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Application of W. W. Rostow's Stages of Growth Theory to
Economic Development in Japan and South Korea: A
Comparative Approach

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DEDICATION

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TABLE OF CONTENT

1	INTRODUCTION	6
1.1	Research Interest	6
1.2	Research Question	7
1.3	Outline	8
2	THEORY AND RESEARCH METHOD	9
2.1	Definition of Economic Development	9
2.2	State of the Art	9
2.3	W. W. Rostow's Stages of Growth Theory	15
2.3.1	Overview: Stages of Growth Theory	15
2.3.2	Stage 1: The Traditional Society	16
2.3.3	Stage 2: The Preconditions for Take-Off	17
2.3.4	Stage 3: The Take-Off	20
2.3.5	Stage 4: The Drive to Maturity	23
2.3.6	Stage 5: The Age of High Mass-Consumption	24
2.3.7	Criticism of W. W. Rostow's Stages of Growth Theory	25
2.4	Analytical Framework	27
3	EMPIRICAL FINDINGS	29
3.1	Case Study: Japan	29
3.1.1	Stage 1: The Traditional Society	29
3.1.1.1	Overview: Stage 1	29
3.1.1.2	Limited production possibilities and technology	29
3.1.1.3	Characterized by hunting and gathering or agriculture	30
3.1.1.4	Hierarchical social structure and strong connections between family and clan	31
3.1.1.5	Political power in the hands of landowners	33
3.1.2	Stage 2: The Preconditions for Take-Off	35
3.1.2.1	Overview: Stage 2	35
3.1.2.2	The two cases of the preconditions for take-off	35
3.1.2.3	Impulses through Western colonialism (optional)	35
3.1.2.4	Change of thinking in society and better education	37
3.1.2.5	Building up social overhead capital	39
3.1.2.6	Establishment of an effective modern government	40
3.1.2.7	Rising investment rate (to about 5% of national income)	41
3.1.2.8	Improved production techniques and new industries	42
3.1.2.9	Increase in domestic and foreign trade	43
3.1.2.10	Increase in agricultural production capacity (around 75% of the workforce in agriculture)	44
3.1.2.11	Population growth and increasing urbanization	45
3.1.3	Stage 3: The Take-Off	46
3.1.3.1	Overview: Stage 3	46
3.1.3.2	Strong stimulus	46
3.1.3.3	Radical change in production methods	47
3.1.3.4	Development of one or more industrial lead sectors with a high growth rate	48
3.1.3.5	Innovations in coal, iron, and heavy engineering through the railroad	50
3.1.3.6	Rising investment rate (to more than 10% of national income)	51

3.1.3.7	Sign of inflation (optional).....	52
3.1.3.8	Around 40% of the workforce in agriculture at the end of take-off	53
3.1.3.9	Duration of around 20 years.....	54
3.1.4	Stage 4: The Drive to Maturity	55
3.1.4.1	Overview: Stage 4.....	55
3.1.4.2	New leading sectors, such as steel, chemicals, and innovative machine tools, take the lead.....	55
3.1.4.3	Rising investment rate (to 10-20% of national income)	56
3.1.4.4	Changing structure of the workforce (wages, composition, and qualifications)	57
3.1.4.5	Increasing population and rising urbanization.....	58
3.1.4.6	Around 20% of the workforce in agriculture by maturity (optional).....	60
3.1.4.7	Duration of around 40 years (optional).....	60
3.1.5	Stage 5: The Age of High Mass-Consumption	61
3.1.5.1	Overview: Stage 5.....	61
3.1.5.2	Increased resources for social welfare and security	61
3.1.5.3	Rising consumption of durable and luxury goods	62
3.1.5.4	High per capita consumption and high real per capita income	63
3.1.5.5	Less than 20% of the workforce in agriculture through a shift towards services	64
3.2	Case Study: South Korea	65
3.2.1	Stage 1: The Traditional Society	65
3.2.1.1	Overview: Stage 1.....	65
3.2.1.2	Limited production possibilities and technology	65
3.2.1.3	Characterized by hunting and gathering or agriculture.....	66
3.2.1.4	Hierarchical social structure and strong connections between family and clan	66
3.2.1.5	Political power in the hands of landowners	68
3.2.2	Stage 2: The Preconditions for Take-Off.....	69
3.2.2.1	Overview: Stage 2.....	69
3.2.2.2	The two cases of the preconditions for take-off.....	69
3.2.2.3	Impulses through Western colonialism (optional).....	69
3.2.2.4	Change of thinking in society and better education	71
3.2.2.5	Building up social overhead capital	72
3.2.2.6	Establishment of an effective modern government.....	74
3.2.2.7	Rising investment rate (to about 5% of national income).....	74
3.2.2.8	Improved production techniques and new industries.....	75
3.2.2.9	Increase in domestic and foreign trade	76
3.2.2.10	Increase in agricultural production capacity (around 75% of the workforce in agriculture).....	78
3.2.2.11	Population growth and increasing urbanization	79
3.2.3	Stage 3: The Take-Off.....	80
3.2.3.1	Overview: Stage 3.....	80
3.2.3.2	Strong stimulus	80
3.2.3.3	Radical change in production methods	81
3.2.3.4	Development of one or more industrial lead sectors with a high growth rate	82
3.2.3.5	Innovations in coal, iron, and heavy engineering through the railroad.....	84
3.2.3.6	Rising investment rate (to more than 10% of national income)	85
3.2.3.7	Sign of inflation (optional).....	85
3.2.3.8	Around 40% of the workforce in agriculture at the end of take-off	86
3.2.3.9	Duration of around 20 years.....	86
3.2.4	Stage 4: The Drive to Maturity	87
3.2.4.1	Overview: Stage 4.....	87
3.2.4.2	New leading sectors, such as steel, chemicals, and innovative machine tools, take the lead.....	87
3.2.4.3	Rising investment rate (to 10-20% of national income)	88
3.2.4.4	Changing structure of the workforce (wages, composition, and qualifications)	89
3.2.4.5	Increasing population and rising urbanization.....	89
3.2.4.6	Around 20% of the workforce in agriculture by maturity (optional).....	91
3.2.4.7	Duration of around 40 years (optional).....	92
3.2.5	Stage 5: The Age of High Mass-Consumption	93
3.2.5.1	Overview: Stage 5.....	93
3.2.5.2	Increased resources for social welfare and security	93
3.2.5.3	Rising consumption of durable and luxury goods	94
3.2.5.4	High per capita consumption and high real per capita income	95

3.2.5.5	Less than 20% of the workforce in agriculture through a shift towards services	95
4	ANALYSIS OF JAPAN AND SOUTH KOREA IN COMPARISON.....	97
4.1	Overview: Analysis.....	97
4.2	Stage 1: The Traditional Society	99
4.2.1	Summary of W. W. Rostow's Stage 1	99
4.2.2	Japan and Korea in comparison	99
4.3	Stage 2: The Preconditions for Take-Off	103
4.3.1	Summary of W. W. Rostow's Stage 2	103
4.3.2	Japan and Korea in comparison	104
4.4	Stage 3: The Take-Off	110
4.4.1	Summary of W. W. Rostow's Stage 3	110
4.4.2	Japan and Korea in comparison	111
4.5	Stage 4: The Drive to Maturity	115
4.5.1	Summary of W. W. Rostow's Stage 4	115
4.5.2	Japan and Korea in comparison	116
4.6	Stage 5: The Age of High Mass-Consumption	119
4.6.1	Summary of W. W. Rostow's Stage 5	119
4.6.2	Japan and Korea in comparison	119
5	CONCLUSION	122
5.1	Findings	122
5.2	Discussion of the Research Question	123
5.3	Résumé.....	125
	LIST OF TABLES.....	126
	LIST OF FIGURES.....	127
	BIBLIOGRAPHY.....	128
	APPENDIX 1: IMPORTANT ABBREVIATIONS.....	140
	APPENDIX 2: JAPANESE TERMS	141
	APPENDIX 3: KOREAN TERMS.....	142
	APPENDIX 4: ABSTRACT.....	143
	APPENDIX 5: ZUSAMMENFASSUNG.....	144

1 INTRODUCTION

1.1 Research Interest

Every country aspires to growth, regardless of whether it is a developed or a less developed one. While Western industrial countries have been successful in attaining a high level of development and sustained economic growth, developing countries are still far behind and try to secure the basic needs of their inhabitants (Todaro, 1989). Numerous theories have acknowledged that economic growth is the first essential step for the well-being of the population in a developing country (Jin, 1997, p. 1), and Dang and Sui (2015) emphasize that *"the goal of economic development in its simplest form is to create the wealth of a nation"* (p. 12). Economic development, however, is a diverse procedure that comprises the whole spectrum of human life and its social, political, technological, cultural, and economic environments. A developing nation has many hurdles to overcome in order to gain sustained economic growth (Chung, 2007, p. 3).

The countries under review, Japan and South Korea, have two crucial similarities, namely a long period of self-isolation that ended in both countries during the second half of the nineteenth century and phenomenal economic development in the latter half of the twentieth century. After the recovery of World War II, the Japanese economy began to develop rapidly. Within three decades, the nation changed into an economic superpower, second only to the United States (Chida & Davies, 2013). Japan was the only Asian state that attained advanced industrial status by the mid-twentieth century (Desai, 2013, p. 50). But also South Korea amazed the world, as its economy achieved remarkable growth rates after the Korean War (1950-1953). The nation underwent an enormous transformation from one of the poorest countries in the world to a competitive, dynamic high-tech economy (Tudor, 2012). The rapid industrial development and enormous economic success of both countries astonished the whole world. Japan as well as South Korea have caught up with the advanced industrial Western states and even surpassed them in certain respects. The exceeding growth of these two countries has been the subject of diverse discussions in the West and, furthermore, has drawn attention to developing nations as a model for their own economic development (Sumiya, 2000, p. 3).

1.2 Research Question

The master's thesis deals with the growth theory of Walt Whitman Rostow. This theory is used to compare the economic development of Japan and South Korea. The main objective is to find out whether Rostow's theory is suitable for such a comparison or not.

The theory is one of the most historical and influential models in economic growth. In 'The Stages of Economic Growth. A Non-Communist Manifesto' (1960), Rostow explains five stages of growth and describes his theory in detail. According to him, the stages are used to consider the economies of entire societies. Rostow believes that all nations pass through the following five stages: the traditional society, the preconditions for take-off, the take-off, the drive to maturity, and the age of high mass-consumption (Rostow, 1960).

The master's thesis is intended to analyze the suitability of this theory. The theoretical part examines what other authors think about Rostow's model, what they see as its strengths, what they criticize, and why. On this basis, the empirical part of the thesis applies Rostow's model to Japan and South Korea. With the help of an analytical framework, it will be determined whether the model proves to be suitable or not. For this purpose, the following research question will be investigated: **Is W. W. Rostow's Stages of Growth theory a good choice for comparing the economic development of Japan and South Korea?**

Relevance of the Research Questions

The reason for choosing Japan as one of the countries under study is the fact that it was the first nation outside the West that achieved modern economic growth. It rose from the ashes of World War II to become the second largest economy in the world in only a few decades. South Korea serves as the second country under investigation, as something happened that transformed a virtually stagnant economy into one of the world's most rapidly growing economies in the 1960s. These have been remarkable exceptions in modern economic history and could be good examples for other countries facing a crisis and for present-day developing countries. Therefore, it is highly interesting to find out by means of W. W. Rostow's Stages of Growth theory how Japan and Korea resemble each other in their economic development. This knowledge could provide a guideline for economically weaker countries.

The main motive for choosing W. W. Rostow's Stages of Growth theory is the demand for clear measurable criteria for a structured comparison. In addition, the theory has been defined by many authors as one of the most historic and influential models of economic growth and therefore seems best suited to shed light on how Japan and South Korea were able to

transform themselves from poor, underdeveloped nations into industrialized, highly successful ones. Despite the large amount of existing literature on the economic development of individual states, there are not that many comparative analyses available on this issue, especially when it comes to Rostow's Stages of Growth model. The thesis aims to fill this gap by comparing two highly successful East Asian countries by means of Rostow's theory. Although Rostow's model has gained a lot of support, it has also provoked controversy among some scholars. The research question wants to find out whether Rostow's theory is a good choice for comparing the economic development of Japan and South Korea or whether the critics are right in their criticism of Rostow's Stages of Growth model.

1.3 Outline

The following chapter (2) provides an overview of the theory of economic development and the research method applied in this thesis. In the first section of the theory part, the term 'economic development' is defined. Furthermore, the state of the art is discussed in detail by offering an insight into the existing literature on the topic. Then, a description of the relevant theory, the Stages of Growth theory by Walt Whitman Rostow (1960), follows, and the theory's five growth stages are explained carefully. In addition, the criticism of Rostow's theory is considered. In the next step, an analytical framework is developed by means of the key criteria of Rostow's stages. In chapter 3, this framework is applied to the two countries under study. Chapter 4 summarizes and compares the findings, while chapter 5 finally answers the research question and draws a conclusion from the main outcomes. Moreover, lists of commonly used abbreviations and foreign terms are included in the appendices at the end of the paper. Foreign terms in the text are italicized. It is also important to note that, as of 1945, this thesis refers only to South Korea, officially the Republic of Korea (ROK), and not to North Korea. Terms such as the country, the nation, Korea, Koreans, etc. denote only South Korea from then onwards.

2 THEORY AND RESEARCH METHOD

2.1 Definition of Economic Development

At the beginning of the theoretical part, the term economic development should first be clarified. There are many ways to define it, but the three given definitions here are excellent for understanding the notion of economic development.

- Schumpeter (1983) describes it as the relocation of capital from already established techniques to new and innovative ones in order to improve productivity. He states that economic development causes radical changes in an economy, such as transformations in the industrial structure, a shift in the occupational and educational characteristics of the public, and changes in the institutional and social framework.
- Clark, Feldman, Gertler, and Wójcik (2018) define economic development as “*the development of capacities that expand economic actors’ capabilities*”, whereas these actors could be firms, industries, or individuals. According to them, it is crucial for economic development that individuals have the possibility of contributing and engaging in society in order to promote the progress of the entire society (p. 149).
- Chung (2007) states that economic development requires an appropriate combination of certain ingredients, namely an essential labor quality, a stable economic structure, suitable changes in human values, skills, and attitudes, improvements in technology, and capital that can be used for infrastructure (p. 3).

