ORDER OF RİVALRY AND CONCERT<br>Transition (1866-71) (Germany dominates Europe, Britain still greatest World power) |
| 1890/96<br>A-phase | AMERİCAN HEGEMONIC CYCLE<br>Ascending hegemony (a World power beyond the Americas) | Disintegration<br>WORLD ORDER OF THE BRİTİSH SUCCESSİON<br>Transition (1904-1907) |
| 1913/20<br>B-phase | Hegemonic victory (not taken up: global power vacuum) | (Germany and United States overtake Britain as World Powers: two World wars settle the succession) |
| 1940/45<br>A-phase | Hegemonic Maturity<br>(undisputed leader of the 'free world') | Disintegration<br>COLD WAR WORLD ORDER<br>TRANSİTİON (1944-46) |
| 1967/73<br>B-phase | Declining hegemony (Japanese and European rivalry) | (US hegemony challenged by the ideological alternative offered by the Soviet Union) |
| 2000/03 | NEW HEGEMONİC CYCLE/MULTI-POLARİTY? | Disintegration<br>'NEW WORLD ORDER'<br>Transition?<br>Challenge to West of Islamic Fundamentalism<br>'Rise of China'<br>End of trans-Atlantic alliances? |

**Source:** Colin Filint and Peter J. Taylor. ***Political Geography: World-Economy, Nation-State and Locality*****.** Routledge, 2018. p.60

Wallerstein emphasizes the arguments that the rise of East Asian countries (Japan, Asian Tigers, and China) coincided with the B-Phase (1967-73) and that US hegemony entered the beginning of a collapse in this period. Moreover, he underlines that the rise of East Asia was through understanding this B-Phase (1967-1973). Although this period indicates a lousy period for many countries and regions compared to the previous A-phase, it represents a period where the newly industrialized countries gain an advantage in East Asia. Although four countries have referred to as newly industrialized countries in the 1970s (Brazil, Mexico, Taiwan and S. Korea), only Taiwan and S. Korea has been drawn attention. Wallerstein stated that the reasons behind this success would not be understood without knowing the 500-year development of East Asia. It is difficult to understand this process without knowing how the Edo period stimulated trade, the technological development that the Meiji Period and its restoration brought to the region and the country, and the importance of the developing tax system based in China. In this thesis, we examined the process after WWII in detail as the process of integration into the international system. Japan was affected by the Korean War during this period, and also US aid was effective in its economic development. Due to the Cold War environment in S. Korea and Taiwan, it received much support in economic, political and military matters. It turned these supports into an advantage in the period 1970-95 (Wallerstein, 2001:47).

As can be seen in the table above, there is a period when the USA has accumulated capital. Western Europe in the 1960s, Japan and East Asia, with its newly industrialized economies, in the 1970s, became a capital accumulation centre (East Asia has become the third largest centre of accumulation). Wallerstein states that even if there is industrialization in B Phase (67-73), the economic development of the less developed countries will be in areas limited by the pressure of the core countries. The reason for this is the shifting of production from the central regions to the semi-periphery areas; therefore, it points to a period in which monopolization in peripheral and semi-peripheral countries becomes difficult, and the benefit of sectors with high-profit rates is under the control of central countries (Wallerstein,2001:44-48). While the seven countries discussed in this thesis are in the periphery and semi-periphery, China's rise towards the centre draws attention. China’s has a different political and

economic management culture than the countries in the centre of these Kondratieff cycles has caused it to be perceived as a challenger. This upward mobility of China has created an environment need. In this context, it has made an area of advantage for the countries with which it has established commercial and economic relations (Xing,2017: online resource). China's rise is the result of its participation in the global division of labour, and it reveals the rise of global neoliberalism (Verkhovets, 2019: online resource).

The upward rise of China makes controversial Wallerstein's argument of ''strong state''. This discussion has based on the following question; ''Can a state become semi-periphery or centre when it is in a peripheral position?'' Wallerstein's definition of a strong state is based on bureaucratization. He emphasizes that in order to be a strong state, bureaucratization must be strengthened at all organizational levels (states, economical company structures and even cultural institutions/individual and group basis). Wallerstein supports the idea, ''The stronger the state mechanism, the easier it will be to protect and regulate their interests in the world economy.'' And He sees only core states as strong states. Skopol, by contrast, emphasizes that defining a strong state only by bureaucratization and a strong state mechanism is insufficient and that other variables have needed in defining a strong state. Wallerstein states that the powerful state acts under the pressure of interest groups that maximize entrepreneurial interests. In response to this view, the developmental model of East Asian countries has put forward. In East Asia, there are models that the state protects and provides both economic policies and welfare, without submitting to interest groups in order to maximize the economic interests of states (Majid, 2000:8-12).

One of the best examples of Asian developmental economies is undoubtedly S. Korea. In the 1960s, South Korea was a poor, agricultural periphery economy. Today, it is one of the countries seen as close to the core as a member of the Organization for Economic Cooperation and Development. What happened in the process that progressed from the periphery to the centre? List-Jensen bases South Korea's development on state ideology with internal and external factors. Controls over foreign investment and interaction with international markets have cited as external factors and strong state mechanisms as internal factors. Besides, S. Korea

followed a developmental statist ideology. These factors helped it rise towards the centre/core. In this argument, List-Jensen emphasizes the importance of external and internal nationalist state intervention strategies for developmental growth. This economic success, contrary to Wallerstein's views, was due to the ‘efficient, consistent and consistent economic policies' that the state established and implemented (List-Jensen,2008:12-15). Such policies permitted South Korea to develop core-like production processes. Today, S. Kore is one of the top five manufacturers in ship, automobile, electronics and steel. Only 6.2% of the workforce is involved in agriculture and accounts for only 2.7% of GDP. Recognizing that these developments took place in a short period of 50-60 years, it will be easier to understand the importance of nationalist state intervention (Fernandes, 2013: online resources).

The South Korean government (ROK), during the development phase, exercised controls over the investment-grade funds to strategically follow national economic priorities. In fact, financial control was one of the Korean state’s most powerful tools to guide development (List-Jensen,2008:15). The states control over financial funds helped sectoral mobility, the state has supported the heavy and chemical industries. Hence South Korea encouraged semi-periphery or core-like production processes (Fernandes, 2013: online resources).

Although Wallerstein’s modern world theory and Kondratieff cycles explain to us the cause-and-effect relationship of the transition to a multipolar order and the rise of China, some now think that this theory is insufficient to explain the global division of labour. US Federal Reserve (FED) President Bernanke claims that the centre-periphery paradigm collapsed, stating that global paradigms have changed in his speech in 2016. He states that the separation between centre and periphery becomes invisible, and the direction of capital flows changes (Bernanke,2006:10).

> ‘‘In the nineteenth century, the country at the centre of the world’s economy, Great Britain, ran current account surpluses and exported financial capital to the periphery. Today, the world’s largest economy, that of the United States, runs a current-account deficit, financed to a substantial extent by capital exports from emerging-market nations’’ (Bernanke, 2006:10).

Mearsheimer states that China has emerged as a regional and global economy, but cannot pursue it peacefully. He asserts that it is challenging to be hegemon power in the modern world, and although the USA is the biggest economy, it is not a global power. He also emphasizes the need for a new theory of international politics (Mearsheimer, 2006:160-162). While Bernanke and Mearsheimer's views support the emerging multipolar division of labour and the perception of power shift, it has emphasized that there is a need for more comprehensive theories than the Modern World-System theory. Since it is a dynamic process, and there is no new theory put forward, this thesis has been evaluated according to the Modern World-System theory.

## 3.2. Dependency Theory

Dependency theory is a theory that deals with the economic development of states in social sciences. Marxist economists; Theotonio Dos Santos, Oswaldo Sunkel, Enzo Faletto, a non-marxist 'structural' economist and sociologist; Celso Furtado, Fernando Henrique Cardoso and Raúl Prebish, and neo-Marxists such as S. Bodenheimer, James Petras, H. Magdoff and André Gunder Frank contributed to the development of this theory. These economists and sociologists have classified the world as north and south. They agree that the north has high investment and industrialization while the south has low wages, low investment and a rural/agricultural orientation (Sekhri,2009:244). This theory emerged from a mixture of many theories. World Systems theory, historical structure and neo-Marxist theory have effects in the theory of dependency. This theory attempts to provide explanations and draw a theoretical framework by examining not only economic development but also underdevelopment (Romaniuk,2017:482). Ghosh argues that this theory will be useful in explaining the increasing inequality between developed and less developed countries in the context of technology transfer, brain drain, capital movements in the world, globalization and current world development in his book ‘‘Dependency Theory Revisited’’ (Ghosh,2001: prefatory note 3). In this thesis, technological developments and increasing globalization that emerged as a result of industrial revolutions have discussed, it has emphasized that they brought about restructuring at the economic level and the level of the international division of labour. This change has tried to

demonstrate with exemplary countries. Dependency theory has failed to explain the economic gains in these industrialized countries after the 1980s. The impasse confronting the theory has begun to be re-examined as technological industrial dependence today. For the thesis has written on technology-intensive production and economic development, it has deemed appropriate to evaluate it according to this theory. In this context, the contribution of information technology and technology-based industrialization to the country's economies and its technological industrial dependencies will examine in the case of India, especially Taiwan.

According to Heywood, Dependency theory is a neo-Marxist theory created by imposing dependence on relatively underdeveloped/poor regions or states, working on international structural imbalances (Heywood,101). Theorists study how the economy, culture and politics affect the development policy of countries. Dependency theorists treat the international system in two groups, different from the Modern World Theory. The first of these, the ''sovereign countries'', are considered the industrialized countries of the OECD. Second, the so-called Dependent states are countries in Latin America, Asia, and Africa with low per capita GDP and rely heavily on a single commodity export for foreign exchange earnings (Ferraro,2008: online resource). These two groups based on the theory; It has also named as dominant and dependent states (Ferraro, 2008: online resource) / north and south (Findlay, 1984) / metropolis and satellite Metropolis-satellites (Frank, 1966) / centre and periphery (Prebish, 1959). The economic activities of dependent states are open to the influence of external powers and dominant states. Relations between sovereign and dependent states depend on strong historical patterns and dynamics, which has resulted in an environment of inequality similar to the internationalization of the capitalist system (Romaniuk,2017:482-483).

Theotonio Dos Santos explained the dependency relationship between periphery and centre as follows;

> "The relation of interdependence between two or more economies, and between these and world trade, assumes the form of dependence when some countries (the dominant ones) can expand and can be self-sustaining, while

other countries (the dependent ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate development" (Santos,1970:231).

Santos has underlined that there is a monopolistic trade relationship that results in the transfer of products produced in dependent countries to the core countries. Dependent countries' need for capital and credit to increase production is met by the sovereign countries, and economic control over the country is achieved. For dependent countries, these relationships represent an export of profit and interest that carries part of the surplus generated domestically and leads to a loss of control over productive resources. For the sustainability of these disadvantageous relations, dependent countries have prevented from reaching high technology levels, and production has tried to be continued by exploiting workforce (Santos, 1970: 231). However, as can be seen in the countries discussed in this thesis, industrialization and technology-intensive production developed periphery and semi-periphery in the 1970s. When it comes to the years of 1978-80, the triple structure of this global capitalism, especially semi-periphery, could not get rid of the effects of neoliberal structuring (Lee, 2009:288). Since the early 1980s, East Asian economies - notably Hong Kong, Singapore, South Korea and Taiwan - appear to have proven their strength in global manufacturing, finance and services (Gold,1986). These developments, which caused the validity of the theory to be questioned, led the theorists to question the inconsistencies in the two crucial hypotheses produced from this theory. The first of these hypotheses is that (1) the higher the degree of trust in foreign investment and foreign aid in a country, the slower the economic growth rate there. (2) Second, the more reliable a country is for foreign investment and foreign aid, the greater the income inequality there (Barrett and Whyte,1982:1064). Contrary to these two hypotheses, foreign investment has significant contributions to the technological industrialization and economic growth of Taiwan and India.

This theory, which deals with patterns of international interaction, has tried to place international inequality on internal foundations (Ferraro, 2008: online resource). Andre Gunder Frank emphasizes that in order to establish a development theory or formula, the origins of underdevelopment must first have looked at. It underlines that

regions outside of European and North American capitalism should be evaluated based on different components. He states that in understanding these components, historical experiences and the state of being colonial in this historical process should take into account. According to Frank, it would be wrong to try to explain the structure and development of the capitalist system as a whole, failing to explain the simultaneous underdevelopment of some parts of the whole, and the economic development of others. It cannot be said that underdeveloped and developed countries all experience the same development process. Therefore, the reasons for underdevelopment or development are also different. The idea that a country is not the product of its economic, political, social and cultural characteristics or structure is widely accepted. In this context, Frank reveals that when looking at the historical process, the relationship between underdevelopment and development can be explained by the dependent and sovereign state relationship. The capitalist system is at the heart of these relations (Frank, 1966:17-18). As can be understood from Frank's views, the basic framework of an international division of labour that reveals the development and underdevelopment in many regions of the world has drawn by the capitalist system. It has seen that the cheap labour, natural resources and agricultural products existing in dependent states have directed to the sovereign states. In this context, it can be said that the system has shaped according to the interests of the sovereign states (Ferraro, 2008: online research).

In terms of making sense of technology-intensive production, the historical process of industrial developments has frequently examined in this thesis, and the place of countries in the international division of labour has evaluated in direct proportion to their industrial capacity. Industrial developments have an essential driving force on the balance of payments, imports and exports. The dependency relationship causes deficits in the balance of payments. A monopolized international market, the influence of foreign capital in dynamic sectors and dependence on external financing are among the main reasons for these balance of payments deficits. Moreover, while dependent countries face a payment deficit, it becomes difficult to purchase imported products and equipment necessary for their industrialization and technological advancement (Santos,1970:233). The question to be asked in light of

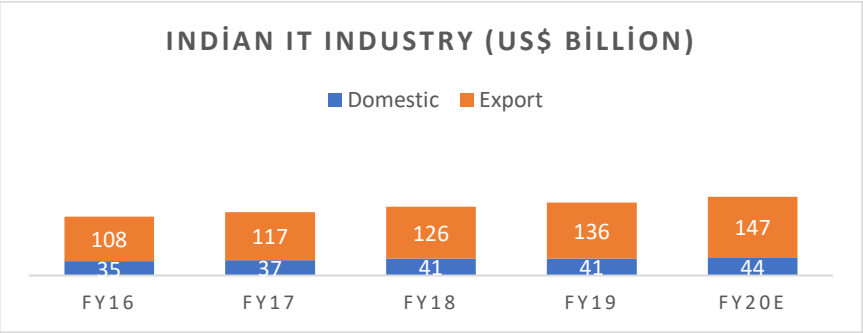
this information; ‘‘How did the semi-periphery and peripheral countries in this thesis turn this dependency in their favour?’’ Import-substitution industrialization based on Meiji restoration has seen in the case of Japan, and export-oriented industrialization policies have adopted in Asian tigers. Export-oriented industrialization policies also paved the way for foreign investment (Ongun,2009:83-85). Randall points out that globalization is also effective in this regard. He underlines that not every state has benefited equally from the globalization paradigm that arose in the 1980s, and that East Asian countries used this globalization paradigm well for economic growth (Randal,2004:50). ‘‘The rise of East Asia demonstrated the importance of a market augmenting role for the state and significance of local learning anchored in export competition’’(D’costa,2004:3). Randall states that the newly industrialized countries and oil-exporting countries are freed from this dependency and have shifted from periphery countries to central countries with effects on globalization, and there is a transition from misery to wealth. In addition to these, cultural structures and historical processes have essential effects on this success. Randall's article supports this view with Bayart’s concept of ‘‘historical irreducibility’’ and Braudel’s ideas that we should look at the pre-colonial processes of third world countries. In this context, the effects of the existence of peculiar developed and distinctive political systems to India, China, Korea and Japan cannot be ignored. Also, personal ties based on family-type relationships and linking business and government were prominently prominent in many of the emerging countries of East and Southeast Asia (Randall, 2004:48-50).