2.2 State of the Art

Over the last 70 years, numerous theories have evolved about economic development and modernization. Soon after the Second World War, it became increasingly crucial to think about social change, development, and the economy in order to help less developed countries stand on their own two feet. Supported by the government of the United States, an association of economists, psychologists, demographers, anthropologists, sociologists, and political scientists conducted research about modernization (So, 1990). Classical modernization theory, which came up in the 1950s, describes the world modernization process since the dawn of the industrial revolution in the eighteenth century. According to He and Lapin (2012), it is a historical process that turns a traditional agricultural society into a modern, industrially developed one. They mention that classical modernization began in pioneer countries, with characteristics like urbanization, rationalization, industrialization, democratization, mass

communication, marketization, popularization of compulsory education, and welfare dissemination (p. 218). Karl Marx (1867/2007) emphasizes that "*the country that is more developed industrially only shows, to the less developed, the image of its own future*" (p. 13). The modernization theory is a collection of ideas rather than a single theory, with the 1950s marking the exploration stage. Economists in industrialized countries had the experience of the Marshall Plan, under which huge amounts of US technical and financial assistance enabled war-torn European nations to rebuild their economies within a few years. In addition, scholars were convinced that the historical experience of industrial nations in transforming their economies from poor agricultural societies into modern industrial giants could help developing nations in Africa, Latin America, and Asia. Todaro and Smith (2009) notice the following:

The logic and simplicity of these two strands of thought – the utility of massive injections of capital and the historical experience of the now developed countries – was too irresistible to be refuted by scholars, politicians, and administrators in rich countries, to whom people and ways of life in the developing world were often no more real than UN statistics or scattered chapters in anthropology books. (p. 111)

Scholars claimed that modernization research in Western countries was of global interest and could be copied in other parts of the world, independent of their culture, geography, or history (Lerner, 1958, p. 46). In *The passing of traditional society: Modernizing the Middle East* (1958), Daniel Lerner considers seven states in the Middle East and their development process, while Talcott Parson introduces five sets of model variants of social systems in his book *The social system* (1951). Both believe that modernization is the transition from a traditional society to a modern society. Gabriel A. Almond and James S. Coleman compare the political systems of Asia, Africa, the Near East, and Latin America in *The politics of the developing areas* (1960) and go into detail about developmental patterns and relationships in the process of modernization. The American economic historian Walt Whitman Rostow, however, is often regarded as the most influential advocate of modernization theory. Rostow introduces a Stages of Growth model by dividing economic growth into five levels and claims in *The stages of economic growth. A non-communist manifesto* (1960) that modernization is the process of transitioning from an agricultural society with an underdeveloped economy to an industrial society with an economy similar to that of the United States or other Western countries. Especially in the 1960s, Rostow's theory was very popular among numerous US government officials and international agencies, as it showed great promise for sustained growth in developing countries after a considerable infusion of foreign aid (Nafziger, 2016, pp. 3-4).

In addition to Rostow's famous linear-stage model, the Harrod-Domar model is very popular. It was developed independently by Roy F. Harrod in 1939 and Evsey Domar in 1946 and explains an economy's growth rate with regard to the level of saving and productivity of capital. The Harrod-Domar model claims, like Rostow's model, that rising investment and technological change are key variables for economic growth and that aid can be received from abroad in the form of technological know-how and financial support (Dang & Sui, 2015, p. 16).

Simon Kuznets is another notable economist who theorizes in *Modern economic growth: Findings and reflections* (1973) that three key criteria are essential for economic development, namely a transformation of the production structure, a rise in total production, and fast urbanization. Rostow's and Kuznets' works focus almost exclusively on economic considerations, while "*a large segment of the modernization theorists have focused on the sociological and political conditions and implications for development. These writers focus . . . on the internal political development of what they consider the necessary prerequisites for economic development*" (Becker, 1991, p. 23).

The 1960s marked the maturity stage of modernization research (He, 2012, p. 167). Representative works include *Modernization and the structure of societies* (1966) by Marion J. Levy who distinguishes different types of societies and demonstrates the interdependencies of them. In *The dynamics of modernization: A study in comparative history* (1966), Cyril E. Black offers seven models of growth and simultaneously provides a chronological timeline for the economic development of modernizing societies. Samuel P. Huntington examines political institutions in newly industrializing countries in *Political order in changing societies* (1968) and analyzes the relation between stability and progress in these nations.

While the 1950s and 1960s were the golden age of modernization theory, it was under heavy attack during the 1970s and 1980s. Criticism included, for example, that development was not necessarily unidirectional (see chapter 2.3.6). These years marked the lowest point of classical modernization study, and the significance of other theories, such as dependency theory and world-system theory, was raised (see table 1). According to He (2012), in addition to classical modernization theory, dependency theory, and world-system theory, there exist several other theories about modernization that describe strategies and tools for making development goals achievable, including post-modernization theory, reflexive modernization theory, second modernization theory, multiple modernities theory, and globalization theory (p. 183).

Table 1. Three relevant theories on modernization

Item	Classical modernization theory	Dependency theory	World-system theory
Research content	Transition from an agricultural society to an industrial one, modernization policies of underdeveloped countries	Causes of and countermeasures against underdevelopment in the process of modernization	Evolution of the world-system since the sixteenth century and the law of such evolution
Research subject	Changes in a country	International dependency	Changes of the world-system
Research level	National level	Transnational level	World-system level
Research unit	Country, society	A group of countries	World-system
Main features	Characteristics and the law of a country's modernization. Implications of modernization on the policy of underdeveloped countries. Focus on the role of internal factors	Influences of international relations on classical modernization. Impact of dependency on underdeveloped countries. Stress on the role of external factors	Implications of the world-system on classical modernization. Influences of the world-system on developed and underdeveloped countries. Focus on the role of the world-system

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In the 1990s, classical modernization theory, however, was getting popular again. This was mainly due to the success of modernization in East Asia, but also in Latin America and Eastern Europe, where a modernization-oriented transformation took place (He, 2012, pp. 167-168). There exists a comprehensive literature on classical modernization theory. By characteristic and research method, it can be divided into six schools of ideas (see table 2). The division may seem arbitrary, as the notions of some scholars cross several schools. In *structural functionalism*, modernization refers to the transition from traditional to modern societies, while in the *process school*, modernization is the change from an agricultural to an industrial society. In the *behavioral school*, modernization refers to the changes in behavior and personal psychology, while in the *positive school*, the modernization of different nations forms individual characteristics. Scholars of the *comprehensive school* think that modernization is a process that involves severe changes in a person's life, while in *futurism*, attention is given to the development trend of industrialized states (He, 2012, p. 189). In addition to He, several other contemporary authors have published works about economic development and its theories. James M. Cypher, for example, provides in *The process of economic development* (2014) a clear overview of development economics. Special attention is given to the historical context, which has affected developmental progress. Cypher discusses theories of development and

underdevelopment, among others, Rostow's Stages of Growth theory. Michael P. Todaro and Stephen C. Smith offer in *Economic development* (2009) their research about economic growth by taking a policy-oriented approach. They examine economic theories by means of country-specific case studies and provide valuable insights into developmental processes.

Schools of classical modernization research

Table 2. *Schools of classical modernization research*

School	Main views or characteristics	Representative
Structural functionalism	Modernization is the transition from traditional to modern society. The focus of research is on the comparison between modernity and tradition and the transformation from latter to the former	T. Parsons
Process	Modernization is the process of the transition from agricultural to industrial society which includes a series of profound changes at different phases. The focus of research is on the characteristics and law of the process	W. Rostow
Behaviorism	Modernization involves the changes in personal psychology and behavior. The focus is on the modernization of the people	A. Inkels
Positivism	The modernization of different countries takes on different characteristics. Empirical research on modernization is carried out	S.P. Huntington
Comprehensive	Modernization involves profound changes in every aspect of people's life. Comparative studies, studies on development model, and research based on quantitative indicators are carried out	C.E. Black
Futurism	The research is about the future development trend. The focus is on the development trend of developed countries	D. Bell

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In addition to the impressive amount of literature on modernization and economic development in general, some scholars searched for an explanation concerning the fast economic growth in East Asia and explained it using a new Confucian ethic. Song mentions this ethic in *The rise of the Korean economy* (1990, p. 49) and deals with its impact on Korea and Japan. He states that the new Confucian ethic is characterized by a focus on education, which is the foundation stone for the economy of both countries. Furthermore, the ethic is marked by a desire for governmental leadership. Some scholars are convinced that the close relationship between the

governments of East Asian countries and their economies gives these nations a competitive edge in economic matters.

Besides, there is a huge quantity of information on economic development in Japan and South Korea, respectively. For Japan, especially the works of Minami, Ohno, and Mosk are worth mentioning in this regard. Ryoshin Minami presents, in his book *The economic development of Japan: A quantitative study* (2016), Japan's notable economic growth from the Meiji era until today. He informs us of the parameters responsible for the economic rise and compares facts from the pre- and post-war periods. In *The history of Japanese economic development: Origins of private dynamism and policy competence* (2017), Kenichi Ohno examines Japan's fast industrialization and goes into detail concerning the historical development from the time of the Edo period onwards. Ohno includes economic, political, and social aspects in his survey. Carl Mosk provides in *Japanese industrial history: Technology, urbanization, and economic growth* (2000) an in-depth analysis of Japan's industrial development since the Meiji period. He concentrates on the question of to what extent the nation's urbanization was responsible for the fast industrialization. Another major source of information on this topic is the website of Japan's Statistics Bureau, which provides a huge amount of historical and current data about the country. For South Korea, the works of Chung and Schwekendiek are especially mentionable. Young-Iob Chung examines in *South Korea in the fast lane: Economic development and capital formation* (2007) the country's rapid transformation from an agrarian economy into an economic superpower. He deals, among other things, with the role of the government in South Korea's fast economic development. In *South Korea: A socioeconomic overview from the past to the present* (2016), Daniel J. Schwekendiek investigates the nation's socioeconomic evolution from the 1940s onwards. Besides, he gives a historical overview from the late Joseon Dynasty up to the year 1945 and provides a large number of empirical data.

While there is a huge quantity of information on economic development in general or applied to single countries, only a few sources can be found that use Rostow's Stages of Growth theory for comparing multiple countries. Authors who deal with Rostow's model are, for example, Shallal, Vago, and Becker. Musa Shallal applies the Stages of Growth theory to the United Arab Emirates in *Application of W.W. Rostow's "the stages of economic growth theory" on the contemporary socio-economic development of the UAE* (2007). In a detailed discussion, he states that the United Arab Emirates has succeeded in achieving several conditions of Rostow's Stages of Growth theory, yet there are a number of other social aspects that the theory has failed to deal with. With the help of Rostow's theory, Steven Vago examines in his book

Social change (2003) the transformation of societies in the United States (US). He concludes that the US attained the take-off stage around the year 1840, while Rostow's fourth economic stage was reached at the end of the nineteenth century. According to Vago, the US finally entered the last stage of development around 1920. These findings are consistent with Rostow's own classification for the United States. Douglas J. Becker compares in *Modernization and development: An empirical study of South Korea and Brazil* (1991) the countries of South Korea and Brazil by means of Rostow's five economic stages. He analyzes modernization theory and its contribution to third-world development. Becker criticizes that Rostow ignored the aspect of sustainable growth but saw self-sustaining growth as the solution for all developing countries. Moreover, it is worth mentioning that Rostow (1960) himself provides a brief comparative case study on his theory for Russia and the US, which examines the major differences and similarities of economic development in these two countries (pp. 93-105). Although Rostow's theory has been very influential in economic history and has gained a lot of support, it has also provoked controversy among some scholars. The following chapter offers specific details on the theory, including the criticism it received from various authors.

2.3 W. W. Rostow's Stages of Growth Theory

2.3.1 Overview: Stages of Growth Theory

The Stages of Growth theory of US-American economic historian Walt Whitman Rostow serves as the theoretical basis of this master's thesis. In the mid-1930s, Rostow started to work professionally on two problems: (1) the problem of bringing modern economic theory to bear on economic history, and (2) the problem of relating economics to political and social forces in the workings of whole societies. Karl Marx's solution to the problem of combining non-economic with economic behavior, as well as the solutions of others who had dealt with these issues, were unsatisfactory for Rostow. Through the years, he explored facets of the relationship and worked out general views on the process of economic growth. Rostow's book *The stages of economic growth. A non-communist manifesto* (1960) is a collection of all his insights concerning the two problems mentioned above and goes into detail about economic development. As the subtitle of the book suggests, the theory is intended to be an alternative to Marxist analyses (Desai, 2013, p. 58). Rostow explains five stages of growth, namely the traditional society, the preconditions for take-off, the take-off, the drive to maturity, and the age of high mass-consumption, and describes his theory in detail. Like Marx before him, he built the theoretical analysis upon Great Britain's history and utilized a framework that seemed well

anchored in historical dynamics to most economists (Cypher, 2014, p. 187). According to him, there is a linear path to economic growth. Developed nations have all passed the take-off stage, while underdeveloped nations, which are still in either the traditional society or the preconditions for the take-off phase, have to follow certain rules of development in order to achieve self-sustaining economic growth. The stages are used to consider the economy of entire societies, and economic development is seen as a result of political, economic, and social changes (Rostow, 1960, pp. 16-18). In *Politics and the stages of growth* (1971), Rostow continues his analysis of the five growth stages, but in this book, the focus is shifted to politics instead of economic growth. Politics are seen as an eternal triangle of welfare, security, and constitutional order. Moreover, Rostow considers a purely political stage with a focus on the search for quality in the age of high mass-consumption. The following chapters explain Rostow's stages of growth in more detail.

2.3.2 Stage 1: The Traditional Society

Limited production possibilities and technology

Rostow (1960) defines the traditional society as one *"whose structure is developed within limited production functions"* (p. 4). Technology and science are pre-scientific, but society is not to be regarded as static and does not rule out an increase in production. Acreage can be enlarged, as can productivity in commerce, industry, and agriculture. For instance, the use of new crops or newly improved irrigation can increase production to a great extent. Central to traditional society is the idea that there is an upper limit to the achievable output per head. This is directly related to the fact that the applications of modern science and technology are not available or cannot be used (p. 4).

Characterized by hunting and gathering or agriculture

Due to the limitation on productivity, a very high share of resources is devoted to traditional economic activities, like hunting and gathering or agriculture. More than 75 percent of the labor force is in food production. In this wholly primary sector economy, a major part of the income is spent on low- or even non-productive outlays, like religious monuments, high living for people that control land rents, wars, expensive funerals or weddings, etc. (Rostow, 1960, pp. 4, 18, 71).

Hierarchical social structure and strong connections between family and clan

In this stage, the social structure is very hierarchically shaped, and there is a strong connection between family and clan. The society's value system is characterized by the assumption that the options open for one's grandchildren will be the same as they were for one's grandparents. But this assumption does not exclude the possibility or legitimacy for the individual to improve their own lot. Rostow (1960) gives the example of Chinese villages, in which the struggle of holding or losing land was very frequent (pp. 5, 18).

Political power in the hands of landowners

Central political rule often exists in traditional societies and transcends self-sufficient regions. However, the focus of political power lies in the hands of the landowners, who independently control their property. They can rely on the possession of civil servants and soldiers and thus pursue their own interests. Furthermore, the history of traditional society is subject to constant change. The volume and area of trade are affected, among other things, by social and political unrest, road conditions, and the performance of the central government. Besides, the rhythm of the harvest, the beginning of a war, or the emergence of epidemics affect the standard of living of the population (Rostow, 1960, pp. 4-5).

According to Rostow, the phase 'traditional society' groups the medieval times in Europe, the dynasties in China, and the civilizations of the Middle East and the Mediterranean. He states, however, that the main focus of his theory lies on post-traditional societies, in which the characteristics of the traditional society – especially politics, social structure, and economy – change to permit constant growth (p. 5).

2.3.3 Stage 2: The Preconditions for Take-Off

The first of Rostow's stages is characterized by its initial limited production function, while in the second stage, society is preparing for continuous growth and economic advancement. This can be achieved either by the force within a society or by an external force (Rostow, 1960, p. 17). In this stage, societies are in the process of transition, and preconditions are developed for take-off. This transition is clearly seen in the late seventeenth century and the early eighteenth century in Western Europe, as knowledge in science increased productivity in agriculture and industry. Most events that coincided with the dawn of the Middle Ages were relevant to the creation of the second stage. Among the Western European countries, Great Britain was the first one to develop the conditions for steady growth. In that case, particularly endogenous requirements, such as Britain's own natural resources and its beneficial geographical location,

contributed to the rapid rise. In general, however, the conditions for economic advancement are of an exogenous nature (p. 6).

The two cases of the preconditions for take-off

Rostow provides two kinds of cases, namely the general case and the 'born free' case. The general case needs basic changes in a traditional society, like shifts in production techniques, the social structure, and the political system. These changes mostly arise from external penetration by more developed societies. The general case is typical for Europe, Africa, the greater part of Asia, and the Middle East. In the 'born free' case, the growth of a country is primarily of an economic and technical nature because states within this case never become "*so deeply caught in the structure and values of the traditional society*" (Rostow, 1960, p. 17). The 'born-free' case is typical for Australia, New Zealand, Canada, and the United States. Rostow's focus lies on the general case, in which traditional society has to achieve preconditions for take-off, like building up social overhead capital and finding an economic environment where a change from agriculture to manufacturing is lucrative (pp. 17-18).

Impulses through Western colonialism

Rostow (1960) mentions imperial powers and claims that they often pursue policies that are advantageous for the development of a society. Colonial policies can introduce modernization, like the supply of social overhead capital, Western education, a centralized tax system, an institutional change, a transformation in knowledge and thought, and the building of infrastructure. These changes are necessary in order to handle the expanding trade and to produce what the colonial power wants to export (pp. 27-28). Moreover, a new nationalism emerges because of the anger over colonial rule. According to Rostow, "*a reactive nationalism – reacting against intrusion from more advanced nations – has been a most important and powerful motive force in the transition from traditional to modern societies, at least as important as the profit motive*" (p. 26).

Changes in thinking in society

In this stage, a change of thinking takes place. There is a realization in society that economic advancement is a crucial condition for some other positive purposes, such as national dignity, a better life for children, private profit, or general welfare. According to Rostow (1960), a change in education is necessary to adapt to modern economic activity. Moreover, there has to be a shift in income distribution away from feudal lords to those who will spend money on

schools, roads, and factories rather than on servants and country houses. Besides, it is important that men fulfill certain specific functions. They must be valued in society instead of their connection with the guild or clan (pp. 6, 19). Furthermore, Rostow points out:

The concept must be spread that man need not regard his physical environment as virtually a factor given by nature and providence, but as an ordered world which, if rationally understood, can be manipulated in ways which yield productive change and, in one dimension at least, progress. (p. 19)

Rostow emphasizes that a society with an agricultural setting should change into a society with modern settings like trade, services, communications, and industry (pp. 18-19).

The building up social overhead capital

Furthermore, the building of social overhead capital (or SOC) is characteristic of the transition phase. Rostow (1960) mentions that a very high proportion of total investment should go into transport and other socially useful infrastructure projects. Investments in infrastructure need a huge amount of expenditure and bring the results several years later but have long-term high profits. The SOC is beneficial for the whole society and is paid back indirectly to the people rather than to the primary entrepreneurs. It is the responsibility of the government to build up SOC. Therefore, the formation of a modern and efficient government plays a very important role in the preconditions period. The government is responsible for organizing the country. It, for example, has to create a tax system, it must develop commercial markets, and it is responsible for all the national policies, like tariffs, public health, and education (pp. 24-25, 30).

Rising investment rates

New types of businesses in the private sector and in government occur. Moreover, banks and other institutions appear and respond to the growing number of entrepreneurs willing to invest, especially in the fields of communications, transport, and raw materials. However, the investment rate is still low at this stage and accounts for around 5 percent of national income. According to Rostow (1960), an increase in the investment rate is very crucial for the transition to the next stage and must be higher than population growth. This increase causes a radical change in the attitude of society towards science, production techniques, working methods, and risk-taking. New industries emerge that use improved production methods, and the economic interests of other countries lead to a rise in domestic and foreign trade. Rostow emphasizes,

however, that this development proceeds very slowly within a society with traditional low-productivity methods and an old social structure (pp. 6-7).

Increase in agricultural production capacity

Rostow (1960) claims that a change in productivity is very crucial in the transition period. In general, this refers to an increase in food production, but also products like, for example, cotton and silk in Japan, oil in the Middle East, or wood in Sweden fall into this category. In order to satisfy the increasing demand for food, it is important to achieve technological progress in agriculture and to increase investment. Agriculture, however, can reach its limit in production during the transition process from a traditional society to a successful take-off. Population growth, increasing urbanization, the enlargement of world markets, and the associated increase in international competition put pressure on the agricultural sector, in which around 75 percent of the labor force works. Rostow further mentions that agriculture has the function of a financial supporter. As the industrial sector, at this stage, is not yet competitive, it is up to agriculture to provide the surplus income available for the industry sector (pp. 21-23). Rostow emphasizes that *"the rate of increase in output in agriculture may set the limit within which the transition to modernization proceeds"* (p. 23).

2.3.4 Stage 3: The Take-Off

In the second stage, societies are preparing for economic advancement and continuous growth, while the third stage is the turning point in the life of a modern society. *"The take-off is the interval when the old blocks and resistances to steady growth are finally overcome. The forces making for economic progress, which yielded limited bursts and enclaves of modern activity, expand and come to dominate the society"* (Rostow, 1960, p. 7). According to Rostow, the third stage is the most crucial one, as in this stage, the transition from an underdeveloped country to a developed one takes place (p. 4).

A strong stimulus

The take-off is initiated, in most cases, by a strong impulse. This can be a political revolution that directly changes the social and political balance, such as the character of economic institutions, the income distribution, or the form of investment. But it can also be a technological innovation that has strong external economic effects or a new international environment. As an example, Rostow (1960) mentions the French and British market openings to lumber from Sweden in the 1860s. Rostow emphasizes that it does not matter which kind of stimulus it is,

the important thing is the reaction to it. It is crucial that society and its economy respond in a positive and sustained way (pp. 8, 37).

In the chapter above, Rostow provides two cases, namely the general case and the 'born free' case. When it comes to the kind of stimulus, he mentions that in Great Britain, as well as in Canada and the United States, the impulse was, in most cases, a technological innovation. In the general case, it is important to build up social overhead capital and achieve technological development in agriculture and industry. The stimulus in the general case is often a political revolution. Rostow cites a number of examples, such as the German revolution in 1848, the Chinese Communist victory, or Japan's Meiji restoration in 1868 (pp. 8, 36).

Modern production methods

According to Rostow (1960), the economic rise can be described as an industrial revolution wherein there is a radical change in production methods. In this stage, new techniques spread in industry and agriculture, and in most take-offs, a crucial change in market organization occurs. The growth of industries with modern production methods results in an obvious increase in per capita production. Rostow emphasizes the importance of a group in society that accepts innovations. Agriculture is commercialized, and an increasing number of farmers accept the new methods. The radical change in agricultural productivity is an important condition for successful take-off (pp. 50-51, 57).

One or more leading sectors

A fundamental condition for take-off is the existence of one or more fast-growing and substantial industrial sectors. Rostow (1960) mentions the following features that are crucial when it comes to leading sectors: (1) There must be a growing demand for products made from those sectors, which provide the basis for a rapid growth rate of production. (2) New production techniques need to be introduced into these sectors, and it is necessary that capacity expand. (3) The society must be able to provide the initial capital for economic prosperity in these key industries. Besides, the profits of the enterprises must be reinvested to a great extent. (4) The leading sectors need to be designed in such a way that their expansion and improved production methods have an impact on innovation in other sectors (pp. 8, 57).

Progressive industrialization leads to the creation of new industries, while, at the same time, the sectors that have triggered the economic rise begin to wane. According to Rostow, the construction of the railroad is very often one of these new leading sectors. In addition to the lowering of transport costs within the country, the catchment area can be increased, which

means new products for the market. Furthermore, the railroad is conducive to the rapid development of the export sector and leads to innovations in coal, iron, and engineering. Besides, Rostow emphasizes that the demand for construction is often responsible for the growth of industrial sectors. He further mentions raw materials, consumers' goods, and food, as well as modernized and enlarged armed forces, as important leading sectors (pp. 55-56).

Investment and reinvestment

A crucial criterion for the third stage is that the percentage of investment in national income is about 10 percent. Rostow (1960) emphasizes that there are many different kinds of take-offs. The growth of the investment rate depends on the social, cultural, and political motivations of a state (pp. 37, 39). Entrepreneurs (public or private) in the leading sectors reinvest a considerable proportion of profits in new productive investments and are important pioneers of economic advancement. According to Rostow:

The whole process of expansion...yields an increase of income in the hands of those who not only save at high rates but place their savings at the disposal of those engaged in modern sector activities. The new class of entrepreneurs expands; and it directs the enlarging flows of investment in the private sector. (p. 8)

Rostow mentions that foreign trade is a very crucial part of the reinvestment process. The expansion of exports is used to finance the import of capital goods and to cover foreign debt. Foreign capital plays a very crucial role when it takes over the financing of social overhead capital, directly or indirectly. However, take-offs that are based almost completely on domestic sources of finance also occur (pp. 39, 48-50). *"Some take-offs have occurred with virtually no capital import, for example, Britain and Japan. Some take-offs have had a high component of foreign capital, for example, the United State, Russia, and Canada"* (Rostow, 1960, p. 39).

Further conditions for take-off

According to Rostow (1960), inflation can be important for some take-offs. As examples, he mentions Great Britain of the late 1790s and Japan of the 1870s. There, price inflation helped to build up capital as resources were shifted away from consumption to profits (pp. 47-48). Moreover, he mentions that the take-off phase is characterized by a labor share of around 40 percent in the agricultural sector and generally takes around 20 years to complete (p. 71). *"In a decade or two both the basic structure of the economy and the social and political structure of the society are transformed in such a way that a steady rate of growth can be, thereafter,*

regularly sustained" (pp. 9-10). He allocates the third stage of Britain to the two decades after 1783, the United States to the decades preceding 1860, Germany to the third quarter of the nineteenth century, and Japan to the fourth quarter of the nineteenth century (p. 9).

2.3.5 Stage 4: The Drive to Maturity

"After take-off there follows a long interval of sustained if fluctuating progress, as the now regularly growing economy drives to extend modern technology over the whole front of its economic activity" (Rostow, 1960, p. 9).

New leading sectors

Investment rises to 10 to 20 percent of national income, and the economy changes continuously due to improving techniques. In this stage, new sectors displace the leading industries of the economic rise (the third stage), and the economy extends its range into more refined and complex processes. The iron, coal, and heavy engineering industries of the railroad phase are no longer the core industries of growth, but chemicals, steel, modern ships, and innovative machine tools take the lead. These sectors are now responsible for maintaining the growth rate in the economy. Rostow (1960) mentions that the production of steel was especially important for the maturity of Western Europe and the United States (pp. 9, 59, 62).

The application of modern technology becomes evident in all sectors of the economy. However, the leading sectors are not solely determined by the available technology but also by the available natural resources. Maturity can be defined as the stage in which an economy demonstrates that it has the entrepreneurial and technological skills to produce anything that it wants to produce. It is possible that the economy does not have the supply conditions or the raw materials required to produce a given type of output, but its dependence is a matter of political priority or economic choice rather than a technological necessity (pp. 10, 59).

International economy

In his 1960 work, Rostow mentions the growing significance of the international economy in the fourth stage of the model. Therefore, goods are mainly produced within the country instead of being imported, and new import regulations come up as well as new export articles to match these regulations (p. 9).

Changes in the workforce

During the maturing period, the structure of the workforce changes in the areas of real (inflation-adjusted) income, qualification, and composition. According to Rostow (1960), maybe 75 percent of the labor force works in agriculture and lives on a low real wage before take-off. At the end of the third stage, this number falls to perhaps 40 percent and declines to around 20 percent in the maturity stage. Moreover, there is an increase in population as well as rising urbanization. Besides, a growing number of workers are employed in technical fields, as professionals, or as office and semi-skilled workers. Hence, the qualification of the workforce changes because workers are more trained and skilled now than they were in the past stages (p. 71). Rostow emphasizes that the character of the leadership also changes *"from the buccaneering cotton-, railway-, steel- and oil-baron to the efficient professional manager of a highly bureaucratized and differentiated machine"* (p. 72).

Social and political changes

The transformation of the workforce lays, among other things, the foundation for social and political changes. New problems arise from this change in society. The public must be given increased safety and security, welfare, and leisure. Besides, the population can now satisfy more than only its basic needs (Rostow, 1960, p. 72).

According to Rostow, society has fully experienced industrialization at the end of the fourth stage and is then ready to move forward to the last stage. He offers some rounded symbolic dates for the arrival of technological maturity. By 1850, Great Britain had become a fully mature society, while he dates the end of stage 4 for the United States in 1900, for Germany in 1910, for Sweden in 1930, and for Japan in 1940. But he also argues that the technical definition of maturity must be an estimation when applied to a whole national society. Rostow further mentions that *"historically, it would appear that something like sixty years was required to move a society from the beginning of take-off to maturity"* (p. 10). According to him, take-off generally lasts around 20 years, while the fourth stage holds up for about 40 years (p. 9).

2.3.6 Stage 5: The Age of High Mass-Consumption

The longer society finds itself in the maturity stage, the more it changes. The final stage of development is characterized by a considerable degree of technical maturity, a high real income per head, a high consumption per capita with a strong interest in luxury goods, and less than 20 percent of the workforce in agriculture. The structure of the labor force transforms in ways that

increase, on the one hand, the rate of urban to total population and, on the other hand, the rate of the population working in skilled factory jobs and offices. Furthermore, the leading sectors move toward services and durable consumer goods. In addition to the sewing machine, the bicycle, and the various electric-powered household gadgets, the cheap mass automobile is gradually spreading (Rostow, 1960, pp. 10-11).

Society's interests undergo a significant shift from supply to demand, or rather, from production problems to consumption problems. Consumption and welfare become very important, and societies choose to allocate increased resources to social welfare and security. Rostow emphasizes that in the age of high mass-consumption, the emergence of the welfare state is a manifestation of a society's moving beyond technical maturity. In this stage, a society is able to choose between concentrating on security and military issues, on welfare and equality issues, or on developing luxuries for its upper class. According to Rostow, every society chooses its own balance between these three goals, which leads to different results and makes each society unique. The ancient culture, geographical conditions, existing natural resources, and political leadership play a major role (pp. 73-74). Rostow assumes that the United States fully entered the fifth stage in 1913-14, when Henry Ford started assembly line production. The turning point for Western Europe and Japan is seen in the 1950's, the immediate post-war years (p. 11).

2.3.7 Criticism of W. W. Rostow's Stages of Growth Theory

Rostow's Stages of Growth model is one of the most historical and influential models of economic growth. It offers universal access to economic development and provides well-defined parameters for each of the five stages (Todaro & Smith, 2009, p. 111). According to Cypher (2014), Rostow's utilized framework was very popular with most economists in the 1960s, and his convincing arguments seemed to be quite well anchored in historical dynamics (p. 187). Although Rostow's theory has gained a lot of support, it has also provoked controversy among many economists and historians. The main point of criticism is that the model is based on a Westernized mind and linear development. Rostow assumes that all countries have an equal chance to develop, without regard to natural resources, climates, location, structure, or population size, and pass through the same phases, stage by stage. Hollis B. Chenery (1960), however, emphasizes that this economic growth path is not necessarily the only possible one. He rather states that not all economies develop in a linear way but instead skip steps or take different paths. Besides, critics argue that not all nations want to develop in the same way, with the end goal of high mass-consumption, and that Rostow disregards the different priorities of

societies. Moreover, the strong Western orientation leads to the question of whether the theory can be applied to other parts of the world, especially to developing countries that were colonized. According to E. Wayne Nafziger (2016), Rostow's requirement that economic modernization mean a change from an underdeveloped economy to one similar to those in North America and Western Europe poses a severe problem (p. 4).