This theory, which has thought to be less valid after the cold war, according to Sekhri led to more integration between periphery units (Sekhri,2009:242). One of the advocates of this view is B. N. Ghosh. In his book ‘‘Dependency Theory Revisited’’, Ghosh reveals that the dependency theory is still a valid methodology in explaining underdevelopment and development. Ghosh points out that dependency theory will still be a valid model in explaining the growing inequality between DC and LDCs in connection with technological advances and technology transfer, brain drain and capital movements around the world, globalization (Ghosh,2001:15-16).

Despite the theoretical stalemate experienced in the 1980s, other studies show that the dependency theory still maintains its validity based on information

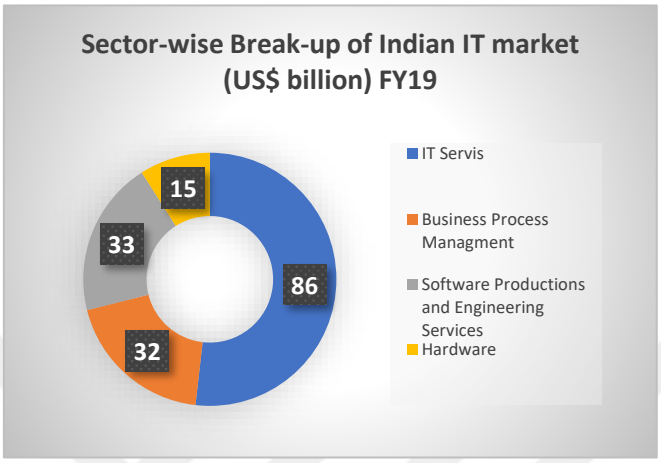
technologies. Vincent H. Shie and Craig D. Meer published in 2010, ‘‘The Rise of Knowledge in Dependency Theory: The Experience of India and Taiwan’’, discussing the high-tech industrialization and performance of Taiwan and Indian samples in the information technology industry. It has seen that the Asian development model initiated by Japan after WWII increased the competitiveness of the countries in the region (South Korea, Singapore, Taiwan and then China and India) in high technology sectors in a short time. The authors stated that this process called knowledge-based economy has changed in terms of wealth accumulation; they state that importance is attached to the development of knowledge, innovations and technology in terms of intellectual capital and patent licenses. As a matter of fact, the R&D studies and investments of the countries included in Chapter 2 support this view. It will be useful to look at the effects of technological industrialization in hardware and intermediate goods on the economic growth of Taiwan and India. Taiwan, in terms of technological industrialization and India, in terms of software technology, has achieved great success. Of these countries, both industrialized within the information technology industry, Taiwan has since 1990 become a regional hub for original design production (specializing in ODM, design and manufacturing capabilities) in the global hardware market. The software industry in India has become increasingly important since the 1991 economic reform (Shie and Meer, 2010:80-83). India does 55% of the global service procurement business, according to 2019-2020 data (IT & BPM Industry in India,2020: online resource).

**Graph 3.1. Market Size of Indian IT Industry (US$ Billion)**

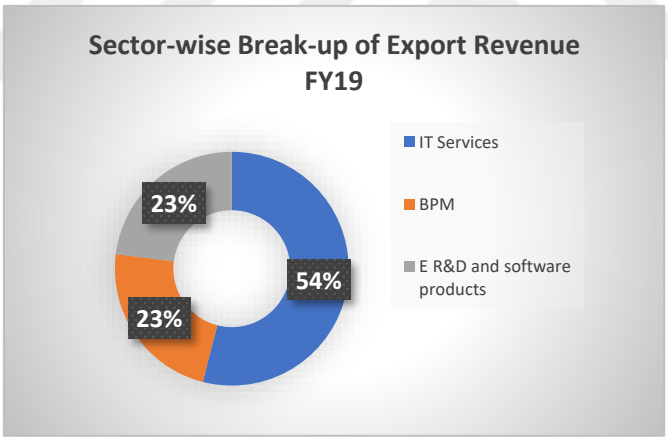



**Source;** IT & BPM Industry in India, **India Brand Equity Foundation**, (available), https://www.ibef.org/industry/information-technology-india.aspx, December 12,2020

**Figure 3. 1. Sector Composition of Indian IT**




Note: E-Estimated




**Source;** IT & BPM Industry in India, **India Brand Equity Foundation**, (available), https://www.ibef.org/industry/information-technology-india.aspx, December 12,2020

Shie and Meer, by comparing the research and development (R&D) activities of Taiwan and India with developed countries, discussed the possibility of increasing technological dependence on developed economies. It has tried to show that Taiwan and India are increasingly dependent on developed countries economically, and the development of Asia NICs (newly industrialized countries) brings along a technological dependence. They have revealed that the field of competition among high-tech multinational companies has started to be intellectual property rights and patent studies rather than the market place, and that R&D studies are an important

factor in this technological dependency (Shie and Meer, 2010:84). In this context, it can be said that the second group of countries discussed in the thesis are technologically dependent on the first group countries. In the thesis, R&D studies and their scope are discussed in detail to reveal this connection.

Taiwan was a Japanese colony in the late 19th and first half of the 20th century. Colonial dependency, one of Dos Santos's dependency classifications, developed financial-industrial dependence with it (Santos,1970:233). In the period after WWII and the Chinese civil war, Taiwan remained politically attached to the U.S., and it benefited from many U.S. economic aid. In the 1960s, when U.S. aid has phased out, large amounts of foreign investment flowed into Taiwan instead, and Taiwan became extraordinarily dependent on foreign trade. Although this brings to mind two controversial hypotheses of the dependency theory, the supposed negative consequences of this dependency on economic development and income inequality do not appear (Barrett and Whyte,1982:1065). The economic growth rate has increased significantly, as foreign investment has replaced foreign aid as the primary source of foreign capital. As a result of this growth, some dependency-oriented authors have deemed it appropriate to declare Taiwan graduated from periphery status to semi-environmental status (Snyder and Kick 1979:1110-1115).

In light of this information, it is useful to examine the theory of addiction in the context of the new global division of labour. Shie and Meer appear that the vertical division of labour has structured in two hierarchical ways. In the first structuring, the production connections and relations of the lower, middle and upper sectors have evaluated. The second structuring involves the functional links of manufacturing (original equipment manufacturing (OEM), R&D (ODM) and marketing activities (OBM). Centrally located, top-tier manufacturers seem to have the highest returns thanks to original equipment and their own patented brands. Including the own brands of Japan, S. Korea and China and the development processes of these brands is important for understanding this hierarchical relationship. Because developed economies have the ability to produce basic components and accumulate marketing management knowledge. Based on this information, it can be seen that a large part of low value-added production is transferred to poor countries. Taiwan is an excellent

example in this regard. Although it performed well in manufacturing, developed countries benefited much more from Taiwan's products. This information reveals that dependency continues and shows its effects, especially in the context of technological production (Shie and Meer, 2010:85).

In this thesis, India has considered among the second group of countries, the main reasons for this are that besides being a rising economic power, it still faces many problems such as poverty, unemployment, domestic political uncertainties and inequality. On the other hand, the knowledge-based economy (KBE) has significant effects on its economic development, because it has become a software exporter to the world in a short time. In this thesis, India has considered among the second group of countries, the main reasons for this are that besides being a rising economic power, it still faces many problems such as poverty, unemployment, domestic political uncertainties and inequality. On the other hand, the knowledge-based economy (KBE) has significant effects on its economic development, because it has become a software exporter to the world in a short time. Because in a short time it has risen to a position that exports software to the world. D'costa has a critical approach to India's software industry. According to D'costa, the industry of India is not large and innovative by global standards (D'Costa,2004:1-4). When we look at the position of India in the global market in terms of CIT added value and ICT export, it has seen that it has a lower share compared to China, S. Korea, USA and Japan (OECD: ICT goods Exports and ICT value Added 2020: online Resource). D'Costa made the following comments on the industrial technological dependence of India;

> ''The Indian industry faces considerable structural barriers to innovation because of its overt dependence on exports of software services to the US. Relatedly, the industry's growth is constrained by India's very small domestic market, limiting the diffusion of information and communications technologies (ICT) and information technology (IT) services'' (D'Costa,2004:2).

As a result, the dependency theory still offers theoretical explanations for technological industrial dependence, also called ''new dependence'', which Dos

Santos places it third in the dependency classification (Santos, 1970: 233). Based on the examples of Taiwan and India, it is clear that this dependence will be maintained in many countries and regions and will be shaped by the effects of technological developments on production methods.

### 3.3. Transition to Green Economies for Sustainable Economic Growth; China and India

Globalization waves and industrialization have had an ongoing impact on production methods. When the Industrial Revolution emerged and exerted its effects, labour-intensive production principles were dominant in all societies. One of the basic components of production in feudal systems was labour. The industrial revolution brought mechanization to the production and development process, and this revolution had an effect that reduced the importance of labour in the production process. The use of more capital rather than labour in capital-intensive production provided the greater capacity to yield with less labour. Today, it is seen that capital intensive production has changed. Thanks to the new technologies and software created by industrialization, most of the production is entrusted to technology. As a result of these developments, manufacturing has faced many challenges and opportunities for improved resource efficiency. Manufacture, which currently accounts for 23% of global employment, represents an important stage in the life cycle of material use, starting with natural resource extraction and ending with final product disposal. In terms of resource use, the manufacturing sector is responsible for approximately 35% of global electricity use, more than 20% of world CO2 emissions and more than a quarter of primary resource extraction. Manufacture is currently responsible for about 10% of global water demand, and this is expected to rise to over 20% by 2030 and therefore compete with agriculture and urban uses (UNEP, Towards a Green Economy,2011:17). Evaluating these expectations and data, environmental policies, and the transition to the green economy should be transformed into this technology-intensive production process called industry 4.0. Since environmental studies and green economies are components of a system in which production and raw materials interact, directly and indirectly, it is useful to consider technology-intensive production's effects on this

system. In the financial and economic development process, the need for resources has met from the environment. For sustainable development, the environment, a raw material store, must be protected, and production processes/economies must be transformed in this context (Kuşat,2013:4900). Heywood emphasizes that the environmental campaign tackles three general problems. These; resource problems, waste problems and moral problems. While resource problems have experienced in the 1970s (in the oil crisis), awareness of the environment increased. There is a growing transnational concern about environmental problems and the use of natural resources (Heywood,2011:456). Cox emphasizes that the environment has become a problem with the transition to post-Fordism in the 1970s. While he acknowledges that the old Fordist industries are polluting and environmentally damaging, he notes that post-Fordism cleans up the pollution in core areas and causes more pollution in the surrounding areas. He points out that resource extraction is increasing in politically vulnerable areas (Cox,1996:284).

Due to environmental pollution, destruction of natural resources and production wastes that disrupt the ecosystem, certain problems have gained momentum with technological development and industrialization. Before addressing these problems, it would be useful to briefly touch on the emergence of the green economy and sustainable development ideas.

> ‘‘While the turning points of the process that determined the birth of the green movement coincide with the end of the Second World War, the 1968 revolution and the 1973 oil crisis in terms of political history, it should be pointed out in terms of economic thought, the 1929 Great Depression and the period when Keynesian policies and development economy prevailed’’ (Şahin,2012:24).

Even though it has thought to cover different periods politically and economically, the fact that industrialization gained momentum at the end of the 19th century reveals that almost the entire 20th century is inefficient in terms of the use of natural resources. Green parties and green economy awareness emerge, especially in the state-interventionist economies and rapid industrialization processes experienced after World War II (Şahin,2012:22-25). The use of fossil fuels such as coal, oil and

natural gas has been the basis of both industrialization and economic development in the last two centuries, which is one of the main causes of greenhouse gas emissions and associated climate change. The second part explained in detail that China, Japan, S. Korea, Singapore, Taiwan, Indonesia, and India integrated into the international system after WWII and gave importance to their industrial-technological-economic development. In this context, China and India's rapid economic rising since the 1990s has increased carbon emissions worldwide (Heywood,2011:472-473). This thesis research has conducted in the context of two different country groups. Since China and India, which cause the most greenhouse gas emissions, are evaluated in different groups, it has deemed appropriate to evaluate the green economy over these two countries. The environmental risks caused by industrialization will be handled based on China's data from the first group, and India from the sample countries of the second group.

As the engine of economic growth, the industry has helped create prosperity and improved living standards worldwide. In addition to this positive effect, industries have also caused the way for the depletion of natural resources and pollution of air, water and soil (UNIDO: Annual Report 2015:55). Bhandari et al. state that economic development has fed by rapid industrialization, which causes irreversible pollution of the environment (Bhandari et. al.,2015:281). The destruction of natural resources, the deterioration of the human environment and the ecological system for economic development goals have first addressed at an environmental conference held by the United Nations in 1972 (Heywood, 2011:458). The conference's aim, which took place in Stockholm, was to create a basic principle guide that countries can apply (Skarp,1973:1-5). Rio Conference in 1992 followed this conference, in which a global awareness has created about human effects on the environment. The Rio conference provided a framework in which the legal and political foundations of sustainable development became apparent (United Nations Conference on Environment and Development,1992: online resource). The environment and sustainable development Conferences of the United Nations have continued in the following years. Some of those; Kyoto Protocol (1997), UN Millennium Summit (2000), World Summit on Sustainable Development (2002), UN Millennium Ecosystem Assessment (2005), UN

Towards to Green Economy (2011), UN Conference on Sustainable Development (2012), Etc. The Green Economy Report focused on climate change and scarcity of natural resources. It has underlined that not only states but also national organizations, companies and non-governmental organizations should play essential roles in the transition to a green economy. UNEP, green economy is defined as;

> ‘‘A green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive’’ (UNEP: Towards a green economy,2011:2).

Based on this definition, let's look at the environmental problems of China and India and their policies in transition to a green economy, respectively.

China faced many problems such as oil and water use, environmental destruction and air pollution in the rapid industrialization process. In 2007, it became the country that emitted the most greenhouse gases to the atmosphere (Holcombe,2016:371). China has become the world's largest industrial goods producer in the first decade of the 21st century. (surpasses Germany, Japan and the USA, respectively). By 2016, it had the capacity to produce more than a quarter of the total world production added value, and these rates are increasing day by day (Linster and Yang,2018:5-6). It is the world’s largest coal producer and consumer, as well as the second-largest electrical and chemical textile producer and the third-largest oil consumer. While the Chinese economy’s size and growth rate are supported by these data, it cannot be ignored that it continues to use outdated and polluting technologies (Diamond, 2019:457-458). China has been the world's largest emitter of carbon dioxide since 2006, producing more CO2 emissions than the United States and the European Union combined. In China, which has become the world’s factory, many environmental problems, especially the raw material, water, soil and air mentioned above, have reached serious dimensions (Linster and Yang,2018:12-20). In order to better understand the environmental damage, it should be known that the Chinese people have to go around the industrial areas with a mask (Diamond,2019:458). The

industry is the primary source of pollution, greenhouse gas emissions and waste generation, with an increasingly negative impact on human health and the environment. Although these adverse effects cause high costs on the economy, they increase the concerns about this issue (Linster and Yang,2018:25).

Looking at the historical process of China's environmental effects, erosions have emerged due to the increase in deforestation after WWII and the Chinese civil war. In the years 1958-65 (coinciding with the great leap forward), the increase in factories and the increase in the use of fuel for steel production brought high environmental pollution and deforestation. During the cultural revolution, the factories have moved from the coastal areas to the interior, and this relocation with the idea of protecting against war caused an increase in pollution. With the economic reform in 1978, environmental damage and pollution continued to increase. It has seen that China faces environmental problems in six main issues: air, water, soil, habitat destruction, biodiversity losses and mega projects. China faces drinking water problems caused by industrial and municipal wastewater, agricultural and aqua-cultural fertilizer wastes. Approximately 75% of Chinese lakes and all coastal areas are contaminated. As mentioned above, erosion is one of the topsoil problems, in addition to this, productivity losses, salinization and desertification are observed. Increasing urbanization and land use for different purposes (urbanization, mining, forestry and aqua-cultural) cause a decrease in agricultural lands and endanger food security. Since the recycling of industrial wastes and household wastes has done in a limited amount, many wastes have disposed of on land, which causes soil pollution. With the increasing international trade, it has seen that invasive plant, insect and fish species have entered the country, which is largely damaging to agriculture, aquaculture, forestry and animal husbandry. In addition to these, megaprojects affect the degradation of the ecosystem and the increase of environmental damage (Diamond,2019:457-463). Industrial products also have a direct effect on this pollution. Automobile production can be given as an example. With a decision taken in 1994, China made automobile production one of the four important products of the industry sector, and in 2010 it targeted its production target to be fourfold in all industries, especially automobiles. This situation has brought China to the third position in the

world in terms of vehicle production, but these developments also led to decreased air quality. This planned increase in motor vehicles has effects not only in terms of air pollution but also in terms of environment and soil. Many lands have turned into highways due to high vehicle production and use (highway comparison can be set). The increasing number of vehicles also caused the increase of nitrogen oxide and carbon dioxide ratios, resulting in acid rain (Gan,2003:515-522).

**Table 3.2. Environmental targets in China 11th,12th and 13th Five Year Plans (FYP)**

| Environmental issues and indicators | | 11th FYP (2006-2010) | | 12th FYP (2011-2015) | | 13th FYP (2016-2020) |
|---|---|---|---|---|---|---|
| | | Target | Actual | Target | Actual | Target |
| Main air pollutant emission reduction (%) | $SO_2$ | -10 | -14.29 | -8 | -18 | -15 |
| | COD | -10 | -12.45 | -8 | -12.9 | -10 |
| | NOx | - | - | -10 | -18.6 | -15 |
| | Ammonia Nitrogen | - | - | -10 | -13 | -10 |
| **Energy** supply intensity per unit of GDP (%) | | -20 | -19.1 | -16 | -18.2 | -15 |
| **Carbon** dioxide emission intensity per unit of GDP (%) | | - | - | -17 | -20 | -18 |
| Non fossil **energy** share in primary energy supply (%) | | - | - | 11.4 | 12 | 15 |
| **Water** consumption per unit of industrial Added Value (%) | | -30 | -36.7 | -30 | -35 | -20 |
| **Water** consumption per unit of GDP (%) | | - | - | - | - | -23 |
| Total use of **water** (billion cubic meters) | | - | - | - | - | < 670 |
| Air quality | Days with good urban air quality[1] in cities at or above Prefecture-level | - | - | - | - | > 80 |
| | Reduction of PM2.5 concentration in substandard[2] cities at or above Prefecture-level (%) | - | - | - | - | -18 |
| Surface water quality | Surface water of at least Grade III quality[3] (% of monitored sections) | - | - | - | - | > 70 |
| | Surface water worse than Grade IV quality (% of monitored sections) | - | - | - | - | < 5 |

Notes:

1. Good air quality refers to the Grade I and II in Air Quality Index (AQI), corresponding respectively to 0-50, and 50-100. 338 cities at the prefecture level and above are included in the evaluation.

2. Substandard cities refer to those whose PM2.5 annual concentration is higher than 35μg/m3.

3. As in other countries, China uses a grading system for monitoring and reporting surface water quality across the country, with Grade I water the highest quality and Grade V-plus the worst. The number of monitored water sections increases from 972 during the 12th Five-Year Plan period (FYP) to 1940 during the 13th FYP period.

**Source:** Myriam Linster and Chan Yang. *China's Progress Towards Green Growth: An International Perspective*. No. 2018/05. **OECD Publishing**, 2018. P.29

The above table (Table 3.2) shows China's development in the context of the five-year plans implemented according to OECD data. The Chinese government has already taken important steps to strengthen environmental policies and legislation. Even though the first Environmental Protection Law enacted in 1979, these studies could not be implemented much in the 80s and 90s. (Zhang et al.2013:1029-1030). Increasingly ambitious environmental policy objectives were set and implemented in

the 11th, 12th and 13th Five-Year Plans above. Recent plans show that China has using policy tools such as taxes and subsidies to encourage the transition to green growth.

In the 12th Five-Year Plan (2011-2015), seven main targets have determined for 2015. These; reducing pollutant emissions; improving drinking water resources and quality; controlling pollution caused by hazardous chemicals and hazardous waste; improving urban environmental infrastructure operations; reversing ecological degradation; improving nuclear safety; and to develop environmental regulation institutions. Environmental targets are to reduce carbon emissions per unit of GDP by 17% and energy consumption per unit of GDP by 16% and increase forest coverage to 21.66% (Green growth in action: China 2020: online resource). In the table (Table 3.3) below, detailed targets for the 12th five-year plan and their implementation status are given.

**Table 3.3. Major Policy Targets in 12th Five-Year Plan**

| AREAS | TARGETS | FEATURE OF TARGET |
|---|---|---|
| Economic Growth and Structure | Average annual GDP growth of 7%; service industry contributing 47% to GDP; urbanisation rate reaching 51.5% | Anticipatory |
| Energy, Climate and Environment | *Energy consumption per unit GDP* dropping to 0.869 t coal equivalent (at 2005 prices), a decrease of 16% compared to 2010 and 32% compared to 2005 levels | Binding |
| | Achieving *energy savings* of 670 million t of standard coal during 2010–2015 | |
| | Reducing *carbon emissions per unit GDP* by 17% compared to 11th FYP target | |
| | *Non-fossil energy* in primary energy consumption rising to 11.4% | |
| | Lowering *water consumption* per unit of industrial added value by 30% | |
| | National total *chemical oxygen demand and sulfur dioxide emissions* not exceeding 23.476 million t and 2086.4 million t, a decrease of 8% compared to 2010 levels | |
| | National total *ammonia and nitrogen oxide emissions* not exceeding 2.38 million t and 2046.2 million t, a reduction of 10% compared to 2010 levels | |
| | *Forest coverage* rate rising to 21.66 % of the land area; forest stock volume reaching 14.3 billion cubic meters | |
| | *Cultivated land area* staying stable at 18.18 million hectares | |
| Economic competitiveness | R & D expenditure increasing to 2.2 % of GDP | Anticipatory |
| | Strategic emerging industry accounting for ~8% of GDP | |
| Social Development | Average annual increase in the number of new jobs in cities and towns topping 45 million | Anticipatory |
| | Urban unemployment rate staying below 5% | |

**Source:** Xiaoxue Weng, et. al., "China's path to a green economy. Decoding China's green economy concepts and policies" London, **International Institute for Environment and Development** (2015). P.12

Ten basic environmental policy targets were determined in the 13th five-year plan put into practice by China. Ten basic environmental policy targets have determined in the 13th five-year plan put into practice by China. These targets are not to reduce the coastline below 35%, to reduce CO2 emissions per unit of GDP by 18%, to limit total energy consumption, to reduce land used for construction, to increase pasture vegetation, to ensure the growth of forests, to reduce the primary energy consumption of non-fossil energy sources, to reduce energy consumption per head of GDP (LSE, 13th Five-Year Plan,2016: online resource).

According to these recent plans and OECD analysis, it has seen that China's environmental policy has become more stringent in recent years. That is, environmental policy measures have increased the explicit or implicit cost of environmentally harmful behaviour. Analysis based on the OECD's Environmental Policy Stiffness (EPS) indicator shows that since 2000, China's environmental policies on air and climate issues have converged much faster than OECD countries and other emerging economies, especially after 2010. However, he noted that this indicator only weighs the stringency of the environmental measures selected as defined in policy documents and laws and does not measure its implementation effectiveness (Linster and Yang,2018:29).

Let us continue by addressing India's environmental problems, one of the second group countries, and its approach to these problems. Today, India is one of the countries that have rapid economic development momentum. India's modernization and industrialization process has led to developments in many areas (agriculture, production industry, coal, timber bottling plants, automobiles, gas and chemicals). While these developments had positive results in terms of the Indian economy and living standards, they negatively impacted the environment, ecosystem and natural resources. It is clear that the industrialization process, which is experienced aleatory and unprepared in this developing country, causes environmental problems and ecological degradation (Bhandari and Garg,2015:281).

It has predicted that India, which has a high population rate like China, will double its pressure on the environment in the 21st century. India's environmental

problems are vast in scope, and it needs a comprehensive ecological balance to avoid this pressure of the population on nature. In addition to air quality management, water resources, health and sanitation, industrialization, housing, deforestation, soil erosion and wildlife conservation, there are marine pollution, radioactive waste from nuclear energy reactors, noise pollution, thermal pollution and other environmental problems (Parikh,1977:189). It has revealed by reports that the environmental degradation that occurs in India costs 80 billion dollars a year or 5.7% of the Indian economy. Thus, it is important to implement green growth strategies to promote sustainable growth and prevent environmental degradation (especially due to natural resource consumption) (Tyagi,2017:281).

Considering India's environmental studies' historical background, it has seen that there are publications published in the 1980s. In 1982, the Center for Science and Environment (CSE) published the first State of India's Environment (SoE-I). This document, a compilation of environmental studies carried out up to that day, proves that India's environmental awareness has increased in these periods. In 1884, State of India's Environment II had published, and studies on environmental policies have concentrated. Indeed, the situation is different from that of China. Corruption and interest groups are at the forefront in India (Roy,2007:523). Also, there are many faulty industrial facilities due to the existence of soft laws and the absence of environmental law, and the lands have easily used for industrial works. As stated above, although environmental awareness has emerged in academic and political circles, this has not been conveyed to all public. These uncontrolled and rapidly increasing industries in different regions still pose a significant threat to India's environment and people (Bhandari and Garg,2015:281).

India is one of the countries where the effects of global warming have felt the most. There are adverse effects on living standards and GDP due to climate change in the region. Increasing air temperature in the southern regions brings along tropical storms, which leads to a decrease in air quality day by day. Greenpeace evaluated the air pollution of Indian cities in its ''Airpocalypse'' report published in 2017. According to AirVisual's 2018 World air quality report published a year later, 22 of the world's 30 dirtiest cities have located in India, according to PM2.5 measurement.

Air pollution is not only effective in industrialization, as in China, but also in poverty and population. Two-thirds of India's rural population burn biomass (wood, coal and animal waste) due to poverty and use these products in their daily lives. This situation has an impact on public health and child mortality as a result of air pollution. Destruction and degradation in forest areas also confront India as a deforestation problem. Preventive action plans have required for illegal logging in forests. Another critical environmental problem is related to water resources. In India, wastewater flows into rivers, lakes and ponds in an untreated state. 60% of the sewage systems in urban areas are mixed with clean water in this way, creating severe problems in irrigation and drinking water in agriculture. Rivers have also used for washing purposes depending on religious rituals. As a result of rapid urbanization, it has severe problems in extensive waste management. Municipalities in India dump 75% of their waste in open spaces without being processed. Even though this situation differs between states, it also brings about many health problems, especially soil pollution (D'Ambrogio,2019: online resource:2).

India has made action plans to prevent increasing environmental problems and the effects of climate change. The Prime Minister's Council on Climate Change (PMCCC) published its first national climate change plan, National Plan on Climate Change (NAPCC), in 2008. NAPCC has planned to realize eight national missions by 2017. These missions are on solar energy, energy efficiency, sustainable habitat, water, sustainable Himalayan ecosystem, Green India, Agriculture and strategic information in terms of climate change. With this plan, it has aimed to advance both climate change and development goals simultaneously (Pandve,2009:17-19). Besides, the Government aims to restructure the national water mission and the national agricultural mission; It has planned to carry out comprehensive studies for wind energy, health, waste-to-energy production and problems in coastal areas (Global Green Growth Institute,2015:12).

As a member of the G-20, India's decision to promote the green economy concept has linked to the country's overall goal of promoting prosperity and sustainability in development as detailed in the 11th Five-Year Plan (2007-2012). Embracing green growth, India envisions poverty reduction and reduction of economic

inequalities as the main benefits that can be derived from the implementation of the green economy. Before India accepted this growth model, it viewed the controls over carbon emissions from energy produced from fossil fuels as unfair. But lately, this perception has changed. The view that growth opportunities can be realized with the development of a green economy has become widespread (Tyagi,2017:579).

TIFAC, one of India's think tanks, in its technological and economic-based vision published in 2015, shows that it plans to regulate the use of environmentally friendly resources, clean air and clean drinking water in accordance with technological developments in the next 20 years. It is stated in the report that while developing production technologies, attention will be paid to the importance of recycling together with reducing environmental impact, preventing carbon footprint and water problems (DFAT,2020: online resource).

Based on this information, it has seen that China and India have started to make the necessary policies for the transition to a green economy. However, in order for India to implement these practices, it must make radical changes on living standards. Strong environmental laws are vital to India. Contrary to the increase in economic growth data, the world's air must have the 30 most polluted cities, and clean drinking water must reach every corner of the country. Even though China draws a more optimistic picture than India, it must implement decisive policies and laws in order to reduce the damages of industrial production and prevent environmental damage.

# CONCLUSION

The process that started with the use of steam engines in the industrial revolution has recently evolved into high-tech production systems. It has seen that similar developments in Great Britain in the second half of the century occurred spontaneously in Japan in 1895-897. In the light of these developments, it has observed that technological developments affect the political, economic and social lives of societies. The point that has especially emphasized in this thesis is the effect of technological developments on economic development. Such that technology has an essential contribution to the improvement of income and living standards. Especially in the 20th century, it has seen that technological developments have concentrated in a few industrialized economies (US, England, Japan, Germany and France, Etc.). This process of getting western technology and knowledge, initiated by Japan with the Meiji Restoration away from Europe and America, has initiated a transformation for the Asian region. This transformation, in which technology-intensive production is effective, has started to have limited effects outside of Japan, China and Asian tigers. India and Indonesia are frequently among the rising economies of recent years. The data included in this thesis revealed that in the 1970s when post-Fordism and globalization increased, the newly industrialized economies captured the characteristic of being an industrial economy and achieved economic growth and development thanks to technological developments. As a result of the review of UNIDO and OECD reports, it has concluded that seven developing and developed countries would support the argument made in this thesis. China, Japan, South Korea and Singapore have discussed in order to reveal the positive effect of technology-intensive production on economic development in the context of high industrialization. In the second group, three countries, which have a relatively late industrial development but have an important place in the world economy with high economic growth data, were selected. Based on the evaluations made on India, Indonesia and Taiwan, it has concluded that natural resources and partial industrial development (software industry for India) provide significant added value for economic growth, but do not yield effective results on economic development. At this point, the thesis has attempted to show that there is a distinction between economic growth and economic development. While the

economic development data of the industrialized economies that make technology-intensive production show more positive results, it is seen that only the economic growth data of the less industrialized countries that partially apply technology-intensive production processes are favourable due to other reasons (natural resource, import-export, partial industrialization). Based on the examples of India and Indonesia, it is clear that the economic growth data cannot be carried to the economic development dimension. The Taiwan example has chosen in the second group for political reasons. Taiwan, which has not accepted as a fully independent country, could not complete the development of political prosperity, which is one of the basic conditions of economic development.

In the first chapter, the difference between economic development and economic development has tried to be revealed, and industrial processes that set the ground for technology-intensive production have mentioned. The focus is on production methods that are important for the new international economic division of labour, and the Taylorist, Fordist, and Post-Fordist processes that lay the groundwork for the addition of tape systems to the production process have examined. The effects of globalization and the development of information technologies on the production process have examined. It is essential to know the political and economic developments in which the production processes (Taylorist, Fordist and Post-Fordist), which effectively shape the new international division of labour, to understand today's technology-intensive production systems. For this, the political and economic developments experienced in the world after 1945 have mentioned, and their importance for the countries studied in this thesis has mentioned.

The seven countries selected in the second chapter of the thesis have divided into two groups. The evaluation of countries has discussed in three separate sections. In this context, firstly, the historical process of each country was studied. Secondly, the integration process into the international system has examined, and finally, it has evaluated according to the variables discussed.

In order to make a correct evaluation of the countries, first of all, their historical processes have examined. The existence of colonial histories, their openness to

development, the process of meeting technological and industrial innovations, and more importantly, the structures of thought and belief on the developmental stability of the society have examined. It has seen that the countries in the first group have a history based on Confucian teachings; therefore, it has seen that they transfer the results of this situation to their working lives. It is clear that in Muslim-majority Indonesia and Hindu and Muslim-majority India, individual development and religious teachings do not exhibit results intended for improving the welfare of the society. The Taiwan example can be considered exceptionally among the first group of countries, because it has formed between China and Japan, depending on its regional location and imperial past. Hence, it has influenced by the Confucian teachings prevalent in China and Japan. On the other hand, whether they have undergone an imperial process is also essential in terms of technology use. The lack of imperial past of China and Japan and their contribution to the technological development of the colony states have laid the groundwork for the industrial development of South Korea, Taiwan and Singapore recent. It has seen that S. Korea, Taiwan and Singapore benefit directly or indirectly from the industrialization in these two countries. Contrary to this, the colony process had observed for many years in India and Indonesia. In terms of industrialization, they have developed as much as the colonial administration allow. In this case, it has resulted in limited industrialization and limited use of technology.