Furthermore, various development economists have found out that Rostow's theory does not conform to the history of several countries that moved from the take-off stage into self-sustained growth. Albert Fishlow (1976), for example, claims that most now-advanced states had no main sudden jump in the growth rate of output or in the investment rate, but instead the rates increased progressively during the take-off. He mentions that a sharp increase in growth and investment was observed only in a few nations (pp. 84-85). Everett E. Hagen (1962) also denies that the histories of developed countries have shown any signs of a period lasting twenty to thirty years in which rates of investment suddenly rose very sharply (pp. 519-520). Alex K. Cairncross (1961) notes that numerous of Rostow's criteria are not properly identifiable as they often overlap and are defined too imprecisely so that they could cover any case. In his point of view, one can only believe in Rostow's stages when one's historical knowledge is out of date. Besides, he criticizes Rostow's willingness to allow many exceptions when the stages occur at a timeframe other than the theory states (p. 454.). Moreover, the model fails to specify any mechanism that links the five different stages (Enke, 1964, p. 201). In *Review of the stages of economic growth* (1961), Habakkuk argues that Rostow's theory is essentially an essay in classification.

Another point of criticism is that Rostow's theory mostly refers to large nations. He concentrates on states with a huge land mass, with many natural resources available, or with a large population, and provides little hope for smaller countries without these advantages. Critics state that the level of development within a country may differ from region to region, especially in a large country. Stephen Enke (1964) mentions that one way of increasing the degree of conformity would be to frame the model in terms of a more homogeneous and smaller group of state units (pp. 204-205).

Gerald Meier (1976) did some research on the agricultural sector of developing countries. He notes that this sector is much weaker in developing countries nowadays than it was in countries, such as Great Britain, Germany, France, or the United States, that went through the take-off period in former centuries (p. 95). In *Developmental and cultural nationalisms* (2013), Radhika Desai goes into detail concerning Rostow's theory and its application to Japan. According to her, Rostow saw Japan as a non-Western alternative to the economic and political

models offered by China and the Soviet Union and characterized Japan as a role model for developing nations (p. 58). In addition, she emphasizes that Rostow's view on World War II is a very controversial issue of modernization theory in Japan, as he treats the war "*as a minor deviance within the trajectory of a normal nation*" (p. 61). Cypher (2014), on the one hand, argues that Rostow was a very important pioneer in his field who opened up new areas for analysis, debate, and study, but, on the other hand, he states that "*today little remains of Rostow's analysis which is of general use in the field of development economics*" (p. 192).

It was obviously clear to Rostow that his book *The stages of economic growth. A non-communist manifesto*, first published in 1960, received severe criticism. He argues in the third edition (1990) that he "*was a public servant and not in a position to respond to the views of others*" (p. ix). Instead of altering the basic approach of the growth stages, Rostow deals in great detail with the debate triggered by his theory in Appendix B of his third edition. He tries to narrow differences of views and discusses the possibilities and problems beyond high mass-consumption.

2.4 Analytical Framework

This section provides an analytical framework (see table 3), which helps to examine and compare the economic development in Japan and South Korea. The self-compiled framework consists of measurable key criteria from Rostow's five growth stages, differentiating between mandatory and optional criteria. With them, a structured comparison of case studies is possible. In the following chapters, the developed analytical framework is applied to Japan as well as to South Korea in order to be able to examine the socio-economic development of both countries more easily and determine whether or not the results are in line with Rostow's criteria.

Table 3. Analytical framework: Key criteria of W. W. Rostow's five stages

Stages of economic growth	Key criteria
Stage 1: The traditional society	- Limited production possibilities and technology - Characterized by hunting and gathering or agriculture - Hierarchical social structure and strong connections between family and clan - Political power in the hands of landowners
Stage 2: The pre-conditions for take-off	- The two cases of the preconditions for take-off - Impulses through Western colonialism (optional) - Change of thinking in society and better education - Building up social overhead capital

	- Establishment of an effective modern government - Rising investment rate (to about 5% of national income) - Improved production techniques and new industries - Increase in domestic and foreign trade - Increase in agricultural production capacity (around 75% of the workforce in agriculture) - Population growth and increasing urbanization
Stage 3: The take-off	- Strong stimulus (political revolution, technological innovation, or new international environment) - Radical change in production methods - Development of one or more industrial lead sectors with a high growth rate - Innovations in coal, iron, and heavy engineering through the railroad - Rising investment rate (to more than 10% of national income) - Sign of inflation (optional) - Around 40% of the workforce in agriculture at the end of take-off - Duration of around 20 years
Stage 4: The drive to maturity	- New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead - Rising investment rate (to 10-20% of national income) - Changing structure of the workforce (wages, composition, and qualifications) - Increasing population and rising urbanization - Around 20% of the workforce in agriculture by maturity (optional) - Duration of around 40 years (optional)
Stage 5: The age of high mass-consumption	- Increased resources for social welfare and security - Rising consumption of durable and luxury goods - High per capita consumption and high real per capita income - Less than 20% of the workforce in agriculture through a shift towards services

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

3 EMPIRICAL FINDINGS

3.1 Case Study: Japan

3.1.1 Stage 1: The Traditional Society

3.1.1.1 Overview: Stage 1

Table 4. *W. W. Rostow's Stage 1*

Stage 1: The traditional society	- Limited production possibilities and technology - Characterized by hunting and gathering or agriculture - Hierarchical social structure and strong connections between family and clan - Political power in the hands of landowners
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

In the following chapters, Rostow's five individual growth stages are examined step by step and applied to Japan. Table 4 shows Rostow's key criteria, which, according to him, a country normally exhibits in its first economic phase.

3.1.1.2 Limited production possibilities and technology

Japan had almost no contact with the outside world for about two centuries. Due to this isolation policy, lasting from 1639 to 1854 (see chapter 3.1.2.2), Japan's society was economically very simple, and agriculture provided the largest part of the country's total production (Dore, 1965, p. 11). In spite of limited production capacity in traditional Japan, advancements in agriculture increased production slightly during that time. Segal (2008) states that new rice varieties resistant to disease and drought were introduced, double cropping of fields was possible through better fertilizers, and improved irrigation techniques increased harvests and the quality of crops (p. 8). Besides, a new agricultural practice emerged, namely slash-and-burn farming. The plants were nourished from ashes, and therefore, there was no need for fertilizers (Furushima, 1998, p. 59). Nevertheless, "*experimental natural science and technology, by which humans can overcome nature, were not well developed in Japan until after they were introduced from the West beginning with the Meiji Restoration in 1868*" (Fu & Heine, 1995, p. 310).

3.1.1.3 Characterized by hunting and gathering or agriculture

Japanese people lived separately in little villages in the pre-historic period. They were connected by long-distance sea trade and lived a peaceful life. Agricultural activity was very limited; however, they grew food and lived as hunters and gatherers. Wet-field rice cultivation was introduced by migrants from China in the third century BC or before. The lives of the former hunter-gatherers changed significantly as intensive rice production started (Ohno, 2006, p. 11). In addition to rice, food products like soybeans, azuki beans, and wheat were introduced by Yayoi immigrants from continental Asia. In general, agriculture developed very slowly and depended on simple tools. There was not enough arable land for the cultivation of crops, and irrigation techniques were very basic and poorly developed. Regular crop failures and famines were the consequences (Cartwright, 2017). In 730 AD, for example, 412 out of 414 households lived at subsistence level in what is now Chiba Prefecture, and 996 out of 1,019 households were concerned in present-day Fukui Prefecture. Moreover, a severe famine took place in the early 1180s, which was accompanied by a plague (Henshall, 2013, p. 107). Because of this unreliability, most small peasants preferred working on the aristocrats' large estates, the so-called *shoen*. These estates were well watered, while independent farmers had to hope for rain to irrigate their crops. Therefore, especially dry field crops, such as wheat, buckwheat, barley, and millet, were planted by these independent peasants (Cartwright, 2017).

At the beginning of the Edo period (1603-1868), more than 90 percent of society was agrarian, and the small family was the basic production unit. It was responsible for land cultivation and was tied to its portion of farmland without the right to move. Moreover, farmers had to pay rice taxes, which were levied on the whole village, not on individual peasants, and were stipulated by the local or central government. Each *han* could decide the rate of the rice tax individually, and village leaders had the duty to allocate the tax burden among the farmers. There were two possibilities to find out how much tax had to be paid. Villagers could decide between an inspection system and a fixed-amount system. The first one provided an official inspector who came each year to determine the actual rice yield. The second system secured consistent rice tax revenue, as it kept the same for consecutive three or five years and was based on an average yield from previous years (Ohno, 2006, p. 26). The inspection system had to deal with severe tax revenue corruption. Official inspectors often did not even visit the fields but only had drinking parties and got a lot of gifts. According to historian Oishi, S. (1977), this kind of corruption was the main reason for the permanent revenue shortage of the Edo government.

3.1.1.4 Hierarchical social structure and strong connections between family and clan

During the sixteenth and seventeenth centuries, Japan's major metropolises were strictly divided into four main social classes, based on a Confucian model, namely warriors (samurai), farmers, craftsmen, and merchants (see figure 1). Each social class lived in its own, segregated area of the city and had a separate ruling system. Samurai were regarded as the highest class, excelled only by the Emperor and the *Shogun*. The *Shogun* title was granted to the nation's top military commander by the Emperor. Although the Emperor was at the top end of the social ladder, the *Shogun* had the power to rule (see chapter 3.1.2.2). Samurai were divided into warriors and *daimyos*. Samurai warriors defended the land with their own lives, while *daimyos* were the samurai leaders and responsible for the local governments. They served as role models for Japan's society. Farmers made up the largest but also the poorest social class. They enjoyed a good reputation among society as they produced the staple crop of rice. After them, there were the craftsmen who primarily lived in the castle towns in order to make goods for the *daimyos* and the samurai. Merchants belonged to the lowest class, as they did not manufacture anything for society (Sorensen, 2005, p. 13). Yet, they made up the wealthiest group. Moreover, merchants often had access to the feudal political economy because they frequently granted loans to indebted *daimyos*. Besides, their responsibilities included buying handicrafts and farm goods from rural areas in order to sell them on the urban markets (Hall, 1968, p. 180). Vaporis (2012) sums up that samurai accounted for only 6 percent of Japan's total population, while farmers made up over 85 percent. Craftsmen and merchants amounted to around 9 percent of society. But not all people fit into one of these categories, including the Emperor, court nobility, monks, physicians, actors, and outcast groups like the *Eta* and *Hinin* (p. xxiv). *Eta*, literally "defilement abundant", generally dealt with dead animals and made their living from tanning and skinning, while *Hinin*, literally "non-human", often specialized in the handling of dead bodies or worked as beggars or entertainers (Visocnik, 2014, p. 130).

Japan's class structure during the Edo period (1603-1868), also called the Tokugawa period, was hereditary. Citizens were defined by the social class in which they were born. Even samurai were not allowed to engage in another activity, like farming or trade. With the help of Neo-Confucianism, a doctrine that had fostered imperial rule in China, the Edo rulers could maintain social and political order. This ideology stipulated that the rulers were responsible for a comfortable life in society, while the lower classes had the duty to be loyal to those above them in their status group (Vaporis, 2012, p. xxiii). Nakamura and Miyamoto (1982) mention the *ie* system in this regard. They state:

The *ie*, whose nearest English equivalents in meaning are family or household, was the relevant decision-making unit in the Japanese social system. . . . The Tokugawa Japanese system can be regarded as consisting of *ie* instead of individuals because it was in both theory and practice (with some qualifications) the basic unit from which the society was organized. Thus the entire population (with minor exceptions) was organized into four classes, each consisting of a given number of *ie* at any point in time. (p. 242)

Japan's *ie* system developed in the Edo period and only existed within the upper classes, including the *shogunate*, aristocrats, and samurai. The continuation of the feudal family lineage was reliant on male offspring (Kumagai, 1995, p. 138). The eldest son commonly inherited the family assets when the father, the *ie* head, died. These assets, however, always belonged to the family instead of an individual member and were only held in trust by the *ie* head for future generations (Nakamura & Miyamoto, 1982, pp. 242-243).

Furthermore, there was a strict hierarchy within the Japanese family. Women were subordinate to men. It did not matter whether it was a samurai woman or a peasant's wife, the woman was in all ways classified under the man. In farmer families, however, men and women worked much closer together than in samurai families. The sideline activities of a samurai wife were always classified under her husband's duties and were completely separated from them. In the peasant family, women did the time-consuming work, including taking care of the children and the housework, while men did the dangerous and heavy work (Bernstein, 1991, p. 57).

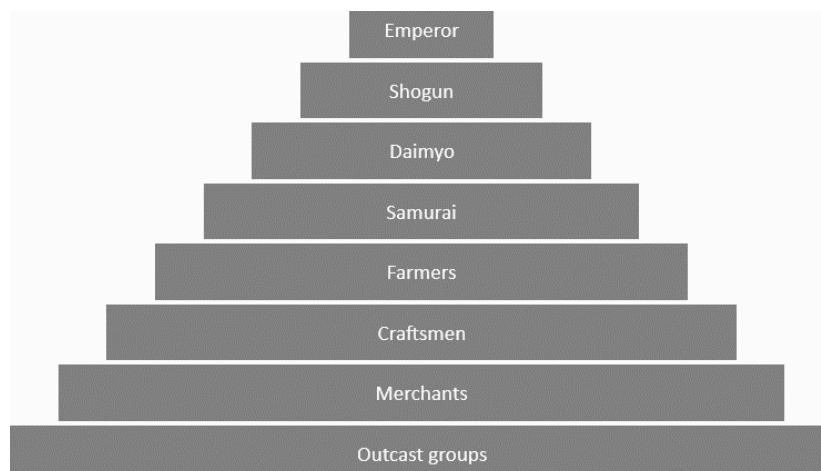


Figure 1. Social structure in Japan's Edo period, 1603-1868.

Adapted from *The making of urban Japan: Cities and planning from Edo to the twenty-first century* (p. 13), by A. Sorensen, 2005, London, UK. Routledge.

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3.1.1.5 Political power in the hands of landowners

The introduction of rice cultivation required a collective effort beyond family units and effective leadership. Military and religious leaders formed mini-states and established a social order. Wars between these states became common for a few centuries until 645 AD, when the reform of Taika took place. The mini-states were gradually unified under a centralized government, controlled by the imperial family, which subordinated other influential clans. The Taika reform introduced a Chinese-style bureaucracy and a tax system. Besides, Buddhism was imported via Korea and was used to demonstrate the political power of the Emperor (Ohno, 2006, pp. 11, 12).

However, the centralized government did not last very long, and the political power of the imperial family gradually declined. The power passed to temples and local landlords, who established manor estates for the cultivation of agricultural land. The class of samurai warriors emerged at that time and was responsible for defending the land with the samurai's own lives. In 1192, the first samurai government was established in Kamakura. From this point on, the government was formed by the leaders of the samurai warriors. The Kamakura government guaranteed certain rights for the samurai, like the right to own land or to distribute land to others. Finally, two Mongolian invasions in 1274 and 1281 brought the Kamakura government to an end. Both times, the Mongolians were held off by, on the one hand, a huge storm and, on the other hand, the samurai's resistance. Nevertheless, the samurai government in Kamakura collapsed as it ran out of land to distribute to the samurai that successfully repelled the Mongolian attacks (Hall, et al., 1988, pp. 46-48).

Internal wars among samurai leaders evolved. In 1603, Ieyasu Tokugawa ended the Warring Age and reunified Japan. The Edo government was born. Ieyasu controlled the country, but the old Imperial Court in the ancient capital city of Kyoto was allowed to stay and gave him the title of *Shogun*, a traditional title of temporal authority. The Tokugawa family ruled Japan for the next 264 years. During that time, Edo (present-day Tokyo) developed from a sleepy little town to a huge political city (Ohno, 2017, p. 22). Besides the Tokugawa family itself, there was the *bakufu* (central government or *shogunate*), a complex of public institutions of government and military formations staffed by retainers and employees who lived around the *Shogun's* castle in Edo (Dore, 1965, p. 4).