Secondly, the integration of seven countries into the international system has discussed. In this section, political and economic developments are discussed together. The aim here is to summarize the path to economic development. The two groups of countries differ on this issue. The growth processes of the first group of countries were state-controlled and time to time ruled by military coup administrations, based on the interests and welfare of the country. In the second group of countries, it has seen that there are problems of sovereignty, ethnic conflicts and poverty that continue to the present day. Under this title, the membership processes of countries in international organizations and the bloc in which they took part in the cold war process have examined. Their membership in international organizations and their position in the cold war are essential in financial aid and technology transfer. In this context, it has seen that countries in the western bloc benefit more from both technology transfer and

financial aid and funds. It appears that this financial assistance and funds have a direct impact on international development.

Finally, the GDP values of the countries, the change of these values in the crises, innovation capacity, R&D investments and sectoral rates of technology use have examined. Particular attention has paid to the effects of 1997-98 Asia Financial Crisis and 2008 Financial Crisis. The aim is to understand the positions of these countries in the new international economic division of labour. The financial crisis experienced in 1997-98 had a significant impact on the countries addressed in this thesis. On the other hand, the global crisis experienced in 2008 affected the whole world in a short time and caused a change in world production balances. Due to this crisis experienced in 2008, China has become the country to which the USA be in debit the most. Kondratieff waves also point out the transition to a multipolar order after 2008 and support the view that the international division of labour is reforming. In the first group, which includes the leading countries in the new international economic division of labour, it has seen that industrial development, information technologies and technology-intensive production are high. In this process called Industry 4.0, it has seen that the countries in the first group have very high technological development and technology imitation skills. In order for a country to adapt technology in its sectors, especially in the manufacturing sector, the population must have an infrastructure in terms of educational status, R & D studies, resource allocation and technological capabilities. In this thesis, it has tried to explain in detail that the first group countries have this infrastructure. In the second group of countries, it has tried to show that this infrastructure cannot be provided due to poverty, high population ratio, corruption and sovereignty problems. It has observed that the countries in the second group have achieved an economic growth depending on their development in the software industry, in addition to the natural resource export, intermediate goods export and assembly industry.

Chapter three tries to show that technology-intensive production supports economic development in the context of the new international economic division of labour. It has supported by several data that these developing industrial economies have increasing importance in the division of labour as strong international actors. This

argument, which has tried to be placed on theoretical ground, has been tried to be explained with the Modern World Systems Theory and Dependency Theory. The changing positions of the centre, periphery and semi-periphery countries depending on the new international economic division of labour have evaluated. It has tried to show that the power centre shifted to the Pacific in the 21st century and the countries in the first group became the actors of this power centre. This argument has especially tried to be supported by the rise of China and the New World Order seen in the waves of Kondratieff. In the context of Dependency Theory, it is reminded that the centre-periphery and semi-periphery were affected by the neoliberal structuring that had its effect in the 1970s, and as a result, it formed a new international economic division of labour. Dependency theory has focused on the consequences of increased international economic inequality in dependent states. Depending on the natural resources and cheap labour available in dependent states, the internal dynamics of the second group of countries (India, Taiwan and Indonesia) were focused.

The transition to green economies and green growth is another focus in this section. The use of natural resources and ecocide due to industrialization and technology-intensive production is increasing day by day. The awareness of environmental risks revealed by industrialization is increasing day by day. In this thesis, in order to draw attention to the damage to the environment as well as R&D studies and innovations in the transition to technology-intensive economies, the transition plans of the two countries to green economies were examined. Besides, the damage and consequences of industrial development processes have mentioned. While choosing the country, one country with the highest greenhouse gas emission to the Atmosphere was chosen, among the first and second group countries; China and India. It has seen that the environmental damage in China and India has based on different reasons. Ecocide in China has based on high industrialization, and the habit of using old technologies, the use of wooded areas for the industrial zone and road construction. It has based on entirely other reasons in India. There are many factors such as tropical storms caused by global warming and the intense pressure of the population on nature, wastewater management, access to clean water resources, irregular industrialization, poverty, which cause environmental damage in India. At this point, again, a conclusion

supporting the main argument of the thesis has been reached. Although India shows high economic growth data, it displays a failing view in terms of economic development. In the case of China, it is clear that early industrialization and technology-intensive production causes environmental damage, as well as economic development.

The positive effect of technological development and technology-intensive production on economic development has examined in three sections. The argument propound in this thesis has tried to be supported by the indications of low economic development seen in the second group of countries selected. At the time of writing this thesis, the whole world continues to witness a long pandemic process under the influence of the Covid-19 virus. The Covid-19 virus was excluded from the evaluation because it emerged after the basic lines of the thesis work were drawn, and it covers a process that is still ongoing. However, it is worth noting that while this virus, which originated in China, spread rapidly worldwide, it has taken under control in a short time in the countries considered in the first group and its effects in the region have minimized. It continues with high mortality rates in India and Indonesia, which are in the second group. In this context, Taiwan showed a closer course to case data of the first group of countries.

# BIBLIOGRAPHY

## BOOKS and ARTICLES


ABEYSİNGHE, T., & CHOY, K. M. :2007 — **The Singapore Economy: An Econometric Perspective,** Vol.70, London, Routledge.

ABRAHAM, F. et. al.: 2009 — ‘‘The Post-crisis Global Division of Labor 2009’’, **Kiel Institute for the World Economy**, Session Handouts, Global Economic Symposium 2009 (GES).

ABSHIRE, J. E.: 2011 — **The History of Singapore**. ABC-CLIO

ACEMOGLU, D., RESTREPO, P.: 2018 — "Artificial Intelligence, Automation and Work", **National Bureau of Economic Research,** No. w24196.

ACEMOĞLU, D., ROBINSON, J. A.: 2016 — **Diktatörlük ve Demokrasinin Ekonomik Kökenleri,** İstanbul, Bağlam Yayıncılık,

ACEMOĞLU, D., ROBINSON, J. A.: 2013 — **Ulusların Düşüşü-Güç, Zenginlik ve Yoksulluğun Kökenleri,** (Çev. Velioğlu, F. R) 1. Baskı, İstanbul, Doğan Kitapevi.

ADELMAN, Irma, et al.: 2000 — "Fifty Years of Economic Development: What Have We Learned", **World Bank**, No:28737 http://documents1.worldbank.org/curated/en/625131468761704307/pdf/28737.pdf, December 25, 2020

ADIGÜZEL, M.:2011 — **Ekonomik, Kültürel ve Politik Küreselleşme ve Sonuçları**, Ankara, Nobel Yayın.

AKINS, J. E.:1973 — ‘‘The Oil Crisis: This Time the Wolf is Here’’, **Foreign Affairs**, 51/3, 462-490.

AKKEMİK, K.A.: 2015 — ‘‘Çin’de Bir Finans Krizi Beklemeli miyiz? Japonya’dan Alınacak Dersler’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeo-strateji** (Yayınlayan Akkemik, K. A., ve Ünay, S.), İstanbul, Boğaziçi Üniversitesi Yayınları, s.282-319,

AKRAM, T.: 2014 ‘‘The Economics of Japan’s Stagnation’’, **Business Economics,** 49/3, 156-175.

ARMAOĞLU, F. H.: 2014 **Yirminci Yüzyıl Siyasî Tarihi 1914-1995**, İstanbul, Timaş Yayınları.

ARMIJO, L. E.: 2007 ‘‘The BRICs Countries (Brazil, Russia, India, and China) as Analytical Category: Mirage or Insight?’’, **Asian perspective**, 7-42.

ARSLAN, G. E.: 2013 ‘‘Ekonomik Büyüme, Kalkınma ve Gelir Dağılımı’’, **Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi,** 6/2, 45-52.

ARVIND, P.: 2004 ‘‘India in the 1980s and 1990s: A Triumph of Reforms’’, **IMF Working Paper**, WP 04/43.

ATİK, K.:2019 ‘‘Tayvan Dongning Krallığı’’, **Türkiye’de Tayvan Çalışmaları-II**, Ankara, Ankara Üniversitesi Basımevi, s.9-26.

AUSTIN, I.P.:2009 ‘‘Singapore in Transition: Economic Change and Political Consequences’’, **Journal of Asian Public Policy,** 2/3, 266-278.

AVARI, B.: 2016 **India: The Ancient Past: A History of The Indian Subcontinent from c. 7000 BCE to CE 1200**. Routledge.

BAIROCH, P.:1982 ‘‘International Industrialization Levels From 1750 to 1980’’, **Journal of European Economic History**, 11/2, 269-194.

BALL, W. M.: 1958 ‘‘A Political Re-examination of SEATO’’, **International Organization**, 12/1, 17-25.

BAREAU, P., BIRD, R., SHONFIELD, A.:1957 ‘‘India's Second Five-Year Plan’’, **International Affairs (Royal Institute of International Affairs 1944-),** 33/3, 301-309.

| | |
|---|---|
| BARNES, G. L.:1993 | **China, Korea and Japan: The Rise of Civilization in East Asia,** New York, Thames & Hudson. |
| BARRETT, R. E., WHYTE, M. K.:1982 | ‘‘Dependency Theory and Taiwan: Analysis of a Deviant Case’’, **American Journal of Sociology**, 87/5,1064-1089. |
| BAYUR, Y. H. :1987 | **Hindistan Tarihi: İlk Çağlardan Gurkanlı Devletinin Kuruluşuna Kadar (1523),** Ankara, Türk Tarih Kurumu. |
| BELGE, M.: 2017 | **Militarist Modernleşme: Almanya, Japonya ve Türkiye,** İstanbul, İletişim Yayınları. |
| BEREND, T. I.: 2011 | **20. yüzyıl Avrupa İktisat Tarihi** (Çev. S. Çağlayan)**,** İstanbul, Türkiye İş Bankası Kültür Yayınları. |
| BERGSTEN, C. F.: 1992 | ‘‘The World Economy After the Cold War’’, **California Management Review,** 34/2, 51-65. |
| BERNANKE, B. S.: 2006 | ‘‘Global Economic Integration: What’s New and What's not?’’, **Board of Governors of the Federal Reserve System (U.S.),** No. 226. |
| BHANDARİ, D., GARG, R. K.: 2015 | ‘‘Effect of Industrialization on Environment (Indian Scenario)’’, **GJRA-Global Journal for Research Analysis**, 4/12, 281-282. |
| BHASKARAN, M., WILSON, P.: 2011 | "The Post-crisis Era: Challenges for the Singapore Economy", **Challenges for The Singapore Economy After the Global Financial Crisis** (Ed. by. W. Peter), pp.15-61. |
| BINSWANGER, H. P., KHANDKER, S. R.:1995 | ‘‘The Impact of Formal Finance on the Rural Economy of India", **The Journal of Development Studies**, 32/2, 234-262. |
| BORDEN, W. S.: 1984 | **The Pacific Alliance: United States Foreign Economic Policy and Japanese Trade Recovery,1947-1955**, Wisconsin, University of Wisconsin Press. |

BOYER, A., BOYER, R. D.:1988 **The Search for Labour Market Flexibility: The European Economies in Transition,** Oxford, Oxford University Press.

BRAUDEL, F.:1979 **Afterthoughts on Material Civilization and Capitalism**, Vol.7, Baltimore, Johns Hopkins University Press.

BRAYSHAY, M.: 2020 "Capitalism and the Division of Labor", **International Encyclopedia of Human Geography** (Ed.by. A. Kobayashi), Elsevier, pp.23-41.

BRAZINSKY, G. A.: 2007 **Nation Building in South Korea: Koreans, Americans, and the Making of a Democracy**, Chapel Hill, University of North Carolina Press.

BROWN, C.:2004 **A Short History of Indonesia: The Unlikely Nation?,** London, Allen & Unwin.

BROWN, D. M.: 1993 **The Cambridge History of Japan: Ancient Japan,** Vol.1, Cambridge, Cambridge University Press.

BROWN, K.(ed.): 2011 **China 2020: The next decade for the People's Republic of China,** Oxford, Chandos Publishing.

BUXMANN, P., DIEFENBACH, H., HESS, T. D. :2011 **Die Softwareindustrie: Ökonomische Prinzipien, Strategien, Perspektiven**. Springer-Verlag.

BUZO, A.:2016 **The Making of Modern Korea,** London, Routledge.

CASTELLS, M.: 2005 **Enformasyon Çağı: Ekonomi, Toplum ve Kültür Birinci Cilt Ağ Toplumunun Yükselişi.** Cilt.2, İstanbul, İstanbul Bilgi Üniversitesi.

CHEN, E. I., et al.:1984 ''The Attempt to Integrate the Empire: Legal Perspectives'', **The Japanese Colonial Empire 1945** (Ed.by. ed. R. H. Myers and M. R. Peattie), Princeton, Princeton University Press, pp.240-274.

CHEN, L.: 2016 — **The US-Taiwan-China Relationship in International Law and Policy,** Oxford, Oxford University Press.

CHEN, P.: 2016 — ‘‘Lessons from Taiwan’s Economic Development’’, **Orbis**, 6/4, 515-530.

CH‘OE, H.:1971 — **The Economic History of Korea: From Earliest Times to 1945**, Sekyungsa, Sekyung Printing.

CLEAVER, H.:1995 — ‘‘The Subversion of Money-as-command in the Current Crisis’’, **Global Capital, National State and the Politics of Money** (Ed. by. J. Holloway, W. Bonefeld), London, Palgrave Macmillan, pp.141-177.

COLLINS, T.:2015 — ‘‘Imitation: A Catalyst for Innovation and Endogenous Growth’’, **Economic Modelling,** 51,299-307.

COX, R.:1992 — ‘‘Global Perestroika’’, **New World Order?** (Ed. By. Miliband, R. & Panitch, L.), The Socialist Register, pp.26-43.

COX, R., SINCLAIR, T. J.:1996 — **Approaches to World Order**, Vol.40, Cambridge, Cambridge University Press.

CRAWCOUR, E. S.:1997 — ‘‘Industrialization and Technological Change, 1885–1920’’, **The Economic Emergence of Modern Japan**, (Ed.by. K. Yamamura), Cambridge, Cambridge University Press, pp.50-115.

ÇALIK, Ü.:2011 — ‘‘Çin Ekonomisi (Mao ve Mao Sonrası Dönem)’’ **Liberal Düşünce Dergisi**, 64, 185-206.

DAVISON, G. M.: 2003 — **A Short History of Taiwan: The Case for Independence,** Pennsylvania, Penn State Press.

D’COSTA, A. P.: 2004 — ‘‘The Indian Software Industry in the Global Division of Labour’’, **India in the Global Software Industry** (Ed.by. A. P. D’Costa and E. Sridharan), London, Palgrave Macmillan, pp.1-26.

D'COSTA, A. P.: 1995 ''The Restructuring of the Indian Automobile Industry: Indian State and Japanese Capital'', **World Development**, 23/3, 485-502.

DEUCHLER, M.: 1977 **Confucian Gentlemen and Barbarian Envoys: The opening of Korea, 1875-1885,** Washington, University of Washington Press.

DIAMOND, J.: 2019 **Çöküş: Toplumlar Başarısızlığı ya da Başarıyı Nasıl Seçerler?,** (Trans.by. B. Baysal), İstanbul, Pegasus Yayınları.

DIAMOND, J.: 2019 **Yükseliş: Krizdeki Uluslar için Dönüm Noktaları** (Trans.by. B. Baysal), İstanbul: Pegasus Yayınları.

DICK, H., HOUBEN, V. J., LINDBLAD, J. T., & WIE, T. K.: 2002 **Emergence of a National Economy: An Economic History of Indonesia, 1800-2000**, Honolulu, University of Hawaii Press.

DITTMER, L.: 2000 ''Tiger on the Brink: Jiang Zemin and China's New Elite'', **Pacific Affairs**, 73/2, 276-278.

DOMS, M.: 2004 ''The Boom and The Bust in Information Technology Investment'', **Economic Review-Federal Reserve Bank of San Francisco**, pp.19-34.