According to Ohno (2017), "*politically, the Edo society was a centralized system*", while "*economically, it was more decentralized*" (p. 24). At the beginning of the Edo period, indirect rule and power decentralization were replaced by unified and direct rule. The *bakufu* had absolute power over each *han* (local government) and could even abolish it. A *han* was ruled

by a *daimyo*, the head samurai of a local government. *Daimyos* pledged loyalty to the *Shogun*, who gave them the land to rule, and they had to do certain duties, like paying arbitrary charges and taxes to the *Shogun* or financing public works such as roads, castles, canals, etc. (Ohno, 2017, pp. 13, 24). The *bakufu*'s own widespread territories – namely, about 15 percent of the total arable land, the major seaports, all important mines, and the old court city of Kyoto – served as financial resources. Appointed officials administered these territories and collected taxes from each landholding farmer. These taxes were paid in kind, generally in the form of rice (Dore, 1965, p. 3). Vaporis (2012) states that “*the shoguns assembled the largest army in the realm, one that included 80,000 retainers and sub-retainers provided by its allied daimyo and relatives*” (pp. xxi-xxii). As already mentioned, economically, the Edo society was more decentralized since the *bakufu* did not conduct constant economic policies. As long as it was not specifically prohibited by the *bakufu*, each *han* was allowed to decide its own internal policies and economic regulations, like taxation, administration, industrial promotion, education, and issuing paper money (Ohno, 2017, p. 24).

3.1.2 Stage 2: The Preconditions for Take-Off

3.1.2.1 Overview: Stage 2

Table 5. *W. W. Rostow's Stage 2*

Stage 2: The pre-conditions for take-off	- The two cases of the preconditions for take-off - Impulses through Western colonialism (optional) - Change of thinking in society and better education - Building up social overhead capital - Establishment of an effective modern government - Rising investment rate (to about 5% of national income) - Improved production techniques and new industries - Increase in domestic and foreign trade - Increase in agricultural production capacity (around 75% of the workforce in agriculture) - Population growth and increasing urbanization
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Giger.

Table 5 shows Rostow's main criteria that he considers a country normally exhibits in its second economic stage. In the following sections, these criteria are examined in more detail and applied to Japan.

3.1.2.2 The two cases of the preconditions for take-off

Rostow classifies Japan as a general case, as basic changes took place in Japan's traditional society to achieve the preconditions for take-off. The changes included shifts in production techniques, the social structure, and the political system, as well as the building up of social overhead capital. According to Rostow (1960), these changes mostly arise from external penetration by more developed societies (p. 17). He is convinced that in Japan, *"it was the demonstration effect not of high profits or manufactured consumers' goods, but of the Opium War in China in the early 1840's and Commodore Perry's seven black ships a decade later that cast the die for modernization"* (p. 27). He further cites Japan's Meiji restoration in 1868 as a typical stimulus for the general case (p. 36). Details are given in the following sections.

3.1.2.3 Impulses through Western colonialism (optional)

Japan had colonies but was never colonized itself. However, the country was indeed affected by Western colonialism. In the mid-sixteenth century, Europeans made their first appearance as Portuguese sailors, blown off course, introduced fire guns and gunpowder to the population.

Japan was in a civil war at the time; therefore, the Portuguese guns were very popular due to their good mechanism and low weight. The introduction of these guns changed the way of fighting significantly, and samurai used them in their wars. Furthermore, Catholicism was implemented by Portuguese missionaries. Rulers, however, saw Catholicism as a severe threat to their own authority. The Edo government banned Christianity and eliminated its followers in the 1620s (Murdoch, 1996, pp. 33, 53-55). The Spanish, the Dutch, and the British also soon found their way to Japan and established a flourishing trade by selling and buying goods. In addition to firearms, Europeans introduced new shipbuilding techniques, eyeglasses, and mechanical clocks (Segal, 2008, pp. 9-10).

The experiences with the Europeans contributed to Japan's isolationist foreign policy, also called *Sakoku*, starting in 1639. This policy of precaution was taken to prevent Western colonialism from getting too powerful in Japan. A second reason for the self-imposed isolation was the aim to consolidate the new Edo government. Almost any foreign contact was banned by the *bakufu* for about 200 years. The Dutch and Chinese merchants were the only ones allowed to trade with Japan. Besides, Korea and Okinawa had diplomatic relations with the government. Any other type of contact with foreigners was strictly prohibited. Japanese people were not allowed to leave the country or come back from abroad. The only possibility to gain knowledge about the West during that isolation policy was through Dutch products, especially books. At the end of the eighteenth century, Western powers wanted to open up Japan in order to arrange trade agreements, but Europeans, as well as Russians, were sent back. In the meantime, Britain defeated China in the Opium War (1839-1842) and forced the country to open its ports. Moreover, Britain took possession of Hong Kong. As the news reached Japan, the *bakufu* were shocked, and Japan's fear of colonization deepened (Ohno, 2017, p. 35). In 1853, American ships entered Edo Bay and compelled the *bakufu* to deal with them. Commodore Matthew Perry, who led the ships, requested a friendship treaty that allowed American ships to use Japanese harbors. Perry left with the promise that he would come again the following year to hear the answer. After that occurrence, the government and the whole nation were thrown into confusion and discussed whether the ports should remain closed or not. One year later, Commodore Perry returned with his troops, and the *bakufu* signed the Japan-US friendship treaty and opened two ports for their ships (Wittner, 2005, pp. 80-82).

Further treaties were concluded with other Western powers, whereupon foreign merchants settled in Japan. They were only allowed to live in special estates for strangers, and free contact with Japanese people was not permitted. Nevertheless, an anti-foreigner movement developed. Xenophobia, as well as violent attacks on Westerners, were further consequences.

Many leaders, however, quickly changed their methods and switched to a policy of good and friendly cooperation. They began to respect international diplomatic codes and laws. Moreover, the end of self-isolation caused various economic and social renewals, like Western customs, ideas, systems, technologies, industries, and education. Massive overseas markets for tea and silk arose, which enriched some farmers. Furthermore, a new merchant class developed, and the perception of Westerners changed significantly. They were no longer seen as barbaric but as modern, sophisticated, and civilized. However, there was also a critical drawback, namely, surging inflation, which led to the impoverishment of the urban population and samurai. The opening of Japanese ports provoked a shift in Japan's entire pricing structure (Ohno, 2006, pp. 41-42).

Further commercial treaties were required by the Americans in 1858, and the bakufu requested imperial authorization to sign them. Although permission was not granted, the bakufu concluded the very unequal treaties. The method of the bakufu was heavily criticized by political opponents, and internal political fights finally toppled the Edo government in 1867 (Ohno, 2006, p. 41). According to Rostow (1960), *"in Japan it was the demonstration effect . . . of the Opium War in China in the early 1840's and Commodore Perry's seven black ships a decade later that cast the die for modernization"* (p. 27).

3.1.2.4 Change of thinking in society and better education

From the middle of the fifteenth to the end of the sixteenth century, Japan was in confusion due to wars, and there were only a few people that could read. Even priests, teachers of Confucian learning, calligraphers, and doctors learned to use a bow and sought their fortunes in war (Dore, 1965, p. 1). In the Edo period (1603-1868), the public realized the importance of a high-quality education. Many researchers are convinced that the good education system at that time was responsible for the fast industrialization in later periods. *"Western-style modernization . . . had been made possible by virtue of the advanced state of education during the Tokugawa period"* (Tsujiimoto & Yamasaki, 2017, p. 1). Dore (1965) emphasizes that *"the wide diffusion of basic education implanted in people's minds the simple notion of a possibility of improvement, so that Japan had already got over the first hurdle in a process of purposeful development"* (p. 292).

Education was not only available in large cities like Kyoto, Osaka, and Edo but almost nationwide. The education system ranged from children's basic education at private schools to the study of ancient Chinese literature and philosophy at public schools. Generally, four main

kinds of learning institutions were available, namely *bakufu* schools, *han* schools, private professional schools, and private primary schools, so-called *terakoya*.

- *Bakufu* schools were famous for teaching Confucianism. This ancient Chinese philosophy was very important in the Edo government and was promoted as an ideology to maintain and legitimize the predominant class society. The main learning goals were proper rituals, social order, respect for the elderly and superiors, and good political leadership.
- Alongside the *bakufu* schools, *hans* established schools for their young samurai. The learning objectives were very similar to those of *bakufu* schools. In addition to Confucianism, practical skills like foreign languages and military training were offered. Some *han* schools even gave non-samurai students the possibility of joining their training courses.
- Besides these two kinds of schools, private professional schools were often set up by eminent scholars. They taught different subjects, depending on their skills, like Confucianism, ancient Japanese literature, Western languages such as Dutch and English, technology, science, medicine, etc. Non-samurai and samurai students were accepted at those schools, and many national leaders of the late Edo and early Meiji periods visited such private professional institutions.
- *Terakoya* were the fourth kind of learning institution in the Edo period. These private primary schools taught reading, writing, and arithmetic to young children. A few dozen children between seven and thirteen were taught by one teacher. As there was no regulation on school age, the children got individual assignments (Ohno, 2006, pp. 33-35).

A huge number of *terakoya* were set up in urban as well as rural areas. According to Minami (1968), around 12,500 *terakoya* with approximately 837,000 students existed in 1868. “*It is estimated that at this time 43 per cent of male children and 10 per cent of female children received education in these institutions*” (p. 18). Although Japan had a high alphabetization rate in the late Edo period, it varied greatly from region to region. Literacy was elevated in cities and areas with advanced trade, while it remained rather low in rural places (Tsujimoto & Yamasaki, 2017, p. 11). A more uniform literacy rate throughout Japan did not begin until the introduction of compulsory primary education in 1872. Minami (1968) states that attendance at elementary school was 28 percent in 1873 and rose to over 50 percent in the early 1890s.

Besides, overall enrollment in elementary, secondary, and advanced learning institutions increased from 1,300,000 to about 3,200,000 between 1873 and 1890 (p. 18).

3.1.2.5 Building up social overhead capital

During the Edo period, Japan's street network improved notably due to the so-called *sankin kotai system*. In order to strengthen control over the *daimyos*, they were asked to reside alternately in their *han* and in Edo, the capital. As they had to travel to Edo every other year, well-maintained streets were crucial. The *bakufu* designated five official highways, and private restaurants, inns, and baggage carriers offered needful services (Ohno, 2006, p. 30). Nevertheless, wheeled transport was not very important for longer journeys, as streets often turned to mud during the monsoon season. Water transport was much more popular, and though overseas travel was not allowed during Japan's isolation period, river and coastal water transportation were well organized.

With the forced opening to the West in the 1850s (see chapter 3.1.2.2), additional methods of transport appeared (Minami, 2016, pp. 20-22). Moreover, the government's industrial policies included the formation of modern social overhead capital and the supply of capital available for essential modernizing processes (Rostow, 1960, p. 24). In 1870, the government introduced a telegraph service between Tokyo and Yokohama; in 1871, the postal service emerged; and in 1872, the Tokyo-Yokohama railway line was opened (see chapter 3.1.3.8). Minami (2016) states that in the early Meiji period, traditional as well as modern social overhead capital developed very fast and contributed to consecutive economic growth (pp. 20, 22).

Table 6 shows that the development of land-based transportation had a very positive impact on travel times and expenses. Before the introduction of railways, nineteen days were required to go from Tokyo to Osaka by palanquin. In 1890, it was possible to do this journey within nineteen hours by railway, and when locomotives improved in 1912, travel time was reduced to under twelve hours. The costs for the trip also decreased significantly, from about eleven yen by palanquin to less than four yen by railway. The establishment of a functional rail network reduced expenses and time for passenger and freight transport. Consequently, commodity prices fell due to the reduced freight costs. Moreover, production costs decreased through the rise in speed, as the circulation of working capital accelerated. These developments introduced commodity markets all over Japan and contributed to the creation of labor markets (Minami, 2016, pp. 21-22).

Table 6. Changes in travel time and expenses in Japan, 1890-1912

(A) Travel time

	<i>Before the opening of railways (days)</i>	<i>By rail (hours and minutes)</i>		
		<i>1890</i>	<i>1909</i>	<i>1912</i>
Tōkyō–Ōsaka	19 (palanquin)	18'52"	12'00"	11'55"
Tōkyō–Sendai	5 (carriage)	12'18"	9'10"	8'58"

(B) Travel expenses

	<i>Before the opening of railways</i>				<i>(yen)</i>
	<i>Palanquin fares</i>	<i>Miscel- laneous</i>	<i>Lodging charges</i>	<i>Total</i>	<i>Railway fares</i>
Tōkyō– Yokohama	0.68	0	0	0.68	0.32
Tōkyō–Nagoya	6.53	0.09	1.16	7.79	2.76
Tōkyō–Ōsaka	9.45	0.13	1.89	11.36	3.67

Note. Reprinted from *The economic development of Japan: A quantitative study* (p. 21), by R. Minami, 2016, New York, NY. St. Martin's Press, Inc. Copyright (2016) by R. Minami.

3.1.2.6 Establishment of an effective modern government

As already mentioned in chapter 3.1.1.4, economically, the Edo society was more decentralized since the *bakufu* (central government) did not conduct constant economic policies. As long as it was not specifically prohibited by the *bakufu*, each *han* (local government) was allowed to decide its own internal policies and economic regulations (Ohno, 2017, p. 24). A modern and effective government came with the Meiji period (1868-1912). In the Meiji regime, a centralized government replaced the local autonomy of the *han* system (Rostow, 1969, p. 51). Moreover, the old rice tax was replaced by a new land tax in the form of money, which amounted to 3 percent of the land value (Ohno, 2017, pp. 38-39).

After Japan's international isolation over a period of more than 200 years, the country realized its backwardness toward Americans and Europeans. According to Minami (1986), this shocking realization was responsible for Japan's industrialization. Modernization and Westernization were the main goals of the Meiji regime. In order not to be colonized by Western nations, Japan wanted to catch up with them by introducing their technology and systems and by attaining national identity and unity (pp. 32-33). Japan tried to attain economic, political, and military modernization through the achievement of the following targets: (1) industrialization; (2) the introduction of a national parliament and constitution; and (3) external expansion. These targets were shared among Japan's population, all politicians, and officials

and were considered strictly necessary to be treated equally by Western countries (Ohno, 2017, p. 38). Especially a Western-style parliament seemed to be crucial. Therefore, Minister Hirobumi Ito visited Europe in order to turn to British and German legal experts for advice. Back in Japan, a constitution based on the German model was drafted. In 1889, the Meiji Constitution was promulgated, and Japan became the first country outside the West with a functioning constitution (Ohno, 2006, pp. 49-50). In 1890, an imperial parliament was convened. As public demand for more democracy increased, the first election was held in 1925 (Minami, 2016, p. 7). Sorensen (2005) emphasizes that there was a very sudden change from a closed country with a feudal political economy into an industrializing nation with fast-incorporated Western organizational forms, industries, and technologies after the opening of Japanese ports (pp. 12-13).

3.1.2.7 Rising investment rate (to about 5% of national income)

In the sixteenth century, medieval warfare changed significantly as weapons like cannons were introduced. It became important to enlarge their own defensive bastions, and, therefore, castle towns were established. These towns were financed through taxes, and regional lords assembled their vassals and a supporting population of service personnel, craftsmen, and merchants. Around ninety small castle towns appeared from 1572 to 1590, which continued to grow after 1600. The economic impact of the new towns was notable since construction required equipping, housing, feeding, and supervising laborers and technical specialists. As the first line of defense, lords often established samurai neighborhoods around the castles, as well as adjacent areas with mercantile facilities and free trade policies for commoners. Labor gangs, most of whom came from the countryside, were assigned to lay out roads, construct bridges, dredge canals, build warehouses and wharves, and erect fire-lookout towers. Settlers built houses and fabricated products in order to sell them to neighbors and samurai. Such castle town projects went on all over Japan during these decades and constituted an enormous exercise in capital investment. Totman (1993) states that *“through uncountable hours of effort, two generations of poorly paid and harshly driven laborers transformed forests into cities and monuments that future generations were able to utilize, even while directing most of their own energies to other tasks”* (p. 67). By 1630, the great age of construction was over. The number of building projects decreased noticeably as most of the desired mansion and castle works were finished. Besides, construction costs had been tremendous, so the *bakufu*'s exchequers were already in very bad condition (Totman, 1993, pp. 63-65, 67).

During the Meiji period, public investment was mainly used for education spending and to build up infrastructure, such as, for example, roads, water supply, the national telephone network, and railroads (see chapter 3.1.3.5). Particularly noteworthy is that there was almost no foreign direct investment (FDI) during that time. The government strictly avoided letting major projects like shipyards, railroads, or mines get into foreign hands. Especially in early Meiji, Japan did not want to borrow from abroad due to anxiety about foreign control (Ohno, pp. 58, 64, 94).

Mosk (2000) emphasizes that investment in infrastructure has always been very important for Japan's economic growth and industrialization. Specific figures on the investment rate, however, are not provided by him for the early Meiji period or before (p. 5). Minami (1986) also states that no reliable figures are available for that period and offers initial investment rate data from 1881 onward (p. 184).

3.1.2.8 Improved production techniques and new industries

In the early seventeenth century, society was economically very simple, and agriculture provided the largest part of Japan's total production. Peace, introduced by the new Edo government, brought notable economic growth. In addition to an expansion of cultivated land and higher profits, the non-agricultural sector began to develop. Handicraft production increased sharply, and products like silk, cotton, paper, lacquer and metal wares, knives, swords, textiles, medicine, and chemicals became very popular. There was steady demand pressure for such products caused by competing consumption, especially among the *bakufu*, the *daimyo*, and the *daimyo's* retainers (Dore, 1965, p. 11). Nevertheless, Japan was an economically backward country until the forced opening to the West in 1854 (see chapter 3.1.2.2). Mosk (2000) emphasizes, however, that the backwardness was a technological one only (p. 21).

The opening of Japanese ports caused significant economic changes. Westerners brought new industries to the country, and while new ones emerged, old industries declined. The opening was also responsible for the introduction of better technologies and modern production methods. Satsuma *han*, for example, imported new Western military technology. The Satsuma government started to produce cannons, blast furnaces, and Western ships. Soon, military capability and wealth rose, and Satsuma *han* played the main role in the later toppling of the *bakufu* government and the establishment of the new Meiji government (Ohno, 2006, pp. 33, 42).

"However growth before the mid-1880s was the result of the expansion of traditional industries (agriculture, the cottage industry in agricultural areas, service industry), not modern

ones (i.e. those with factories operating on a large scale and using modern production methods)" (Minami, 1968, p. 31). Modern economic development first started in the 1880s. Nevertheless, the growth before that was very important for the later progression (Minami, 1968, pp. 31, 34). During the Edo period, Japan stood on the brink of industrialization, awaiting externally provided impetus to initiate new expansion. While still lacking steam power or sophisticated engines, it had mature conditions politically, economically, and socially (Ohno, 2017, p. 23).

3.1.2.9 Increase in domestic and foreign trade

Economic growth, higher profits in agriculture, the development of food processing, and a rise in handicraft production led to an increase in trade in the Edo period. Especially the *bakufu*, the *daimyo*, and the retainers bought large amounts of agricultural and non-agricultural products, such as textiles, tea, tobacco, salt, pottery, sake, medicine, knives, etc. Each region produced its own specialty products in order to sell them all over the country. *Hans* often promoted the local industries to enrich the population in the region and raise tax revenue (Nishikawa & Amano, 1989). Tokushima *han*, for example, was engaged in the indigo promotion. Takamatsu *han* succeeded in the pilot production of sugar from sugar beets. Other *hans* were engaged in industrial promotion for paper, wax, lacquer, silk, pottery, coal, or lumber. Alongside these successful *hans*, however, were numerous unsuccessful ones that fell deeply in debt and were never able to pay them back (Ohno, 2017, pp. 31-33).

Until the 1630s, Japan was actively engaged in foreign trade with East and Southeast Asia and Europe. The isolation policy, starting in 1639 (see chapter 3.1.2.2), terminated almost all foreign relations, except the surviving Dutch and Chinese trade through the port of Nagasaki. Trade with these two nations has thus increased significantly. Different goods were traded, but cloth and silk yarn were the main imports and copper and silver the main exports (Totman, 1993, p. 141). Through the opening of Japanese ports in the mid-nineteenth century, products like tea and silk found enormous overseas markets. Farmers who produced these products became rich due to soaring export prices and the increasing output (Ohno, 2017, p. 36). Although overseas trade was important during the Edo period, domestic activity was the heart of the economy (Totman, 1993, p. 148).

Especially from the Meiji period onwards, foreign trade had a great impact on economic growth and was closely connected to industrialization. On the one hand, most of the raw materials, fuels, and capital equipment important for the growth of manufacturing were imported because Japan had few natural resources. On the other hand, Japan's exports expanded

as the competitiveness of technologically improved products rose on the world market. Minami emphasizes that “*the expansion of exports stimulates economic growth by; (1) creating effective demand (effective demand effect), and (2) allowing an increase in imports without incurring a balance-of-payment deficit*” (p. 222). East Asia, Europe, and North America were the most important markets for Japan. The country’s cotton-spinning industry, for example, was more successful than that of the United Kingdom and other nations during the pre-war period; therefore, it was possible to compete effectively on the world market and to earn foreign exchange (Minami, 1986, pp. 167-168, 224).

3.1.2.10 Increase in agricultural production capacity (around 75% of the workforce in agriculture)

As already mentioned in chapter 3.1.1.2, agriculture developed very slowly and depended on simple tools in the pre-historic period. In Japanese medieval times, especially in the Kamakura period (1183-1333 AD), however, improvements in agriculture increased harvests. Double cropping of fields was finally possible through a wider use of fertilizers, advanced irrigation techniques were developed, and new seed grains better resisted diseases and drought (Segal, 2008, p. 8). From the fifteenth century up to the seventeenth century, arable land in Japan, especially rice paddies, expanded vastly as *daimyos* conducted wide-ranging water management projects throughout the country. From there on, floods could be better controlled, and rivers were used for irrigation. It was not necessary anymore to produce rice in tight valleys, the only locations where steady water supply was ensured. Consequently, there was an enormous expansion of land under cultivation, and productive rice paddies developed rapidly (Ohno, 2006, p. 26).

Negative consequences like deforestation, labor shortages, and frequent floods stopped the quantitative expansion of farmland at the end of the seventeenth century. From then on, productivity continuously improved through intensive cultivation of land with large inputs of technology and labor, and rice output rose considerably. Farming guidebooks were published, new tools emerged, improved fertilizers appeared, and better species of rice were used. But also, double cropping of fields and advanced irrigation techniques contributed to increased productivity. The lives of farmers improved significantly as the new methods enabled them to produce more than needed for their own use. Crops like rice could be sold to the market, and commercial agriculture started to develop (Ohno, 2006, pp. 27-28). Seventy-two percent of the total workforce was still engaged in agriculture in 1872 (Minami, 2016, p. 22).

3.1.2.11 Population growth and increasing urbanization

From the middle of the fifteenth century to the late seventeenth century, arable land expanded enormously as efficient water management projects were implemented throughout the country. Uninhabitable marshland was turned into farmland, and consequently, Japan's population started to increase considerably (Ohno, 2006, pp. 26-27). According to Oishi, S. (1977), rapid population growth was rarely observed in a pre-modern society. The quantitative expansion of farmland, however, stopped at the end of the seventeenth century. Despite continued growth in rice output due to increased productivity, Japan's population did not further grow and remained stable at around 31 million in the year 1720 and beyond. Totman (1993) states that no reliable data exists for the earlier years but assumes that around 12 million people lived in Japan in 1600. He argues that population data from 1720 are reliably estimated based on a nationwide census (p. 140). Rozman (1973), in turn, notes that Japan's total population grew from around 18 million in the late sixteenth century to about 30 million at the end of the seventeenth century (p. 77). Simultaneously, there was a huge growth in the urban population, namely from 1.4 million to about 5 million inhabitants (Sorensen, 2005, p.12). The fast population increase during the seventeenth century led to a rising demand for food, clothing, fuel, and shelter requirements (Totman, 1993, p. 140).

The administrative and political center of Edo dominated the urban system. It was supposedly the world's largest city in the eighteenth century, with about one million residents. Besides, Osaka and Kyoto were very important cities in the urban system. Osaka was the financial and commercial center, and Kyoto was the ancient imperial capital, famous for its traditional handicrafts and arts industries, with several hundred thousand inhabitants each. Due to Japan's isolation policy, starting in 1639 (see chapter 3.1.2.2), international trade and foreign relations did not influence the cities' development during that time (Sorensen, 2005, pp.12-13).

3.1.3 Stage 3: The Take-Off

3.1.3.1 Overview: Stage 3

Table 7. W. W. Rostow's Stage 3

Stage 3: The take-off	- Strong stimulus (political revolution, technological innovation, or new international environment) - Radical change in production methods - Development of one or more industrial lead sectors with a high growth rate - Innovations in coal, iron, and heavy engineering through the railroad - Rising investment rate (to more than 10% of national income) - Sign of inflation (optional) - Around 40% of the workforce in agriculture at the end of take-off - Duration of around 20 years
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 7 shows Rostow's key criteria that, according to him, a country should fulfill in its third economic stage. In the following chapters, these criteria are examined in more detail and applied to Japan.

3.1.3.2 Strong stimulus (political revolution, technological innovation, or new international environment)

As an example of a stimulus, Rostow (1960) himself names the Meiji restoration in Japan in 1868, a pro-Western reform of the government that introduced the Meiji period (1868-1912). In that year, young samurai established the Meiji government and elevated the Emperor to the head of state, on the one hand, as a uniting symbol of the new government and, on the other hand, for legitimacy (p. 36). According to Rostow, the take-off requires a group in society that accepts innovations. In Japan, samurai played that role as a leading elite in economic growth. In the Meiji regime, a centralized government replaced the local autonomy of the *han* system (pp. 50-51). Moreover, the former rice tax was substituted by a renewed land tax, amounting to three percent of the value of land (Ohno, 2017, pp. 38-39).

After Japan's international isolation over a period of more than 200 years, the country realized its backwardness toward Americans and Europeans. According to Minami (1986), this shocking realization was responsible for Japan's industrialization. Modernization and

Westernization were the main goals of the Meiji regime. In order not to be colonized by Western nations, Japan wanted to catch up with them by introducing their technology and systems and by attaining national identity and unity (pp. 32-33). Japan tried to attain economic, political, and military modernization through the achievement of the following three targets: (1) industrialization, (2) the introduction of a national parliament and constitution, and (3) external expansion. These targets were shared among Japan's population, all politicians, and officials and were considered strictly necessary to be treated equally by Western countries (Ohno, 2017, p. 38). Especially a Western-style parliament seemed to be crucial. Therefore, Minister Hirobumi Ito visited Europe in order to turn to British and German legal experts for advice. Back in Japan, a constitution based on the German model was drafted. In 1889, the Meiji Constitution was promulgated, and Japan became the first country outside the West with a functioning constitution. An election took place, and in 1890, Japan's first imperial parliament was convened (Ohno, 2006, pp. 49-50). Blomström and La Croix (2006) state that the Meiji period achieved some drastic improvements and transformations, such as the defeat of China and Russia in war, the alliance on equal terms with Britain, and the rise to a major player in international economic affairs (p. 46).

3.1.3.3 Radical change in production methods

One of Japan's main goals was to introduce modern technology from the West. This, however, did not mean that traditional technology from former periods was completely replaced; but it was influenced by new methods. In the cotton industry, for example, traditional factories and machines existed side-by-side with modern production methods (Ohno, 2006, p. 57). Odaka (1990) notes that Meiji industrialization could be achieved through an appropriate combination of traditional Japanese technology and imported Western methods. There were several possibilities to internalize modern technologies from the West, for example, through the:

- guidance of foreign engineers. In the early Meiji period, foreign managers and engineers helped to construct new infrastructure and factories. The Japanese industry was highly dependent on their guidance.
- training of Japanese students. As the wages of foreign engineers were very high, the government nominated and supported outstanding students to go abroad in order to study at the best universities in America and Europe. The goal was to come back with the latest technology and ideas. Additionally, the Institute of Technology was created in 1877, and technical high schools were established all over Japan.

- adaptation of modern machines to their own requirements. Graduates from the Institute of Technology played a significant role in importing modern technology. They collected information, studied foreign technical treaties, purchased European and American machines, and adjusted them to their own requirements (Ohno, 2006, pp. 62-65; Minami, 1986, pp. 143-144).

At the end of the Meiji period, Japan was effectively industrialized in light industries, especially textiles. Goods like cotton clothes, cotton yarn, knitwear, umbrellas, lamps, clocks, and glass products were exported, while materials needed to produce these light industry goods were imported. In the early twentieth century, even the traditional sector used machines to improve efficiency and to counteract rising salaries, textile recessions, and the falling price of output (e.g., fabric) relative to input (e.g., yarn). Japanese machines, however, were imitations of models from the West and were of poor quality (Ohno, 2006, pp. 57-59). As the development of machinery and heavy industries did not start until the First World War, Japan's machinery industry was greatly dependent on Western technology during the Meiji period (Kim, et al., 1995, p. 4). The rapid growth of light industries with modern production methods resulted in an obvious increase in per capita production. Minami (1986) writes:

Dividing the economic growth rate into the growth rates of population and of per capita production, we observe rising trends for both. The rise in the population growth rate was caused by an increase in birth-rates until the 1920s, and a decline in death-rates thereafter. The rise in the growth rate of per capita production was a result of the modernization of the industrial structure. (pp. 416-417)

3.1.3.4 Development of one or more industrial lead sectors with a high growth rate

In the early Meiji period, numerous state-owned enterprises (SOEs) were established in silk spinning, shipbuilding, mining, and military production. The government tried to introduce modern technology to these companies, which were based on the Western model and had a strong demonstration effect on engineers in training. Although most SOEs were economically unattractive, they were very important for emerging entrepreneurs to gain comprehensive knowledge about how to set up their own company. Later, many SOEs were sold to private entrepreneurs and became successful through reorganization and investment by the new owners. The emerging private sector was supported by the government in order to strengthen domestic industries and become a strong competitor against rivals from abroad (Minami, 1986,

pp. 27-29). “*With official assistance, big businesses started to develop. Politically well-connected businessmen were called seisho and their business groups were called zaibatsu*” (Ohno, 2017, p. 40). Many powerful companies and business groups emerged during the Meiji era, such as, for example, Mitsubishi, Yasuda, Asano, and Furukawa. The ups and downs of these companies, however, were very unsteady during that time. Economic changes like international trade, foreign technology, the transformation of relative prices, and demand shifts were responsible for the replacement of old companies with new ones. Entrepreneurs who did not undertake reforms mostly failed to survive these economic changes (Ohno, 2017, pp. 40-42).

One of Japan’s leading industrial sectors during the Meiji period was the cotton industry. It was the largest industry throughout the period and the first modern industry that developed (Tsutsui, 1999, p. 33). Western textile technology was quickly absorbed, and after the opening of Japanese ports in the late Edo period, cotton clothes were imported from Britain. Subsequently, cotton yarns were imported to weave clothes for the Japanese population, and the demand for cotton products increased rapidly. As the domestic cotton market was quite successful, exports of cotton yarns started while raw cotton was imported. By late Meiji, Japan was an important cotton clothing exporter, and “*the modern cotton industry became the pillar of Japanese manufacturing*” (Ohno, 2006, p. 77). Responsible for the fast rise were (1) enriched farmers who switched from homemade clothes to external purchases; (2) successful merchants who established a nationwide sales network; and (3) the low prices of clothes relative to the general price level (Ohno, 2006, pp. 74-76).