DORAISAMI, A.: 2011 ''The Global Financial Crisis: Countercyclical Fiscal Policy Issues and Challenges in Malaysia, Indonesia, the Philippines, and Singapore'', **ADBI Working Paper, Asian Development Bank Institute (ADBI)**, Tokyo, No. 288.

DOW, C.: 1999 **Major Recessions: Britain and the World 1920-1995,** Oxford, Oxford University Press.

DOWER, J. W.: 1999 **Embracing Defeat: Japan in the Wake of World War II,** New York, WW Norton & Company.

DOWLING, J. M., YAP, C. F.: 2008 ''Indonesian Economic Development: Mirage or Miracle?'', **Journal of Asian Economics,** 19/5-6, 474-485.

DUUS, M., DUUS, P.: 1976 — **The Rise of Modern Japan**, Boston, Houghton Mifflin.

ELAM, M.: 1994 — ‘‘Puzzling Out the Post-Fordist Debate: Technology, Markets and Institutions’’, **Post-Fordism: A Reader** (Ed. by. A. Amin), pp.43-70.

ERAYDIN, A.: 1992 — **Post-fordizm ve Değişen Mekânsal Öncelikler,** Ankara, Orta Doğu Teknik Üniversitesi Mimarlık Fakültesi Yayınları.

EUH, Y. D.: 2008 — ‘‘Introduction: Korean Economy in the Globalisation Era: The Kim Young-Sam Period’’, **South Korea,** Chandos Publishing, pp.1-23

FAIRBANK, J. K., GOLDMAN, M.: 2006 — **China: A new history,** Harvard, Harvard University Press.

FARRIS, W. W.:1998 — **Sacred Texts and Buried Treasures: Issues in the Historical Archaeology of Ancient Japan,** Honolulu, University of Hawaii press.

FARRIS, W. W.: 2006 — **Japan's Medieval Population: Famine, Fertility, and Warfare in a Transformative Age,** Honolulu, University of Hawaii Press.

FARRIS, W. W.: 2009 — **Japan to 1600: A Social and Economic History**, Honolulu, University of Hawaii Press.

FELL, D.: 2009 — ‘‘Taiwan, Republic of China: Democratic Progressive Party’’, **Encyclopedia of Modern China** (Ed.by. D. Pang), pp.548-549

FINDLAY, R.: 1984 — ‘‘Growth and Development in Trade Models’’, **Handbook of International Economics** (Ed.by. E. K. Choi, J. Harrigan), 1, 185-236.

FLAMMANG, R. A.: 1979 — ‘‘Economic Growth and Economic Development: Counterparts or Competitors?’’, **Economic Development and Cultural Change,** 28/1, 47-61

FLINT, C., TAYLOR, P. J.: 2014 **Political geography: World-economy, Nation-State, and Locality**, New York, Routledge.

FRANK, A. G., GILLS, B. K.: 2003 **Dünya sistemi: Beş Yüzyıllık mı, Beş Binyıllık mı?**, İstanbul, İmge Kitabevi.

FRANK, A. G.: 1966 The Development of Underdevelopment, **Monthly Review**, 18/4, 17–31.

FREEMAN, C., LOUÇA, F.: 2001 **As time goes by: from the industrial revolutions to the information revolution**, Oxford, Oxford University Press.

FREEMAN, C., LOUÇA, F.: 2013 **Zaman Akıp Giderken: Sanayi Devrimlerinden Bilgi Devrimine** (Çev. O. S. Binatlı), İstanbul, İthaki Yayınları.

FRÖBEL, F., HEINRICHS, J., & KREYE, O.: 1982 **Uluslararası Yeni İş Bölümü ve Serbest Bölgeler**, (Çev. Y. Öner), İstanbul, Belge Yayınları.

GANGULY-SCRASE, R., SCRASE, T. J.:2009 **Globalisation and the middle classes in India: The social and cultural impact of neoliberal reforms,** London, Taylor & Francis.

GALLICCHIO, M.: 2020 **Unconditional: The Japanese Surrender in World War II**, Oxford, Oxford University Press.

GALLICCHIO, M. S.: 1988 **The Cold War Begins in Asia: American East Asian Policy and the Fall of the Japanese Empire**, New York, Columbia University Press.

GAN, L.: 2003 ‘‘Globalization of The Automobile Industry in China: Dynamics and Barriers in Greening of the Road Transportation’’, **Energy policy**, 31/6, 537-551.

GANGULY-SCRASE, R., SCRASE, T. J.: 2009 **Globalisation and The Middle Classes in India: The Social and Cultural Impact of Neoliberal Reforms,** Vol.17, New York, Routledge.

GARON, S.: 1987 — **The State and Labor in Modern Japan**, California, University of California Press.

GEZİKOL, B., ÇİFTÇİ, U. S.: 2017 — ‘‘İnovasyon Ekosistemi ve Kapasitesi: Asya Üçlüsü ve Türkiye Karşılaştırması’’, **16. Ulusal İşletmecilik Kongresi Bildiri Kitabı**, Ege Üniversitesi İktisadi ve İdari Bilimler Fakültesi, pp.74-84

GHOSH, B. N.: 2001 — **Dependency Theory Revisited**, New York, Routledge.

GILL, I. S., KHARAS, H.: 2007 — **An East Asian Renaissance: Ideas for Economic Growth.** The World Bank.

GILPIN, R.: 1987 — **The Political Economy of International Relations**, Princeton, Princeton University Press.

GÖKÇE, Ö., GÖKMEN, M. E.: 2016 — ‘‘1897-1910 Kore'nin Politik Durumu ve Dehan İmparatorluğu’’, **Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi,** 56/2, 93-110

GOLD, T. B.: 1986 — **State and Society in the Taiwan Miracle**, New York, M.E. Sharpe.

GÖRÇÜN, Ö.F.: 2016 — **Dördüncü Endüstri Devrimi Endüstri 4.0**, İstanbul, Beta Yayıncılık.

GRAMSCI, A., HOARE, Q., NOWELL-SMITH, G.: 1992 — **Selections from the Prison Notebooks of Antonio Gramsci** (Ed. and trans. by. Q. Hoare and G. N. Smith), 11. Edition, New York, International Publisher.

GÜLMEZ, S. B., BERTUĞ, T. O. P.: 2018 — ‘‘Çin’in Çevre Diplomasisi: Realist Dış Politikanın Liberalism ile İmtihanı’’, **İzmir Kâtip Çelebi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi**,1/1, 72-85.

HABOUSH, J. K.: 2016 — **The Great East Asian War and the Birth of the Korean Nation**, New York, Columbia University Press.

HANCOCK, K. J., VIVODA, V.: 2014 ‘‘International Political Economy: A Field Born of the OPEC Crisis Returns to Its Energy Roots’’, **Energy Research & Social Science**, 1, 206-216.

HANE, M.: 2016 **Peasants, Rebels, Women, and Outcastes: The Underside of Modern Japan**, Updated Second Edition, Lanham, Rowman & Littlefield.

HANNIGAN, T.: 2015 **Brief History of Indonesia: Sultans, Spices, and Tsunamis: The Incredible Story of Southeast Asia's Largest Nation**, Tokyo, Tuttle Publishing.

HARRIS, L. C., WORDEN, R. L.: 1986 ‘‘China’s Third World Role’’, **China and the Third World: Champion or Challenger?** (Ed. by. L.C. Harris and R. L. Worden)**,** Massachusetts, Auburn Publishing Company Dower, pp.1-14.

HARVEY, D.: 1991 **The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change**, Oxford, Basil Blackwell.

HE, T.: 2020 **The Political Economy of Developmental States in East Asia: South Korea, Singapore and Taiwan,** Cham, Springer Nature Switzerland.

HEGEL, G.W.F.: 2001 **The Philosophy of History** (Trans. by. J. Sibree), Kitchener, Botache Books.

HELENE, D. et al.: 2019 **World Corporate Top R&D Investors: Shaping the Future of Technologies and of AI,** Joint Research Centre, OECD, No: JRC117068.

HENG, D., ALJUNIED, S. M. K.: 2011 **Singapore in Global History**, Amsterdam, Amsterdam University Press.

HEYWOOD, A.: 2011 **Küresel Siyaset** (Çev. N. Uslu, H. Özdemir), 4. Baskı, Ankara, Adres Yayınları.

HOBSBAW, E. J.: 1998 **Sanayi ve İmparatorluk** (çev. A. Yılmaz), Ankara, Dost Kitabevi.

HOEKMAN, B. M., KOSTECKI, M. M.: 2009 — **The Political Economy of the World Trading System: the WTO and Beyond**, Oxford, Oxford University Press.

HOLCOMBE, C.: 2016 — **Doğu Asya Tarihi Çin Japonya Kore Medeniyetin Köklerinden 21. Yüzyıla Kadar** (Çev. M.M. Özeren), İstanbul, Dergâh Yayınları.

HOLLOWAY, J.: 1996 — ‘‘The Abyss Opens: The Rise and Fall of Keynesianism’’, **Global Capital, National State and the Politics of Money** (Ed.by. J. Holloway, W. Bonefeld), London, Palgrave Macmillan, pp.7-34.

HONG, Y. P.: 1999 — **State Security and Regime Security: President Syngman Rhee and the Insecurity Dilemma in South Korea 1953-60**, Oxford, Macmillan Press.

HONG, Y.S.: 2005 — ‘‘Evolution of the Korean National Innovation System: Towards an Integrated Model’’, **Governance of Innovation Systems: Volume 2: Case Studies in Innovation Policy**, OECD Library Publishing, pp.65-86

HOPKINS, T. K., WALLERSTEIN, I. M.: 2000 — **Geçiş Çağı: Dünya Sisteminin Yörüngesi (1945-2025)** (Çev. N. Ersoy), İstanbul, Avesta Basın Yayın.

HOWITT, P., MAYER-FOULKES, D.: 2002 — **R&D, Implementation and Stagnation: A Schumpeterian Theory of Convergence Clubs**, National Bureau of Economic Research, No. 9104.

HSU, W. H.: 1980 — ‘‘From Aboriginal Island to Chinese Frontier: The Development of Taiwan Before 1683’’, **China's Island Frontier: Studies in the Historical Geography of Taiwan** (Ed. by. K. G. Knapp), pp.3-29.

HUANG, M. H., RUST. R. T.: 2018 — ‘‘Artificial Intelligence in Service’’, **Journal of Service Research**, 21/2, 155-172

HUFF, W.G.: 1995 — ‘‘What is the Singapore Model of Economic Development?’’, **Cambridge Journal of Economics**, 19/6, 735-759.

HUFF, W. G.: 1997 — **The Economic Growth of Singapore: Trade and Development in the Twentieth Century**, Cambridge, Cambridge University Press.

HUNTER, E. J.: 2002 **Modern Japonya'nın Doğuşu:1983'ten Günümüze**, (Çev. M. Günay), İstanbul, İmge Kitapevi.

HYDE, G. D.: 1998 **South Korea: Education, Culture and Economy**, London, Macmillan Press.

IGA, M., AUERBACH, M.: 1977 ''Political Corruption and Social Structure in Japan'', **Asian Survey**, 17/6, 556-564.

JANICKE, M., JACOB, K.: 2013 "A Third Industrial Revolution", **Long-term Governance for Social-ecological Change** (Ed. by. B. Siebenhuner, et. al), pp.47-71.

JANSEN, M. B.:2002 **The Making of Modern Japan**, Harvard, Harvard University Press.

JANSEN, M. B.:1992 **China in the Tokugawa World**, Harvard, Harvard University Press.

JESSOP, B.: 1994 ''Post-Fordism and The State'', **Post-Fordism: A Reader** (Ed. by. A. Amin), Wiley-Blackwell, pp.251-279.

JESSOP, B.: 1992 ''Fordism and Post-Fordism: A Critical Reformulation'', **Pathways to Regionalism and Industrial Development** (Ed. by. A.J. Scott and M.J. Storper), London, Routledge, pp. 43-65

JHA, R.:2008 ''The Indian Economy: Current Performance and Short-Term Prospects'', **The Indian Economy Sixty Years After Independence** (Ed. by. R. Jha), London, Routledge, pp.17-38

JIAN, C.: 1995 ''China's Involvement in the Vietnam War, 1964–69'', **The China Quarterly**, 142, 356-387.

JOHNSON, C.:1982 **MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975**, California, Stanford University Press.

JORDAN, R.: 2009 ‘‘Singapore in Its Worst Recession for Years. The Effects of The Current Economic Crisis on the City-State's Economy’’, **Journal of Current Southeast Asian Affairs**, 28/4, 95-110.

JOSEPH, A.: 1942 **Schumpeter, Capitalism, Socialism, and Democracy**, New York, Harper & Row.

KAGERMANN, H., ANDERL, R., GAUSEMEİER, J., SCHUH, G., & WAHLSTER, W: 2016 **Industrie 4.0 in a Global Context: Strategies for Cooperating with International Partners**, The Acatech STUDY Series, Münih, Herbert Utz Verlag.

KALAYCI, R. :2010 ‘‘Kore: Doğu Asya’da Yükselen Çatışma ya da Kasıtlı Tırmandırma?’’, **Dünya Çatışmaları: Çatışma Bölgeleri ve Konuları** (Ed. K. İnat., B. Duran., M. Ataman.), Ankara, Nobel Yayınları.

KANCHOOCHAT, V.:2019 ‘‘Tigers at Critical Junctures: How South Korea, Taiwan and Singapore Survived Growth-Led Conflicts’’, Developmental State Building: The Politics of Emerging Economies (Ed. by. Y. Takagi, V. Kanchoochat and T. Sonobe), First Edition, Tokyo, Springers, pp.47-68.

KASER, M. C. (Ed.): 1986 **Economic Development for Eastern Europe: Proceedings of a Conference Held by the International Economic Association**, New York, Macmillan Press.

KATADA, S.: 2008 ‘‘From a Supporter to a Challenger? Japan's Currency Leadership in Dollar-Dominated East Asia’’, **Review of International Political Economy**, 15/3, 399-417.

KAYE, H. J.: 1979 ‘‘Totality: Its Application to Historical and Social Analysis by Wallerstein and Genovese’’, **Historical Reflections / Réflexions Historiques**, 6/2, 405-419.

KAYNAK, M.: 2011 **Ekonomik Kalkınma**, Gazi Kitapevi, Ankara.

KEAT, H. S.: 2009 ‘‘The Global Financial Crisis: Impact on Asia and Policy Challenges Ahead’’, **Federal Reserve Bank of San Francisco Proceedings**, No. Oct, pp. 267-276.

KIM, C. R.: 2017 **Youth for Nation: Culture and Protest in Cold War South Korea**, Hawaii, University of Hawaii Press.

KIM, K. H.:1980 **The Last Phase of the East Asian World Order: Korea, Japan, and the Chinese Empire, 1860-1882**, Berkeley, University of California Press.

KIM, S. S.: 2016 ‘‘Post-Mao China’s Development Model in Global Perspective’’, **China’s Changed Road to Development** (Ed. by. N. Maxwell and B. McFarlane), Oxford, Pergamon Press, pp.213-232.

KIM, Y. C., KIM. D. J., KIM, Y.: 2008 **South Korea: Challenging Globalisation and The Post-crisis Reforms**, Oxford, Chandos Publishing.

KISSENGER, H.:2015 **Çin: Dünden Bugüne Yeni Çin** (Çev. N. I. Çeper), İstanbul, Kaknus Yayınevi

KÖSAİ, Y.:1986 **The Era of High-speed Growth: Notes on the Postwar Japanese Economy**, Tokyo, University of Tokyo Press.

KU, Y. W.: 1997 **Welfare Capitalism in Taiwan: State, Economy and Social Policy**, New York, Macmillan Press.

KU, Y., LEE, I., WOO, J.: 2017 **Politics in North and South Korea: Political Development, Economy, and Foreign Relations**. New York, Routledge.

KULKE, H., ROTHERMUND, D.:1997 **A History of India**, London, Routledge.

KUMAR, A.: 2017 **Understanding the Black Economy and Black Money in India: An Enquiry into Causes, Consequences and Remedies**, New Delhi, Aleph Book Company.

KURNIAWAN, B., CAHYADI, R.: 2019 **Political Economy of Development from Global to Indonesian Context A Review of Literature**, Bandar Lampung, Aura Publishing.

KUŞAT, N.: 2013 ‘‘Yeşil Sürdürülebilirlik İçin Yeşil Ekonomi: Avantaj ve Dezavantajları–Türkiye İncelemesi’’, **Journal of Yaşar University**, 8/29, 4896-4916.

KUZNET, S., MURPHY, J. T.: 1966 **Modern Economic Growth: Rate, Structure, and Spread**, Vol. 2, New Haven, Yale University Press.

LACHER, H.: 1999 ‘‘Embedded Liberalism, Disembedded Markets: Reconceptualising the Pax Americana’’, **New Political Economy**, 4/3, 343-360.

LAKE, D., MORGAN, P.: 1997 ‘‘The New Regionalism in Security Affairs’’, **Regional Orders: Building Security in a New World** (Ed. by. D. Lake, P. Morgan), 1, 3-19.

LAL, D.: 2005 **The Hindu Equilibrium: India C. 1500 BC-2000 AD**, Oxford, Oxford University Press.

LALL, S.: 2016 ‘‘Sanayileşme Stratejisini Yeniden Düşünmek: Küreselleşme Çağında Devletin Rolü’’, **Neoliberal Küreselleşme ve Kalkınma: Seçme Yazılar** (Ed. F. Şenses), İstanbul, İletişim Yayınları), 459-508.

LAM, W. W. L.:2006 **Chinese Politics in the Hu Jintao Era: New Leaders, New Challenges**, New York, ME Sharpe.

LAMPTON, D. M.: 2008 **The Three Faces of Chinese Power: Might, Money, and Minds**, California, University of California Press.

LARRY, D.: 2015 **China’s Civil War: A Social History, 1945–1949,** Cambridge, Cambridge University Press.

LEE, K.: 2009 ‘‘Towards a Reformulation of Core/Periphery Relationship: A Critical Reappraisal of the Trimodality of the Capitalist World-Economy in the Early 21st Century’’**, Perspectives on Global Development and Technology,** 8/2-3, 263-294

LEE, S. Y.: 1990 **Money and Finance in The Economic Development of Taiwan**, New York, Macmillan Press.

LEFFLER, M. P.: 1992 **A Preponderance of Power: National security, the Truman Administration, and The Cold War,** California, Stanford University Press.

LIST-JENSEN, A. S.: 2008 ‘‘Economic Development and Authoritarianism: A Case Study on the Korean Developmental State’’, **Diiper Research Series**, Working Paper:5/30 (available) https://www.semanticscholar.org/paper/Economic-Development-and-Authoritarianism%3A-A-Case-List-Jensen/3f37a7f6815bbf4258e6b2b7fa2e6150d040f2d3, December 5, 2020

LINSTER, M., YANG, C:2018 ‘‘China’s Progress Towards Green Growth: An International Perspective’’, **OECD Publishing**, No,2018/05.

LOW, M. (Ed.).: 2005 **Building a Modern Japan: Science, Technology, and Medicine in The Meiji Era and Beyond**, New York, Macmillan, pp.1-10

MAJID, M. A.: 2000 ‘‘Disputing the Modern World System Theory in Its Application to Southeast Asia and East Asia’’, **Strategic and Security Studies Unit**, Malaysia.

MANTHORPE, J.: 2005 **Forbidden Nation: A History of Taiwan**, London, St. Martin's Griffin Press.

MANU, B., WILSON, P.: 2011 ‘‘The Post-crisis Era: Challenges for the Singapore Economy’’ **Challenges for The Singapore Economy After the Global Financial Crisis** (Ed. By. P. Wilson), London, World Scientific, pp.15-61.

MAULL, H. W.: 1989 ‘‘Germany and Japan: The New Civilian Powers’’, **Foreign Affairs**, 69/5, 91-106.

MCCORD, W.: 1996 **The Dawn of the Pacific Century: Implications for Three Worlds of Development,** London, Transaction Publishers.

MEARSHEİMER, J. J.: 2006 ‘‘China’s Unpeaceful Rise’’, **Current History**, 105/690, 160–162.

METCALF, B. D., METCALF. T. R.: 2006 **A Concise History of Modern India,** Cambridge, Cambridge University Press.

MINNS, J.: 2006 **The Politics of Developmentalism in Mexico, Taiwan and South Korea: The Midas States of Mexico, South Korea and Taiwan,** First Edition, New York, Macmillan

MORRIS, I. I.: 1960 ‘‘Nationalism and The Right Wing in Japan’’, **Naval War College Review**, 13/8, 4.

NAMBOODIRIPAD, E. M. S., MENON, K. M. N.:1986 **A History of Indian Freedom Struggle**, Trivandrum, Social Scientist Press.

NARINE, S.: 2008 ‘‘Forty Years of ASEAN: A Historical Review’’, **The Pacific Review**, 21/4, 411-429.

NARINE, S.: 2004 ‘‘State Sovereignty, Political Legitimacy and Regional Institutionalism in The Asia-Pacific’’, **The Pacific Review**, 17/3, 423-450.

NAYAK, S. S.: 2007 **Globalization and The Indian Economy: Roadmap to a Convertible Rupee**, New York, Routledge.

NELSON, S. M.: 1993 **The Archaeology of Korea**, Cambridge, Cambridge University Press.

NG, F., YEATS, A.: 2003 ‘‘Major Trade Trends in East Asia: What are Their Implications for Regional Cooperation and Growth?’’, **World Bank Policy Research Working Paper**, No:3084.

NGIAM, K.: 2000 ‘‘Coping with The Asian Financial Crisis: The Singapore Experience’’, **From Crisis to Recovery: East Asia Rising Again** (Ed. By. Z. YU., D. XU), pp.141-72

ONGUN, M. T.: 2009 **Sanayileşme ve Uluslararası Ekonomik İlişkiler: Ders Notları,** Ankara, Gazi Kitabevi.

OOMS, H.: 2009 **Imperial Politics and symbolics in Ancient Japan: The Tenmu Dynasty, 650-800**, Honolulu, University of Hawaii Press.

PANDIT, B. L.: 2015 **The Global Financial Crisis and The Indian Economy**, New Delhi, Springer India.

PANDVE, H. T.:2009 ‘‘India’s National Action Plan on Climate Change’’, **Indian Journal of Occupational and Environmental Medicine**, 13/1, 17-19.

PARIKH, J. K.: 1977 ‘‘Environmental Problems of India and Their Possible Trends in Future’’**, Environmental Conservation**, 4/3, 189-198.

PEKCAN, C.: 2019 ‘‘Xi Jinping'in Tayvan Politikasındaki Dönüşüm: Çin ve Tayvan'ın 'Diplomatik Tanınma' Rekabeti’’, **XI. Uluslararası Uludağ Uluslararası İlişkiler Kongresi Bildiri Tam Metinleri**, pp.538-552.

PETERSON, M.: 2009 **Brief History: Brief history of Korea**, New York, Infobase Publishing.

POLANYI, K.: 1944 **The Great Transformation: The Political and Economic Origins of Our Time**, First Edition, Boston, Beacon press.

POMERANZ, K.: 2000 **The Great Divergence: China, Europe, and The Making of The Modern World Economy**, New Jersey, Princeton University Press.

PREBISCH, R.: 1959 ‘‘Commercial Policy in The Underdeveloped Countries’’, **American Sociological Review**, 49/2, 251-273.

PYE, L.: 1992 ‘‘Social Science Theories in Search of Chinese Realities’’, **The China Quarterly**, 132,1161-1170.

RAJAN, R. S., KELLY, D. A.: 2006 ‘‘Introduction to ‘Managing Globalisation’: Lessons from China and India’’, **ESocialSciences**, 634, 1-21.

RANDALL, V.:2004 ‘‘Using and Abusing the Concept of The Third World: Geopolitics and The Comparative Political Study of Development and Underdevelopment’’, **Third World Quarterly**, 25/1, 41-53,

RICKLEFS, M. C.:1981 **A History of Modern Indonesia: C. 1300 to The Present**, London, Macmillan.

ROBB, P.:2011 **A History of India**, London, Macmillan.

ROBINSON, J.: 1968 ‘‘The Cultural Revolution in China’’, **International Affairs**, 44/2, 214-227.

ROBINSON, W. I.:2004 **A Theory of Global Capitalism: Production, Class, and State in a Transnational World**, Baltimore, Johns Hopkins University Press.

RODAN, G.: 1998 ‘‘The Internet and Political Control in Singapore’’, **Political Science Quarterly**, 113/1, 63-89.

ROMANIUK, S.:2017 ‘‘Dependency Theory’’, **The Sage Encyclopedia of War: Social Science Perspectives** (Ed. by. P. JOSEPH), Sage Publications, pp.482-483.

ROSKIN, M.: 2014 **Çağdaş Devlet Sistemleri: Siyaset, Coğrafya, Kültür** (Çev. B. Seçilmişoğlu), Ankara, Adres Yayınları.

ROY, D.: 2007 ‘‘Environmentalism and Political Economy’’, **Environmental Issues in India: A Reader** (Ed. by. M. Rangarajan), New Delhi, Pearson Education in South Asia, pp.521-530.

RUGGIE, J. G.:1982 ‘‘International Regimes, Transactions, and Change: Embedded Liberalism in The Postwar Economic Order’’, **International Organization**, 36/2, 379-415.

RUSSELL, A.: 1997 ‘’Technology as Knowledge: Generic Technology and Change in The Global Political Economy’’, **Technology, Culture and Competitiveness: Change and The World Political Economy** (Ed.by. C. Farrands), London, Routledge, pp.41-57.

ÜNAY, S., AKKEMİK, A.: 2015 **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji**, İstanbul, Boğaziçi Üniversitesi Yayınevi.

ŞAHİN, Ü.:2012 ‘‘Yeşil Düşünceden Yeşil Ekonomiye’’ **Yeşil Ekonomi** (Ed. A. A. Aşıcı, Ü. Şahin), İstanbul, Yeni İnsan Yayınevi, pp.22-34.

SAKLI, A. R.: 2007 **Kapitalist Gelişim Sürecinde Fordizm ve Post-fordizm**, Ankara, (available) https://ses.org.tr/wp-content/uploads/fordizmpostfordizm.pdf , 24 Ocak,2021.

SANTOS, D. T.: 1970 ‘‘The Structure of Dependence’’, **The American Economic Review,** 60/2, 231-236.

SEKHRI, S.: 2009 ‘‘Dependency Approach: Chances of Survival in the 21st Century’’, **African Journal of Political Science and International Relations**, 3/5, pp.242-252.

ŞENSES, F.: 2016 ‘‘Neo-liberal Küreselleşme Kalkınma İçin Bir Fırsat Mı, Engel Mi?’’, **Neo-liberal Küreselleşme ve Kalkınma Seçme Yazılar** (Ed. F. Şenses), İstanbul, pp.235-280.

SEPENCE, J. D.: 1990 **The Search for Modern China**, London, WW Norton & Company.

SEPENCE, M.: 2012 **The Next Convergence: The Future of Economic Growth in A Multispeed World**, New York, Picador.

SETH, M. J.: 2010 **A Concise History of Modern Korea: From the Late Nineteenth Century to The Present**, New York, Rowman & Littlefield Publishers.

SETH, M. J.: 2010 **A history of Korea: From antiquity to the present,** New York, Rowman & Littlefield Publishers.

SHARMA, S. D.:2013 ‘‘From Meltdown to Bounceback: How South Korea Weathered the 2008 Financial Crisis’’, **Global Asia**, 8/1, 102-111.

SHIE, V. H., MEER, C. D.: 2010 ‘‘The Rise of Knowledge in Dependency Theory: The Experience of India and Taiwan’’, **Review of Radical Political Economics**, 42/1, pp.81-99.

SIDDIQUI, K.: 2016 "Will the Growth of the BRICs Cause a Shift in the Global Balance of Economic Power in the 21st Century?", **International Journal of Political Economy**, 45/4, 315-338.

SIDOROVA, E.: 2018 "The Innovation Development of The BRICS Countries: Preconditions and Prospects for Cooperation", **International Organisations Research Journal**, 13/1, 34-50.

SINGH, M. K.: 2009 **Encyclopaedia of Indian War of Independence (1857-1947)**, New Delhi, Anmol Publications.

SKARP, S. U.: 1973 **Report of the United Nations Conference on the Human Environment, Stockholm**, Report of UNCHE, 48/14.

SCOPOL, T.: 1977 "Wallerstein's World Capitalist System: A Theoretical and Historical Critique", **American Journal of Sociology**, 82/5,1075-1090.

SMITH, A.: 2020 "Spatial Division of Labor", **International Encyclopedia of Human Geography** (Ed. by. A. Kobayashi), Second Edition, pp.387-393.

SNYDER, D., KICK, E. L.: 1979 "Structural Position in the World System and Economic Growth, 1955-1970: A Multiple-Network Analysis of Transnational Interactions", **American Journal of Sociology**, 84, 1096-1126.

STAROSTA, G.: 2016 "Revisiting the New International Division of Labour Thesis", **The New International Division of Labour: Global Transformation and Uneven Development** (Ed. by. G. Charnock and G. Starosta), London, Macmillan. pp.79-104.

ŞUBAŞAT, T.: 2004 "Küreselleşme ve Devletin Rolü", **Kalkınma ve Küreselleşme**, (Ed. S. Dedeoğlu ve T. Subaşat), İstanbul, Bağlam Yayınları, s.55-86.

TAYLOR, F. W.: 1911 "The Principles of Scientific Management", (available) https://sites.ualberta.ca/~yreshef/orga432/docs/TaylorScientificManagement.pdf, September 12, 2020.

THOMAS, M. D.: 1979 "Economic Development, Technological Change, and The New International Economic Order", **Geoforum**, 10/2,129-140.

THOMAS, M. L.: 1957 ‘‘A Critical Appraisal of Seato’’, **Western Political Quarterly**, 10/4, 926–936.

TİRYAKİOĞLU, M.: 2015 ‘‘Geç Kalkınma Yolunda Orta Gelir Tuzağı ve Doğu Asya Ekonomi Politiğinden Dersler’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji** (Ed. S. Ünay, K. A. Akkemik), İstanbul, Boğaziçi Üniversitesi Yayınevi, s.37-59.

TROTSKY, L.: 2010 **The Permanent Revolution & Results and Prospects**. Seattle, Red Letter Press.

TSAI, J., HUNG, H.: 2007 ‘‘International Brand Strategy of Taiwanese Hi-tech Enterprises’’, **Agricultural Economics**, 53/2, 83-88.

TYAGI, V.: 2017 ‘‘Green Economy in India: Possibilities and Challenges’’, **International Journal of Research in Social Sciences**, 7/5, 577-585.

ÜNAY, S., KAYIKÇI, F.: 2015 ‘‘Küresel Ekonomi Politik Sistemde BRICS ve Doğu Asya’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji** (Ed. S. Ünay, K. A. Akkemik), İstanbul, Boğaziçi Üniversitesi Yayınevi, s.17-36.

ÜNAY, S.: 2015 ‘‘Diyalogdan Rekabete: Küresel Ekonomi Politik Sistemde Çin’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji** (Ed. S. Ünay, K. A. Akkemik), İstanbul, Boğaziçi Üniversitesi Yayınevi, s.263.281.

ÜNAY, S.: 2015 ‘‘Savaş Sonrası Dönemde Türkiye-Japonya Ekonomi Politiklerine Bakış: Ulusal Kalkınmacılıktan Küresel Rekabete’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji** (Ed. S. Ünay, K. A. Akkemik), İstanbul, Boğaziçi Üniversitesi Yayınevi, s.37-59.

ÜNGÖR, Ç.: 2009 ‘‘Çin ve Üçüncü Dünya’’, **İÜ Siyasal Bilgiler Fakültesi Dergisi**, 41/1, 27-38.

ÜNGÖR, Ç.:2016 ‘‘Tayvan Sorunu: Toprak, Temsil, Aidiyet’’, **Dünya Çatışmaları: Çatışma Bölgeleri ve Konuları** (Ed. K. İnat., B. Duran., M. Ataman), Cilt 2, Nobel Yayın Dağıtım, Ankara, s.501-516.

VAIDYA, S., AMBAD, P., BHOSLE, S.: 2018 ‘‘Industry 4.0–A Glimpse’’, **Procedia Manufacturing**, 20, 233-238.