Another important leading sector with a high growth rate was the silk industry. The ancient traditional industry found massive overseas demand after the opening of the ports, and silk remained Japan’s most important export item for almost a century. Exports of raw silk accounted for around 36 percent of commodity exports during the 1870s and 1880s. Besides, the manufacturing industry’s output of raw silk amounted to 6 to 7 percent during these two decades, while this percentage increased to almost 9 percent at the end of the nineteenth century (Minami, 1986, p. 28). The silk boom was responsible for several positive consequences. Firstly, the silk industry had an impact on other sectors, as silk production, especially silkworm raising, silk spinning, and mulberry cultivation, spread all over the country. Consequently, rural income increased tremendously. Secondly, a new merchant class arose that provided price information, offered trade credits to producers, and informed them about the latest technology. Foreigners had to rely on Japanese merchants and were not able to build up their own distribution network since they were restricted to defined foreign settlements. Thirdly,

production methods changed simultaneously with the continued silk exports. Initially, farmers were responsible for the production of silk, but later, machine spinning replaced manual labor. Although silk spinning was undertaken by factories at the end of the Meiji era, silkworm raising remained a farmer's job (Ohno, 2017, pp. 61-63).

3.1.3.5 Innovations in coal, iron, and heavy engineering through the railroad

According to Rostow (1960), *"the introduction of the railroad has been historically the most powerful single initiator of take-offs. It has played an extremely important part in the Japanese case"* (p. 55). In 1869, Horatio Nelson Lay negotiated a loan, secured on Japanese customs revenue, in London. Subsequently, the British diplomat went to Japan in order to conclude the loan agreement and to finance Japan's first railway construction project. The British civil engineer Edmund Morel was selected as principal engineer and constructed the Tokyo-Yokohama line in 1872 (Nish, Hoare, & Cortazzi, 1994, pp. 49-50). In 1881, Viscount Inouye, the superintendent of Japan's Railway Bureau, renounced foreign advisers and guided the completion of the Kyoto-Otsu line, the first line constructed by Japanese engineers. During the 1880s and 1890s, private enterprises took over with the help of extensive state support, like guaranteed rates of return and concessions. Thirty-six percent of Japan's government subsidies were spent on railways in the 1880s; however, private networks were quite desultory and were not suitable for the national economy. Therefore, the government nationalized major trunk lines in 1906, while private capitalists were bought out with tolerant compensation. A widespread railway network was built, with 7.000 miles open in 1914 and about 14.000 miles in 1934. Additionally, the South Manchuria Railway had been acquired due to the victory over Russia in 1906 (Macpherson, 1987, pp. 30-31). Furthermore, rail networks for industrial purposes were built and used for coal transport, like the Japanese National Railways' (JNR) line between Sapporo and Temiya, constructed in 1880. JNR constantly enlarged its rail network, and other enterprises followed. The railroad was highly conducive to the rapid development of the export sector and has led to innovations in coal, iron, and engineering (Minami, 1986, pp. 119-120).

Railways had military importance, as did their ancillaries, steel and iron. Although there was a shortage of iron ore, the government generated a steel and iron industry. In 1901, the state-owned Yawata Iron and Steel Works started to produce but was not very successful until 1910. During and after the First World War, however, the Yawata Works, as well as new private enterprises, rapidly raised their production (Macpherson, 1987, p. 31). According to Minami (1986), *"the main contribution of the railways lies in the external economies resulting from their operation"* (p. 122). Railways offered cheap, high-speed, and large-scale transportation

not only for passengers but also for commodities. A good example of the contribution of railways to other industries is the opening of the Joban Line in 1897. Coal production in the mines in the Joban region rose quickly after 1897, as the railway enabled the transportation of pit props, coal products, and miners. Coal production increased from 110.000 tons in 1899 to 600.000 tons in 1913, and additionally, the transportation costs of coal decreased significantly after the opening of the Joban Line. This resulted in a fall in the price of Joban coal and supported demand for it (Minami, 1986, p. 122).

3.1.3.6 Rising investment rate (to more than 10% of national income)

During the Meiji period, domestic capital accumulation expanded. According to Minami (1986), *“the proportion of domestic capital formation to gross national expenditure (GNE) – that is, the investment rate – grew steadily, reaching high levels at the end of the pre-war period”* (p. 416). The introduction of new products and technology during the Meiji period was, among other things, responsible for this increase in investment. Another reason for the heavy investment activity was the expectation of high returns on capital (Minami, 1986, p. 416). Moreover, the rise in investment rate was due to an income redistribution from the samurai and the *daimyo* to the central government as well as to landowning peasants who had higher marginal propensities to save (Tsutsui, 1999, p. 34).

As already mentioned in chapter 3.1.2.6, public investment was mainly used for educational expenses and to build up infrastructure during the Meiji period. But it was also taken for the economic management of Taiwan, a colony acquired in 1895. Especially after the Japan-China (1894-95) and Japan-Russia (1904-05) wars, there were aggressive spending and public investment programs conducted by local and central governments (Ohno, 2006, p. 58).

It is particularly worth mentioning that there was almost no foreign direct investment (FDI) in early Meiji due to the fear of foreign control. At the end of the Meiji period, however, foreign loans were welcomed for the purposes of war execution and post-war management. Furthermore, since 1899, foreigners have also been allowed to invest outside the designated foreign settlements. That, however, did not lead to a rise in FDI inflow (pp. 64, 94-95). The shareholders of Japanese enterprises were mostly former *daimyos* and rich merchants who wanted high returns on their investments. But there were also high-level engineers and managers with the goal of expanding their company in the long run through reinvestment of profits (Ohno, 2006, p. 77). Moreover, Rostow (1960) emphasizes that Japan's foreign trade was a very crucial part of the reinvestment process during take-off. The fast expansion of exports was used to finance the import of capital goods and to cover foreign debt. Japanese silk

fulfilled this function (p. 48). Table 8 shows Japan's investment rate from 1881 to 1979, while the variable α measures the amount of invested income. The figures indicate a very clear upward trend in Japan's investment rate and show that it has been over 10 percent of national income since 1881 (Minami, 1986, pp. 180-182).

Table 8. *The investment rate in Japan, 1881-1979*

Japan	
	Investment rate (%) α
1881-1900	10.60^f
1901-20	14.66
1921-40	17.82^j
1941-60	23.02^e
1961-79	30.92

Notes:

α = real fixed capital formation (CF) $\div$ real GNP (Y) $\times$ 100.

Adapted from *The economic development of Japan: A quantitative study* (p. 184), by R. Minami, 1986, London, UK. The Macmillan Press Ltd. Copyright (1986) by R. Minami.

3.1.3.7 Sign of inflation (optional)

The opening of Japanese ports in the late Edo period caused considerable economic and social changes. In 1858, the *bakufu* government signed unequal commercial treaties with the West, which led to severe criticism from the opposition (see chapter 3.1.2.2). First, the Japanese court had no right to judge foreign criminals in its own country, and second, Japan could not decide its own import tariffs, which were set uniformly at 5 percent after a while. The unequal treaties, as well as the inflow of foreign products and technology, caused economic turmoil, including shifts in relative prices and the industrial structure and high inflation (Ohno, 2017, p. 37).

Inflation accelerated as a huge amount of inconvertible paper money was issued by the central government in the early Meiji period. The paper notes were printed in order to fund a civil war initiated by the uprising of the influential samurai Takamori Saigo in 1877 (Shindo, 1954, p. 41). At first, politician Shigenobu Okuma tried to control inflation and stop monetary confusion by changing from an expansion policy to austerity. In 1881, Chancellor of Finance Masayoshi Matsukata continued the austerity measures and introduced a deflationary policy. Consequently, inflation came to an end, and commodity prices decreased. In addition, he

introduced a modern monetary system with the Bank of Japan as a central bank (see chapter 3.1.3.6) (Ohno, 2006, p. 57).

3.1.3.8 Around 40% of the workforce in agriculture at the end of take-off

Although there was a constant growth of modern industries during the Meiji period, primary industry was still the largest absorber of the labor force in Japan (see figure 2). The share of agricultural employment, however, was gradually declining (Ohno, 2006, pp. 66-67). Table 9 compares the proportions of employees in agriculture in Japan and in western countries around 1870. In Japan, agricultural workers accounted for 72 percent of the total in 1872, while this figure decreased to 70 percent in 1888 and to 45 percent in 1938 (Minami, 1973, p. 312; Minami, 1986, pp. 33, 272). The table indicates that Japan's agricultural sector's share of total employment was much higher than that of other developed nations at that time. According to Minami (1986), this resulted, among other things, from Japan's backwardness, initiated by the nation's international isolation during the Edo period (pp. 32-34).

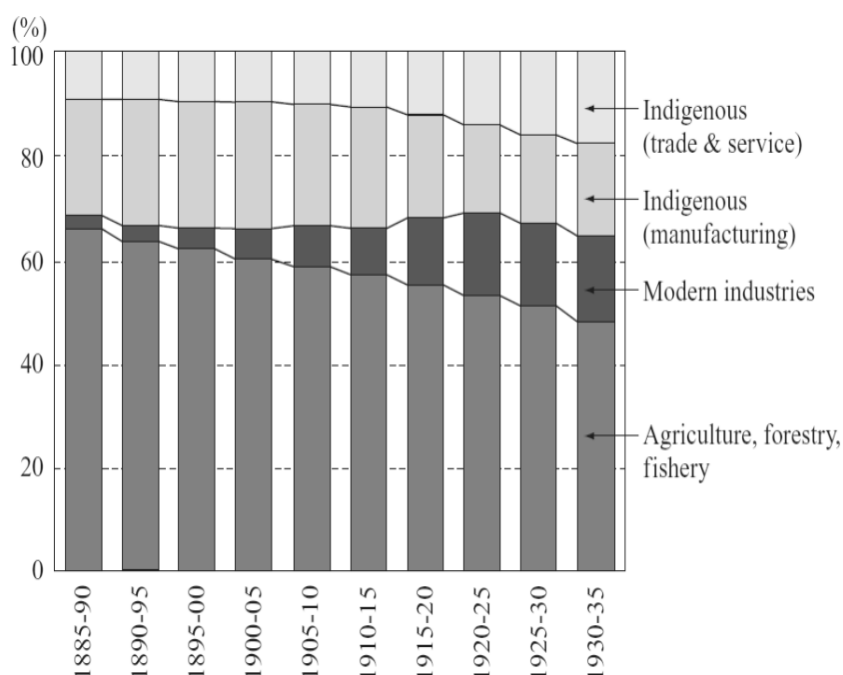


Figure 2. Employment structure in prewar Japan, 1885-1935. Reprinted from *The economic development of Japan: The path traveled by Japan as a developing country* (p. 67), by K. Ohno, 2006, Tokyo, JP. Yuhikaku Publishing Co. Ltd. Copyright (2006) by K. Ohno.

Table 9. Agriculture's share of the total labor force in developed countries around 1870

Agriculture's share of total labour force (%)	
UK	19 (1871)
Netherlands	29 (1899)
Belgium	25 (1880)
USA	51 (1870)
France	43 (1866)
Germany	36 (1882)
Canada	50 (1871)
Italy	51 (1871)
Denmark	54 (1870)
Norway	49 (1875)
USSR	77 (1897)
Japan	72 (1872)

Note. Reprinted from *The turning point in economic development: Japan's experience* (p. 312), by R. Minami, 1973, Tokyo, JP. Kinokuniya Bookstore Company. Copyright (1973) by R. Minami.

3.1.3.9 Duration of around 20 years

According to Rostow (1960), *"in a decade or two both the basic structure of the economy and the social and political structure of the society are transformed in such a way that a steady rate of growth can be, thereafter, regularly sustained"* (pp. 8-9). He mentions that Japan launched its take-off in the fourth quarter of the nineteenth century. Moreover, Kuznets (1971) puts the start of Japan's modern economic growth to the second half of the 1870s, while Lockwood (1954) dates the onset of the take-off to the 1890s. Minami (1986) sees Japan's take-off during the 1880s and states:

With the accelerated development of traditional elements and the addition of modern ones in the early Meiji Period Japan had, by the mid-1880s, attained a high level of development, both socially and economically, and was thus in a comparatively favourable position for her modern economic 'take-off'. (p. 32)

3.1.4 Stage 4: The Drive to Maturity

3.1.4.1 Overview: Stage 4

Table 10. *W. W. Rostow's Stage 4*

Stage 4: The drive to maturity	- New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead - Rising investment rate (to 10-20% of national income) - Changing structure of the workforce (wages, composition, and qualifications) - Increasing population and rising urbanization - Around 20% of the workforce in agriculture by maturity (optional) - Duration of around 40 years (optional)
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 10 shows Rostow's main criteria that he believes a country should fulfill in its fourth economic stage. In the following parts, these criteria are discussed in more detail and applied to Japan.

3.1.4.2 **New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead**

Japan's export-led boom, which occurred during World War I, benefited most industries. Shipbuilding and marine transportation expanded the fastest, and from 1913 to 1919, overall manufacturing grew 1.65 times. Remarkably, the output of the machinery industry grew 3.1 times, while that of steel and chemicals rose 1.8 times and 1.6 times, respectively. The rapidly expanding sector of heavy and chemical industries (HCIs) included machinery, chemicals, manmade fiber (rayon), and steel (Ohno, 2006, p. 101). World War II led to a considerable decline in Japan's manufacturing production, but the production index recovered quickly and achieved an extremely high growth rate in the 1950s and 1960s, namely 14-16 percent. The relative contribution of light industries to total manufacturing growth was only 12 percent during the period 1956-80, compared with 75 percent for HCIs. The changing composition of manufacturing output was due to an altered export structure. "Light industries' share of total merchandise exported decreased from 40 per cent in the 1950s to 7 per cent in the 1970s, while heavy and chemical industries' share increased from 43 per cent to 86 per cent" (Minami, 1986, pp. 136-137).

For a long time, coal had been the only domestically available energy source in Japan. However, the coal industry was hit badly because the global energy source shifted from coal to much cheaper oil. Japan's dependency on imported oil increased subsequently to 99.7 percent. The coal industry disappeared while new industries became more competitive (Ohno, 2006, p. 165). The shipbuilding industry, for example, was one of the new leading sectors that occurred. Numerous skilled laborers were required directly by shipyards, along with supporting industries like steel mills, railroads, and engine manufacturers. Ohno (2017) emphasizes that vertical interdependencies between material-producing and -using sectors were quite common. As an example, he mentions an increase in the steel industry, which stimulated steel-using industries such as machinery and shipbuilding, and vice versa (p. 85).

Another important leading sector that was newly developed was the steel industry. As railways and their ancillaries, steel and iron, had military importance, the government generated a steel and iron industry (see chapter 3.1.3.4). Although there was a shortage of iron ore, the state-owned Yawata Iron and Steel Works started to produce in 1901. The founding of the company and the domestic production of steel and iron were fundamental for extensive industrialization. World War II was a driver for the economy to participate in the manufacturing of military products, with warplanes and ships as key products. Furthermore, the machinery industry played a crucial role in Japan's economic development. The nationalization of the railways, as well as the growing shipbuilding industry in the early twentieth century, led to innovations and a sharp rise in the machinery industry. According to Minami (1986), the machinery industry was the most important subindustry of Japan's HCIs, with a growth rate reaching a high of 14.6 percent during the period 1954-80. Exports increased significantly in this industry, as huge amounts of consumer durables and production equipment, such as automobiles, electrical appliances, ships, and optical instruments, were exported all over the world (pp. 13, 136-137). The chemical industry was another important leading sector. Molony (1990) emphasizes the strategic importance and commercial success of the chemical industry. According to her, the electrochemical industry was the most advanced industry in Japan before the Second World War but was surpassed in importance by petrochemicals after the war (p. 4).