VATIKIOTIS, M. R.:1999 **Indonesian Politics Under Suharto: The Rise and Fall of The New Order**, London, Routledge.

VICKERS, A.:2013 **A History of Modern Indonesia**, Cambridge, Cambridge University Press.

VIJAYAKUMAR, N., SRIDHARAN, P., RAO, K. C. S.:2010 ‘‘Determinants of FDI in BRICS Countries: A panel Analysis’’, **International Journal of Business Science & Applied Management**, 5/3, 1-13.

WADE, R.: 1990 **Governing the Market: Economic Theory and The Role of Government in East Asian Industrialization**, Princeton, Princeton University Press.

WADE, R. H.: 2016 ‘‘Gelişmekte Olan Ülkeler İçin Bugün Hangi Stratejiler Uygulanabilir? Dünya Ticaret Örgütü ve ‘Kalkınma Alanı’nın Daraltılması’’, **Neoliberal Küreselleşme ve Kalkınma-Seçme Yazılar** (Ed. Fikret Şenses, Çev. Burcu Dıraor), İstanbul, İletişim Yayınları, s.509-543.

WADE, R., VENEROSO, F.: 1998 ‘‘The Asian Crisis: The High Debt Model Versus the Wall Street-Treasury-IMF Complex’’, **New Left Review**, 228, 3-24.

WALLERSTEIN, I.: 1974 ‘‘The Rise and Future Demise of the World Capitalist System: Concepts for Comparative Analysis’’, **Comparative Studies in Society and History**, 16/4, 387-415.

WALLERSTEIN, I.: 2001 **The End of the World as We Know it: Social Science for the Twenty-first Century**, London, University of Minnesota Press.

WALLERSTEIN, I.: 2006 **World System Analysis: An Introduction**, London, Duke University Press.

WALLERSTEIN, I., FRANK, A. G., ARRIGHI, G., AMIN, S.:1984 **Genel Bunalımın Dinamikleri** (Çev. F. Akar), İstanbul, Belge Yayınları.

WALLERSTEIN, I., GILLS, B. K., FRANK, A. F.: 2003-1993 **Dünya Sistemi** (Çev. E. Soğancılar), Ankara, İmge Kitabevi.

WALLERSTEIN, I., HOPKINS, T. K.: 2000 **Geçiş Çağı: Dünya Sisteminin Yörüngesi (1945-1925)** (Çev. N. Ersoy, E. Abadoğlu, O. Akalın, Y. Kaya), İstanbul, Avesta Yayınları.

WANG, J. C.: 2010 ‘‘The Strategies Adopted by Taiwan in Response to The Global Financial Crisis, and Taiwan’s Role in Asia-Pacific Economic Integration’’, **Japan and the World Economy**, 22/4, 254-263.

WANG, P. C. M.: 1999 ‘‘A Bastion Created, a Regime Reformed, an Economy Reengineered, 1949-1970’’, **Taiwan: A New History** (Ed. by. M. A. Rubinstein), pp.320-338.

WANK, D. L.: 2001 **Commodifying Communism: Business, Trust, and Politics in a Chinese City**, Cambridge, Cambridge University Press.

WEBER, M., PARSONS, T.: 1913 **The Protestant Ethic and The Spirit of Capitalism**, New York, Dover Publications.

WENG, X., DONG, Z., WU, Q., QİN, Y.: 2015 "China’s Path to a Green Economy: Decoding China’s Green Economy Concepts and Policies’’, **International Institute for Environment and Development,** Country Report.

WESTGARTH, K.: 2001 "China in 2020: The Leadership and The Party." **China 2020: The Next Decade for The People’s Republic of China** (Ed. by. K. Brown), Chandos Publishing, Cambridge, pp.1-18.

WITHERELL, W.: 2001 ‘‘Korea in the OECD: Realising the Promise’’, **Director for Financial, Fiscal and Enterprise Affairs at the OECD**, Seoul.

WU, R. I.: 1998 ‘‘Taiwan's Role in the Asian Financial Crisis’’, **Review of Pacific Basin Financial Markets and Policies**, 1/04, 529-544.

WUBBUKE, J., MEISSNER, M., ZENGLEIN, M. J., IVES, J., CONRAD, B.: 2016 ‘‘Made in China 2025’’, **Mercator Institute for China Studies**, Papers on China, No.2.

YAHUDA, M.: 2011 — **The International Politics of the Asia Pacific,** London, Routledge.

YANIK, L. K.: 2013 — ‘‘Krizden Krize Rusya’da İktisadi Değişim ve Dönüşüm’’, **Küresel Kriz ve Yeni Ekonomik Düzen** (Ed. F. Şenses, Z. Öziş, C. Bakır), İstanbul, İletişim Yayınları, s.219-240.

YENIGÜN, C., DURAN, S.: 2010 — ‘‘Endonezya: Çatışmadan Demokrasiye’’, **Dünya Çatışmaları** (Ed. K. İnat, B. Duran, M. Ataman), Cilt.2, s.463-484.

YU, G. T.: 1977 — ‘‘China and The Third World’’, **Asian Survey**, 17/11, 1036-1048.

YÜLEK, A. M.: 2015 — ‘‘Kalkınma Tartışmalarında Japon Modelinin Yükselişi, Düşüşü ve Tekrar Yükselişi’’, **Doğu Asya’nın Politik Ekonomisi: Japonya, Çin ve Güney Kore’de Kalkınma, Siyaset ve Jeostrateji** (Ed. S. Ünay, K. A. Akkemik), İstanbul, Boğaziçi Üniversitesi Yayınevi, s.132-162.

ZEPEDA, E., MCDONALD, J. R. S., PANDA, M., GANESH-KUMAR, A.: 2013 — ‘‘Employing India: Guaranteeing Jobs for The Rural Poor: An Assessment of India’s Mgnrega Public Works Programme’’, **Social Protection, Growth and Employment: Evidence from India, Kenya, Malawi, Mexico and Tajikistan** (UN Development Programme), **s.235-256**

ZHANG, L., HE, G., MOL, A. P., ZHU, X.: 2013 — ‘‘Power Politics in The Revision of China's Environmental Protection Law’’, **Environmental Politics**, 22/6, 1029-1035.

ZHENG, Z.: 2013 — ‘‘Taiwan’s Wealth Gap and The Evolution of Electoral Politics After the 2008 Global Financial Crisis’’, **Asian Survey**, 53/5, 825-853.

## ELECTRONIC SOURCES and REPORTS

- 5+2 Innovative Industries Plan-Introduction, (available) https://english.ey.gov.tw/iip/B0C195AE54832FAD, October 20,2020.

| | |
|---|---|
| - | ‘‘The East Asian Miracle: Economic Growth and Public Policy, A World Bank Policy Research Report’’, **The World Bank Oxford University Press**, 1993, (available) https://digitallibrary.un.org/record/137898, April 30,2020. |
| ACADEMIA CHINA | ‘‘Çin’in Yakın Tarihinden İzler: 4 Mayıs Devrim Harekatı’’, November 14, 2014, (available) http://tr.academiachina.org/cin-yakin-tarihinden-izler-4-mayis-devrim-hareketi/, January 11, 2021. |
| AKÇADAĞ, E. | ‘‘Çin ile Amerika Arasında Var Olmaya Çalışan Bir Ada: Tayvan’’, (available) http://www.bilgesam.org/incele/864/-cin-ile-amerika-arasinda-var-olmaya-calisan-bir-ada--tayvan/, October 12, 2019. |
| - | ‘‘Why India and Why Now?’’, An Indian Economic Strategy to 2035, (available) https://www.dfat.gov.au/geo/india/ies/overview.html, October 19, 2020. |
| - | ’’Free Trade Agreements with Dialogue Partners’’ ASEAN, (available) https://asean.org/asean-economic-community/free-trade-agreements-with-dialogue-partners/, January 5, 2020. |
| ATEŞ, M. Y. | ‘‘Mucizeden Duraklamaya Japon Ekonomisi: Sonuçlar, Sebepler’’, T.C Dışişleri Bakanlığı (available) http://www.mfa.gov.tr/mucizeden-duraklamaya-japon-ekonomisi_-sonuclar_-sebepler.tr.mfa, March 30, 2020. |
| - | ‘‘Asia Country Report Taiwan 2019’’, **Atradius**, March 28,2019 (available) https://group.atradius.com/publications/asia-country-report-taiwan-2019.html, October 19, 2020. |
| BARBOZA, D. | ‘‘China Passes Japan as Second-largest Economy’’, **The New York Times**, August 15, 2010 (available) https://www.nytimes.com/2010/08/16/business/global/16yuan.html, October 7, 2020. |
| BRADSHER, K. | ‘‘China Losing Taste for Debt from the US’’, **The New York Times**, January 7,2009 (available) https://www.nytimes.com/2009/01/08/business/worldbusiness/08yuan.html, January 9,2021. |

- ‘‘China GDP Growth Annual’’, **TradingEconomics,** (available) https://tradingeconomics.com/china/gdp-growth-annual, October 10, 2020.

- ‘‘Major Macro Economics Indicators’’, ’Coface for Trade (available) https://www.coface.com/Economic-Studies-and-Country-Risks/Taiwan, October 19, 2020.

- ‘‘Competitive Industrial Performance Report 2020, CIP Index, Edition 2020: Country and Economy Profiles’’, **UNIDO, (**available) https://stat.unido.org/content/publications/competitive-industrial-performance-index-2020%253a-country-profiles;jsessionid=FD3969556CE4065C3D9698C856981C6B, October 10, 2020.

- ‘‘Comprehensive Strategy on Science, Technology and Innovation (STI) for 2017 [Overview]’’, **Cabinet Decision**, June 2, 2017, (available) https://www8.cao.go.jp/cstp/english/doc/2017sistrategy_main.pdf, August 28, 2020.

D’AMBROGIO, E. ‘‘India: Environmental Issues’’, **European Parliamentary Research Service**, April 2019, (available) https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637920/EPRS_BRI(2019)637920_EN.pdf, October 14,2020.

- ‘‘Singapur Ülke Bülteni’’, **Dış Ekonomik İlişkiler Kurulu (DEİK)**, April, 2014, (available) https://www.deik.org.tr/uploads/singapur-ulke-bulteni-2014.pdf, October 17, 2020.

- ‘‘Türk- Endonezya İş Konseyi Endonezya Bülteni’’, **Dış Ekonomik İlişkiler Kurulu (DEİK)**, August, 2014, (available) https://www.deik.org.tr/uploads/endonezya-ulke-bulteni-2014.pdf, January 29, 2021.

DESJARDINS, J. ‘‘Chart: The World’s Largest 10 Economies in 2030’’, **Visual Capitalist**, January 11, 2019, (available) https://www.visualcapitalist.com/worlds-largest-10-economies-2030/, May 17,2020.

| | |
|---|---|
| - | ‘‘Why India and Why Now?’’, An India Economic Strategy to 2035, (available) https://www.dfat.gov.au/geo/india/ies/overview.html, November 17, 2020. |
| - | ‘‘Science and Technology Competitiveness Rankings’’, **DOIT (Department of Industrial Technology): Ministry of Economic Affairs**, Update: January 29,2021, (available) https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=20964#:~:text=According%20to%20the%20WEF%202019,and%20Technology%20Infrastructure%20sub%2Dindices, October 20, 2020. |
| - | ‘‘Technology Development Programme’’, **DOIT (Department of Industrial Technology): Ministry of Economic Affairs**, Update: January 29,2021, (available) https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=5440 , October 20, 2010. |
| DUGAL, I. | ‘‘Why 6/6/’66 was a Devilish Day for the Rupee’’, **Livemint**, Update: June 6, 2016, (available) https://www.livemint.com/Money/3wTK1Nm9I1fVeyHUIO5FAK/6-June-1966-A-date-to-remember-in-the-rupees-history.html, January 18, 2021. |
| DURA, C. | ‘‘Ekonomik Büyüme ve Gelişme Kavramları Üzerine’’, January 31, 2009, (available) http://www.cihandura.com/tr/makale/-EKONOMIK-BUYUME-VE-GELISME-KAVRAMLARI-UZERINE494, August 30, 2020. |
| EBERSTADT, N. | ‘‘The Great Leap Backward’’, **The New York Times**, February 16, 1997, (available) https://archive.nytimes.com/www.nytimes.com/books/97/02/16/reviews/970216.16ebersta.html, September 30, 2020. |
| - | ‘‘Top 10 Countries to Drive Global Electronic Industry Growth’’, **Euromonitor Internal**, January, 2018, (available) https://www.euromonitor.com/top-10-countries-to-drive-global-electronics-production-over-2017-2025/report, October 19, 2020. |
| EVERINGTON, K. | ‘‘Taiwan Ranked 17th Richest Country in World’’ **Taiwan News**, July 5, 2019, (available) https://www.taiwannews.com.tw/en/news/3696260, October 20, 2020. |

FERNANDES, T. ‘‘South Korea, Egypt and Wallerstein’s World System Analysis’’, **E-International Relations**, December 23, 2013, (available) https://www.e-ir.info/2013/12/23/south-korea-egypt-and-wallersteins-world-system-analysis/#_ftnref4, December 5, 2020.

FERRARO, V. "Dependency Theory: An Introduction, The Development Economics Reader’’, (available) https://www.mtholyoke.edu/acad/intrel/depend.htm, December 12, 2020.

- ‘‘Green growth in action: China’’, **OECD**, (available) https://www.oecd.org/china/greengrowthinactionchina.htm, December 17, 2020.

- ‘‘Gross Domestic Spending on R&D’’, OECD Data, (available) https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm, August 27, 2020.

HAWKSWORTH, J., AUDINO, H., CLARRY, R. ‘‘The Long View: How Will the Global Economic Order Change by 2050’’, **PWC**, February,2017, (available) https://www.pwc.com/gx/en/world-2050/assets/pwc-the-world-in-2050-full-report-feb-2017.pdf, October 18, 2020.

KEAT, H. S. ‘‘The Impact of the Global Financial Crisis on Asia’’, **Asia Regional Economic Forum**, March 4, 2009, (available) https://www.mas.gov.sg/news/speeches/2009/keynote-address-by-mr-heng-swee-keat-md-mas-at-the-international-institute-of-finance, August 24, 2020.

- ‘‘IMD World Competitiveness Center World Digital Competitiveness Ranking 2019 Results’’, **IMD World Competitiveness Center**, (available) https://www.imd.org/wcc/world-competitiveness-center-rankings/world-digital-competitiveness-rankings-2019/#:~:text=The%20United%20States%20held%20on,%2C%20Sweden%2C%20Denmark%20and%20Switzerland, October 22, 2020.

- ‘‘News Brief: Camdessus Says IMF Approval of Indonesian Credit Marks an Important Step in Stabilizing Regional Financial Markets’’, **IMF**, October 31, 1997, (available) https://www.imf.org/en/News/Articles/2015/09/29/18/03/nb9722 , October 21, 2020.

- ‘‘Korea's Economic Outlook in Six Charts’’, **IMF**, May 21, 2019, (available) https://www.imf.org/en/News/Articles/2019/05/16/na052119-koreas-economic-outlook-in-6-charts, October 10, 2020.

- ‘‘News Brief: Korea Decides to Make Repurchases Under SRF Totaling US$2.8 Billion’’, **IMF**, December 9, 1998, (available) https://www.imf.org/en/News/Articles/2015/09/29/18/03/nb9848, October 11, 2020.

- ‘‘World Economic Outlook Database’’, **IMF**, October, 2019, (available) https://www.imf.org/en/Publications/WEO/weo-database/2019/October, October 19, 2020.

- ‘‘Government Development Plans of Indonesia’’, **Indonesia Investments**, (available) https://www.indonesia-investments.com/projects/government-development-plans/item305, October 21, 2020.

- ‘‘2019 Best Taiwanese Global Brands Revealed Brands in Health, Technology See Strong Growth’’, **Industrial Development Bureau: Ministry of Economic Affairs**, October 30, 2019, (available) https://www.moeaidb.gov.tw/ctlr?lang=1&PRO=news.rwdNewsView&id=30138, October 20, 2020.

- ‘‘Technology and Innovation’’, **Infocomm Media Development Authority**, (available) https://www.imda.gov.sg/for-industry/technology-and-innovation, August 30, 2020.

- ‘‘Made in China 2025: Backgrounder Report’’, **Institute for Security & Development Policy**, June, 2018, (available) https://isdp.eu/content/uploads/2018/06/Made-in-China-Backgrounder.pdf, October 4, 2020.

- ‘‘About the IMF’’, **International Monetary Fund**, (available) https://www.imf.org/en/About, September 19, 2020.

- ‘‘IT & BPM Industry in India’’, **India Brand Equity Foundation**, (available), https://www.ibef.org/industry/information-technology-india.aspx, December 12,2020

- ‘‘On Comprehensive Strategy on Science, Technology and Innovation for 2017 (Excerpt)’’, **Japan Cabinet Decision**, June 2, 2017, (available) https://www8.cao.go.jp/cstp/english/doc/2017sti strategy_main.pdf, September 17, 2020.

- ‘‘Japan GDP Growth Annualized’’, **TradingEconomics,** (available), https://tradingeconomics.com/japan/gdp-growth-annualized, October 8, 2020.

- ‘‘Japan R&D Expenditure- Gross Domestic Spending on R&D’’, **OECD**, (available) https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm, April 1, 2020.

- ‘‘Outline of the Fifth Science and Technology Basic Plan’’, Japanese Government, (available) https://www8.cao.go.jp/cstp/english/basic/5thb asicplan_outline.pdf, April 2, 2020.

- ‘‘Internet of Things (Nesnelerin İnterneti) nedir? Cihazların Etkileşim Trendleri’’, **Karel Yüz yüze Teknoloji**, (available) https://www.karel.com.tr/blog/internet-things-nesnelerin-interneti-nedir-cihazlarin-etkilesim-trendleri, September 16, 2020.

KOHEN, A. ‘‘How Korea is Transforming into a Creative Economy’’, **Culture and Creativity**, (available) https://www.culturepartnership.eu/en/article/how-korea-is-transforming-into-a-creative-economy, October 11, 2020.

KUIJS, L. ‘‘Investment and Saving in China’’, World Bank Policy Research Paper Series, No. 3633, **World Bank and IMF**, (available) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=756985, October 4, 2020.

LANDOW, G. P. ‘‘Singapore Harbor from its Founding to the Present: A Brief Chronology’’, **The Literature, Culture and Society of Singapore**, (available) http://www.postcolonialweb.org/singapore/economics/harborchron.html, October 12, 2020.

LEVIS, S., CHAN. B.

''Southeast Asia's Biggest Internet Economies Part 1: Indonesia'', Jumpstart, August 27, 2020, (available) https://www.jumpstartmag.com/southeast-asias-biggest-internet-economies-indonesia/ , January 22, 2021.

- 'A Short History of Indian Economy 1947-2019: Tryst with Destiny & Other Stories'', **Livemint**, Update: August 14, 2019 (available) https://www.livemint.com/news/india/a-short-history-of-indian-economy-1947-2019-tryst-with-destiny-other-stories-1565801528109.html, October 18, 2020.

- ''13th Five-Year Plan'', LSE: Climate Change Laws of the World, 2016, (available) https://www.climate-laws.org/geographies/china/policies/13th-five-year-plan, December 12, 2020.

- ''Economic Impact of the Great East Japan Earthquake and Current Status of Recovery'' Government of Japan: Minister of Economy, August, 2011, (available) https://japan.kantei.go.jp/incident/pdf/20110811_Economic_Impact.pdf, October 17, 2020.

- ''About DOIT'', **DOIT (Department of Industrial Technology): Ministry of Economic Affairs**, (available) https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=5435, October 20, 2020.

- ''TDP for Industry'', **DOIT (Department of Industrial Technology): Ministry of Economic Affairs**, (available) https://www.moea.gov.tw/MNS/doit_e/content/Content.aspx?menu_id=5442, October 20, 2020.

- ''Japan's Science and Technology Research Spending at New High'', **Nippon**, February 19, 2019, (available) https://www.nippon.com/en/japan-data/h00388/japan%E2%80%99s-science-and-technology-research-spending-at-new-high.html, April 2, 2020.

- ''Nonalignment Movement and International Economic Order'', (available) https://shodhganga.inflibnet.ac.in/bitstream/10603/86872/8/08_chapter%203.pdf, October 9, 2020.

- ‘‘Publication in Brief 2020’’, **NPTD**, September 24,2020, (available) https://www.population.gov.sg/files/media-centre/publications/pib-2020-final.pdf / https://www.population.gov.sg/media-centre/publications/population-in-brief, January 19, 2021.
- ‘‘OECD Science, Technology and Industry Outlook 2014’’, **OECD Publishing**, (available) https://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-industry-outlook-2014_sti_outlook-2014-en, October 11, 2020.
- ‘‘G20 Innovation Report 2016: Report prepared for the G20 Science, Technology and Innovation Ministers Meeting’’, **OECD**, November 4,2016, (available) https://www.oecd.org/china/G20-innovation-report-2016.pdf, October 14, 2020.
- ‘‘Indonesia Economic Snapshot’’, **OECD**, June, 2020, (available) http://www.oecd.org/economy/indonesia-economic-snapshot/, October 20,2020.
- ‘‘Gross Domestic Spending on R&D’’ Research and Development (R&D), **OECD Data**, (available) https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm, October 4, 2020.
- ‘‘StippCompass International Database on STI Policies, (2019) 3rd S&T Basic Plan’’, **OECD** (available) https://stip.oecd.org/stip/policy-initiatives/2017%2Fdata%2FpolicyInitiatives%2F4902, October 11, 2020.
- ‘‘Science and Innovation: Indonesia’’, OECD Science, Technology and Industry Outlook 2012, **OECD**, (available) https://www.oecd.org/sti/sti-outlook-2012-indonesia.pdf, December 17,2020.
- ‘‘Population Pyramid of Japan’’, (available), https://www.populationpyramid.net/japan/2019/ January 1, 2021.
- ‘‘Research Innovation Enterprise 2020 Plan-Winning the Future through Science and Technology’’, **National Research Foundation**, (available) https://www.nrf.gov.sg/rie2020 August 28, 2020.

SCHWAB, K. ‘‘The Global Competitiveness Report 2019’’, **World Economic Forum**, (available) http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf, October 23, 2020.

- ‘‘Science and Technology Research Spending and Ratio of GDP’’, **Nippon**, Feb 19, 2019, (available), https://www.nippon.com/en/japan-data/h00388/japan%E2%80%99s-science-and-technology-research-spending-at-new-high.html, April 2, 2020.

SEREN, M. ‘‘Bir İnovasyon Adası: Tayvan’’, **Mücerret,** July 17,2018, (available) http://www.mucerret.com/yazarlar/bir-inovasyon-adasi-tayvan/ October 23,2020.

SHARMA, S. D. ‘‘How South Korea Weathered the 2008 Financial Crisis’’, **Global Asia**, March 2013, (available) https://www.globalasia.org/v8no1/feature/how-south-korea-weathered-the-2008-financial-crisis_shalendra-d-sharma, October 10, 2020.

SILVER, C. ‘‘Top 20 Economies in the World’’, Investopedia, Update: Dec 24, 2020, (available) https://www.investopedia.com/insights/worlds-top-economies/, September 23, 2020.

- ‘‘Simon Kuznets Prize Lecture 1971’’, December 11, 1971, (available) https://www.nobelprize.org/prizes/economic-sciences/1971/kuznets/lecture/, January 29, 2021.

- ‘‘Singapore GDP Growth Annual’’, **TradeEconomics** ,(available), https://tradingeconomics.com/singapore/gdp-growth-annual, October 27,2020.

- ‘‘Singapore Joins IMF and World Bank’’, **HistorySG:A Singapore Government Agency Website**, August 3, 1996, (available) https://eresources.nlb.gov.sg/history/events/c3b556e3-06b6-4b39-87dc-84f39842faf2, October 17, 2020.

SINGH, A. ‘‘Korea, Navigating Through the Global Headwinds’’, **Asia and Pacific Department, International Monetary Fund (IMF)**, February 3, 2009, (available) https://www.imf.org/en/News/Articles/2015/09/28/04/54/vc020209 , April 24, 2020.

- ‘‘South Korea GDP Annual Growth Rate’’, **TradingEconomics,** (available), https://tradingeconomics.com/south-korea/gdp-growth-annual, October 10,2020.

- ‘‘Opportunity2030 The Standard Chartered SDG Investment Map’’, **Standard Chartered**, (available) https://av.sc.com/corp-en/content/docs/Standard-Chartered-Opportunity-2030.pdf, January 21, 2021.

- ‘‘Start-Up India’’, (available) https://www.startupindia.gov.in/, October 19, 2020.

- ‘‘Taiwan: Service Sector Workforce Share 2018’’, **Statista**, (available) https://www.statista.com/statistics/319834/taiwan-service-sector-workforce-share/, October 20, 2020.

- ‘‘The Path to Greatness: Indonesia’s Master Plan for Economic Advancement and Expansion’’, **Strategy**, (available) https://www.strategybg.com/mp3ei/, October 21, 2020.

SUKARA, E., AIMAN, S. ‘‘Indonesia’s Science Funding and Review of Quality of Science’’, **Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan Indonesia, LIPI)**, October 9-12,2012, (available) https://www.jsps.go.jp/english/asiahorcs/data/meetings/6th/indonesia.pdf, October 20, 2020.

SUK-YEE, J. ‘‘South Korea Finalizes Energy Technology Development Plan for the Next 10 Years’’, **BusinessKorea**, December 24, 2019, (available) http://www.businesskorea.co.kr/news/articleView.html?idxno=39502, May 2, 2020.

LI, N. ‘‘Taiwan R&D Expenditure Ranked Third’’, **Taipei Times**, May 30, 2020, (available) https://www.taipeitimes.com/News/biz/archives/2020/05/30/2003737272#:~:text=Taiwan's%20gross%20domestic%20expenditure%20on%20research%20and%20development%20(R%26D)%20is,said%20in%20a%20report%20yesterday., October 20, 2020.

- ‘‘Taiwan GDP Growth Annual’’, **Tradingeconmics**, (available), https://tradingeconomics.com/taiwan/gdp-growth-annual, December 22, 2020.

- ‘‘Indonesia Broad Plan: Lessons Learned’’, **Indonesia Broadband Plan**, September 9, 2015, (available) https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2015/Sep-WABA/Presentations/Indonesia%20Broadband%20Plan%20(ITU%20Jakarta,%20090915).pdf , October 23, 2020.

- ‘‘Technology Vision 2035’’, TIFAC, (available) https://www.anilkakodkar.in/assignments/Technology-Vision-2035.pdf, September 30,2020.

- ‘‘The Indian Economy Since Independence’’, (available) https://home.fau.edu/sghosh/web/images/India%20talk.pdf, October 29, 2021.

- ‘‘Labor Situation in Japan and Analysis: Detailed Exposition 2005/2006’’, **Japan Labor Review**, (available) http://www.jil.go.jp/english/lsj/detailed/2005-2006/chapter1.pdf, August 8, 2020.

- ‘‘The World Bank: History’’, (available) https://www.worldbank.org/en/about/history September 19, 2020.

- ‘‘Total Investment and Export Values of South Korea’’, **IMF and CEIC Data Company**, May 21, 2019, (available) https://www.imf.org/en/News/Articles/2019/05/16/na052119-koreas-economic-outlook-in-6-charts, October 14,2020.

- ‘‘Ülke Profilleri: Çin Halk Cumhuriyeti’’, **Aljazeera Türk**, April 22, 2014, (available) http://www.aljazeera.com.tr/ulke-profili/ulke-profili-cin-halk-cumhuriyeti, September 30, 2020.

- ‘‘Strengthening the Creative Industries for Development in the Republic of Korea: Empowering Small and Medium-sized Enterprises, Jobs and Sustainable Development’’, **UNCTAD**, April 2017, (available) https://unctad.org/system/files/official-document/ditcted2017d4_en.pdf, October 11, 2020.
- ‘‘World Investment Report 2010: Investing in a Low-carbon Economy’’, **UNCTAD**, 22 July,2010 (available) https://unctad.org/en/Docs/wir2010_en.pdf September 26, 2020.
- ‘‘Human Development Reports’’, **UNDP**, http://hdr.undp.org/en/countries/profiles/IND, January 18, 2020.
- ‘‘Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication’’, **UNEP**, 2011, (available) https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf, December 2, 2020.
- ‘‘Annual Report 2015’’, **UNIDO**,2016, (available) https://www.unido.org/sites/default/files/2016-06/16-02034_UNIDO_AR2015_eBook_0.pdf , January 6, 2021.
- ‘‘Industrial Development Report 2016: The Role of Technology and Innovation in Inclusive and Sustainable Industrial Development’’, **UNIDO**, (available) https://www.unido.org/sites/default/files/2015-12/EBOOK_IDR2016_FULLREPORT_0.pdf, October 27, 2020.
- ‘‘United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992’’, **United Nations**, Retrieved January 6, 2021, (available) https://www.un.org/en/conferences/environment/rio1992, November 4, 2020.

VERKHOVETS, S. ‘‘Mapping China’s ‘One Belt One Road’ Initiative (Book Review)’’, **Rising Power in Global Governance**, August, 2019, (available) https://risingpowersproject.com/quarterly/mapping-chinas-one-belt-one-road-initiative/, December 1, 2020.

WEST, J.

''Kim Dae-jung: A tribute'', **OECD Observer**, (available) https://oecdobserver.org/news/fullstory.php/aid/3080/Kim_Dae-jung:_A_tribute.html, October 10, 2020.

MARTIN, W.

''The US Could Lose Its Crown as the World's Most Powerful Economy as Soon as Next Year, and It's Unlikely to Ever Get It Back'', **Business Insider**, Jan 10, 2019 (available), https://www.businessinsider.com/us-economy-to-fall-behind-china-within-a-year-standard-chartered-says-2019-1, January 26,2021.

- ''World bank Population, Total – Japan'', World Bank Data, (available) https://data.worldbank.org/indicator/SP.POP.TOTL?locations=JP, October 7, 2020.

- ''Labor Force Participation Rate, Total (% of Total Population Ages 15-64) (Modeled ILO Estimate) - Korea, Republic'', **World Bank**, (available) https://data.worldbank.org/indicator/SL.TLF.ACTI.ZS?end=2019&locations=KR&start=1990&view=chart, October 11, 2020.

- World Bank: Indonesia Data, **World Bank**, (available) https://data.worldbank.org/country/indonesia, October 25, 2020.

- ''World Bank: Population, Total - Korea, Republic'', **World Bank**, (available) https://data.worldbank.org/indicator/SP.POP.TOTL?locations=KR, October 10, 2020.

- ''World Bank: Population, Total- China'', **World Bank**, (available) https://data.worldbank.org/indicator/SP.POP.TOTL?locations=CN, October 24, 2020.

- ''World Bank: Research and Development Expenditure (% of GDP) – Indonesia'', **World Bank**, (available) https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=ID, October 20, 2020.

- ‘‘Global Innovation Index 2019: Creating Healthy Lives -The Future of Medical Innovation’’, **World Intellectual Property Organization, Cornell University, & INSEAD**,2019, (available) https://www.wipo.int/publications/en/details.jsp?id=4434 July 17,2020.

- ‘‘India Demographics 2020 (Population, Age, Sex, Trends)’’, **Worldometer**, (available) https://www.worldometers.info/demographics/india-demographics/, October 19, 2020.

- ‘‘Taiwan Demographics 2020 (Population, Age, Sex, Trends)’’, **Worldometer**, (available) https://www.worldometers.info/demographics/taiwan-demographics/, October 19, 2020.

- ‘‘Singapore population 2020, **Worldometer**, (available) https://www.worldometers.info/world-population/singapore-population/#:~:text=Singapore%202020%20population%20is%20estimated,(and%20dependencies)%20by%20population, October 17, 2020.

HONG, Y. S. ‘‘Evolution of the Korean National Innovation System: Towards an Integrated Model’’, Governance of Innovation Systems: Case Studies in Innovation Policy, **OECD.** (available), https://read.oecd-ilibrary.org/industry-and-services/governance-of-innovation-systems-volume-2_9789264013452-en#page63,October 10,2020.

ZHOU, P. ‘‘The History of Singapore's Economic Development’’, **ThoughtCo**, Update: July 10, 2019 (available) https://www.thoughtco.com/singapores-economic-development-1434565, October 23, 2020.