3.1.4.3 Rising investment rate (to 10-20% of national income)

At the end of the Meiji period, more than one-fifth of the investment consisted of imports of foreign capital. After a while, dependence on foreign capital decreased and most of the investment funds were provided by domestic savings, as the savings rate grew during the pre- and post-war periods (Minami, 1986, pp. 201, 216). Mosk (2000) states that domestic

investment in infrastructure and industry was a main driving force behind Japanese growth (p. 6). While the manufacturing sector was mostly left to private investors, public and private sectors invested in infrastructure. The largest proportion of private infrastructure investment was occupied by the construction of hydraulic power plants, followed by railroad construction (Ohno, 2017, p. 85).

With the outbreak of the First World War in 1914, Japan's share of world markets rose enormously. As the European major powers started fighting each other, they were not able anymore to meet the demand for their products. Japan's economy experienced a tremendous export-led boom because global demand switched from Europe to Japan. The massive export expansion stimulated the investment activity, and the investment ratio went up. In 1917, exports peaked and decreased thereafter. Exports in GNE fell from 27 to 14 percent during the period 1917-21 (Minami, 1986, pp. 47-48, 216). According to Molony (1990), "*investment decisions included choices about which technologies to develop and whether to invest in expansion of existing productive capacity, in diversification of product, or in coordination of the major factors of production*" (p. 3). Table 8 (see chapter 3.1.3.5) indicates that there was a clear upward trend in Japan's investment rate. It increased from 14.66 percent of national income during 1901-20 to 17.82 percent during the period 1921-40.

3.1.4.4 Changing structure of the workforce (wages, composition, and qualifications)

During the 1920s, Japan experienced recessions, a fatal earthquake in the Kanto region, and a bad banking crisis. In these years, takeovers and mergers strengthened modern industries. It was tried to make management more efficient by a move towards monopoly and a growth of the *zaibatsu* (Minami, 1986, p. 48). The largest *zaibatsu* were Mori, Nicchitsu, and Nissan. Compared with old *zaibatsu* like Mitsubishi, Sumitomo, Yasuda, and Mitsui, the new ones were based on heavy and chemical industries without much involvement in commerce, banking, and light manufacturing. They were greatly dependent on political connection and official support and invested heavily in the Japanese colonies of Manchuria (Northeastern China) and Korea (Ohno, 2017, p. 87).

As the importance of heavy manufacturing increased, the demand for skilled workers who react flexibly to fast changes in technique rose significantly. Large and modern enterprises in these industries offered premium wages and introduced two new working systems during the 1920s in order to motivate and hold valuable employees. These two working systems, namely the lifetime employment system and the seniority wage system, were functionally

interdependent. In the lifetime employment system, employees started to work in a company after completing school with the expectation of staying in that firm until retirement. The seniority wage system should compensate for rising living costs caused by the employees' growing family size and expenditures with his/her age (Marsh & Mannari, 2015, p. 120). According to Minami (2016), *"they made all possible efforts to retain their skilled workers and take on less unskilled ones. Thus there was...a surplus of the latter, and the difference between skilled and unskilled workers' wages increased"* (p. 44). These Japanese employment practices contributed to economic growth by strengthening ties between management and labor. In contrast, light manufacturing, agriculture, and small firms in general offered low salaries, therefore, the income gap between the urban industrial centers and rural Japan widened strongly (Mosk, 2000, p. 252). Incidentally, many companies reviewed their working systems in the 1990s and introduced merit-based pay systems that placed emphasis on performance (Statistics Bureau Japan, 2018: Chapter 12).

Minami (1986) examines the transformation of real wages over time. He states that real agricultural wages remained almost constant during the pre-war period but rose spectacularly from 1916 to 1920 and decreased quickly thereafter due to changes in the demand for labor. After the First World War, the supply of unskilled workers was limited, but not during the subsequent recession. According to him, almost all agricultural workers were unskilled, while employees in other sectors, such as the manufacturing sector, were often skilled. After 1915, real manufacturing wages for both sexes rose constantly for a few years. While male wages further grew until World War II, female wages in manufacturing started to fall after 1922 (pp. 300-302).

3.1.4.5 Increasing population and rising urbanization

The share of the population categorized as urban rapidly increased as employment in the industrial belt of Japan grew. Particularly in urban agglomerations, such as Tokyo, Nagoya, and Osaka, per capita incomes increased significantly when heavy industries in these areas expanded. As a consequence, the gap between Japan's urban centers and the rest of the nation widened (Mosk, 2000, pp. 214-215). In the 1880s, more than 80 percent of Japanese people lived in settlements with less than 10,000 residents. This percentage constantly decreased to around 70 percent during the First World War and to below 50 percent by World War II. The population of urban areas, however, grew sharply, especially of the agglomerations Tokyo/Yokohama, Nagoya, and Osaka/Kyoto/Kobe (Taeuber, 1958, pp. 47-50, 71). In 1888, inhabitants of these six cities amounted to 6 percent of Japan's total population, whereas this

proportion increased to 11 percent in 1918. Especially the interwar period recorded fast urbanization (Francks, 2002, p. 235). As can be seen in table 11, in addition to growing urbanization, there was a general rise in population. While Japan's total population amounted to 52.91 million in 1913, it almost constantly increased to 83.2 million in 1950 and to 127.51 million in 2009 (Statistics Bureau Japan, 2019: Chapter 02).

Remarkably, there was a sharp decrease in urban population at the end of World War II. While Tokyo still had a population of 7,271,001 in 1944, this number fell to 3,488,284 in 1945 (see table 11). An explanation for this could be the demolition of urban areas at the end of the Second World War. Fedman and Karacas (2012) present evidence of the systematic destruction of 66 larger cities in Japan by US military bombers. They report about enormous areas that were burned to the ground and cities that were completely destroyed. Ohno (2006) states that US aerial bombing destroyed all Japanese major cities, except Kyoto, toward the end of the war (pp. 138-139). Table 11 shows that the population decrease was much lower in Kyoto than it was in Tokyo or Osaka from 1944 to 1945. According to Mosk (2007), some of the rise in measured urbanization in the post-war period was because of administrative reorganizations in the 1950s. The geographical boundaries of numerous Japanese cities were expanded by the government so that water, infrastructure, and sewage treatment could be delivered more effectively to the surrounding suburbs (p. 292).

Table 11. *Population by prefecture, 1913-2009*

Year	Japan	Tokyo	Kyoto	Osaka
1913	52,911,800	2,809,600	1,222,700	2,175,700
1920	55,963,053	3,699,428	1,287,147	2,587,847
1930	64,450,005	5,408,678	1,552,832	3,540,017
1940	71,933,000	7,283,700	1,705,400	4,736,900
1944	73,064,316	7,271,001	1,635,528	4,412,953
1945	71,998,104	3,488,284	1,603,796	2,800,958
1950	83,199,637	6,277,500	1,832,934	3,857,047
1960	93,418,501	9,683,802	1,993,403	5,504,746
1970	103,720,060	11,408,071	2,250,087	7,620,480
1980	117,060,396	11,618,281	2,527,330	8,473,446
1990	123,611,167	11,855,563	2,602,460	8,734,516
2000	126,925,843	12,064,101	2,644,391	8,805,081
2009	127,510,000	12,868,000	2,622,000	8,801,000

Note. Adapted from *Historical statistics of Japan*, Chapter 02, by Statistics Bureau Japan. Ministry of Internal Affairs and Communications, 2012. Copyright (2012) by Statistics Bureau Japan.

3.1.4.6 Around 20% of the workforce in agriculture by maturity (optional)

Japan's primary sector's share of total employment still accounted for 45 percent in 1938. For comparison, most developed countries had a much lower share of total employment in the agricultural sector, such as, for example, Great Britain with only 22 percent in 1841 or Australia with 30 percent in 1861 (Minami, 2016, p. 213). There was, nevertheless, a steady fall in the employment of Japan's primary sector, namely from 16.4 million in 1910 to 14.3 million in 1920, while a simultaneous rise in the non-primary sectors occurred (Francks, 2002, p. 63). Japan's manufacturing sector's share amounted to 19 percent in 1910, with increased employment in the machinery, chemical, and metal industry. Besides, the share of the service sector totaled 21 percent in that year (Minami, 1968, p. 272). Clark (1951) empirically confirms that in developed countries, shifts in employment prevail, first from the primary to the manufacturing sector, and later to the service sector. This pattern, however, is not always seen in developing countries (p. 396).

3.1.4.7 Duration of around 40 years (optional)

Rostow (1960) states that society has fully experienced industrialization at the end of the fourth stage and is then ready to move forward to the last stage. He offers some rounded symbolic dates for arrival at technological maturity and dates the end of stage 4 for Japan in 1940. He argues, however, that the technical definition of maturity must be an estimation when applied to a whole national society (p. 10). Ohno (2006) dates the end of catching up in the early 1970s as Japan's spectacular economic growth was over, and transition to lower growth was indispensable since the economy had caught up with western economies and matured. He emphasizes that it is much easier for a developing country to import new systems and technology than it is for a developed country to continue growing. As a developed country, it is no longer possible to copy others, but it is necessary to create something new for growing. *"Naturally, clearing your own path is harder and slower than following someone else's"* (Ohno, 2006, p. 184). Furthermore, Mosk (2000) states that Japan achieved sustained growth between the 1880s and the early 1970s and that the country completed its nine-decade-long convergence to global competitiveness through industrialization.

3.1.5 Stage 5: The Age of High Mass-Consumption

3.1.5.1 Overview: Stage 5

Table 12. W. W. Rostow's Stage 5

Stage 5: The age of high mass-consumption	- Increased resources for social welfare and security - Rising consumption of durable and luxury goods - High per capita consumption and high real per capita income - Less than 20% of the workforce in agriculture through a shift towards services
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 12 shows Rostow's key criteria that a country should fulfill, according to him, in its fifth economic stage. In the following chapters, these criteria are discussed in more detail and applied to Japan.

3.1.5.2 Increased resources for social welfare and security

In general, the government of a nation is responsible for social security (sickness benefits, pensions, etc.) and a well-developed constitution that deals with social welfare and public health. The extent of social security is a crucial parameter for determining the welfare of a population. Table 13 represents that real expenditure on social security, as well as its share of national income, rose constantly in the pre-war and the post-war periods. Particularly after World War II, the growth was enormous due to a Japanese population that demanded improvements in public security. Comparing Japan with other developed nations in this respect, however, shows that relative to income per capita, expenditure on social security was low in Japan (Minami, 2016, pp. 306-307).

Worthy of mention is Japan's aging population. People aged 65 years and over amounted to 29.1 percent of the total population in 2023, which was the highest level on record. Besides, the birth rate fell, and the child population (0-14 years) constituted a record low of 11.4 percent of Japan's total population in the same year. Consequently, the ratio of the dependent population amounted to 68.2 percent. Japan's social security system has had to adapt quickly to the changing age structure. The country established a long-term care insurance system in April 2000, with 2.18 million people certified as needing care. This figure increased to 5.86 million people within four years. Moreover, every Japanese citizen receives required medical treatment due to a publicly regulated medical insurance system. This healthcare system contributes to

Japan's high life expectancy, which is at the highest level worldwide (Statistics Bureau Japan, 2025: Chapter 02, Chapter 15).

Table 13. *Real social security expenses per capita and the ratio of social security expenses to national income in Japan, 1890-1987*

<i>Fiscal year</i>	<i>Real social security expenses per capita (yen)</i>	<i>Social security expenses-national income ratio^a (%)</i>
1890	0.2	0.2
1900	0.4	0.3
1920	1.0	0.5
1938	3.7	1.2
1955	14.4	5.7
1970	60.0	6.3
1987	209.6	14.3

^a National income for the pre-war period is for calendar years.

Reprinted from *The economic development of Japan: A quantitative study* (p. 307), by R. Minami, 2016, New York, NY. St. Martin's Press, Inc. Copyright (2016) by R. Minami.

3.1.5.3 Rising consumption of durable and luxury goods

After Japan's recovery period of World War II and the Korean War (1950-1953), the economy passed through a period of high growth. Average annual real (inflation-adjusted) growth amounted to 12.1 percent in the 1960s (Lincoln, 2010, p. 2). This tremendous growth transformed the society and the economy considerably in the early 1970s and caused a rising importance of durable and luxury goods. "*Advances in computers, sophisticated automobiles, biotechnology, ceramics, optoelectronics, and consumer electronics have led the growth of an economy that was leveled by the destruction of World War II*" (Molony, 1990, p. 1). After the war, there was a notable rise in the purchase of consumer durables, especially of cars and electrical products, due to declined prices and increased wages. Household appliances, such as washing machines, microwave ovens, and vacuum cleaners, achieved large sales since they diminished the burden of housework. Additionally, durable goods like record players and televisions found a large market, as they were a source of pleasure. In 1956, 51.4 percent of Japanese households owned refrigerators. This figure increased to 98 percent in the year 2000. While the number of households with an own car amounted to 22.1 percent in 1970, it rose to 83.6 percent in 2000. Comparing the figures for color TVs and air conditioners shows that they also sharply soared, namely from 26.3 percent and 5.9 percent in 1970 to 99 percent and 86.2 percent in 2000 (Statistics Bureau Japan, Historical Statistics: Chapter 20). The huge rise in the

purchase of consumer durables, however, also caused negative consequences like environmental pollution from cars (Minami, 2016, p. 304).

3.1.5.4 High per capita consumption and high real per capita income

The true reason for Japan's enormous growth during the 1950s and the 1960s is still discussed by economists. Causes like strong investment, solid exports, or high consumption are most frequently mentioned. It is certain, however, that Japan's consumption boom was a relevant attribute of the high-growth era. At the end of the 1950s, consumption per capita increased sharply, as consumers purchased durable goods like refrigerators, washing machines, TVs, and cars (see chapter 3.1.5.2). Prices for these goods decreased since markets expanded, by what demand was further stimulated, and a new middle class that bought these durable goods emerged (Ohno, 2006, p. 176). In the early 1970s, Japan's high growth era came to an end, and the average annual real GNP growth rate declined from 12.1 percent in the 1960s to 3.8 percent in the period 1974-85. This kind of growth slowdown was common to all industrial nations in the 1970s. Two global oil shocks were responsible for a sharp increase in consumer prices during that time. Table 14 shows that in a global comparison, Japan's growth rate remained higher than in other industrial countries. While it grew three times as fast as in the US during the 1960s, the ratio declined to around one and a half times from 1974 to 1985 (Lincoln, 2010, pp. 2-3).

When it comes to real per capita income, Ohno (2006) notes that the Japanese economy was characterized by a labor surplus for a long time. The high growth era, however, considerably changed the situation, and the labor surplus transformed into a labor shortage (p. 177). Consequently, income per capita rose rapidly as real salaries increased at an annual rate of 4.8 percent from 1954 to 1980 (Minami, 1986, p. 300). As already mentioned in chapter 3.1.4.3, there was a significant wage differential between skilled and unskilled workers in the 1920s. In the 1970s, however, wages of unskilled workers rose almost as much as those of skilled workers because the supply of unskilled workers was limited during that time. Minami states that real manufacturing wages for both sexes rose significantly after World War II, whereas the growth rate of male wages was lower than that of female wages. While real wages for Japan's entire economy (agricultural, manufacturing, and service sectors) grew by 1.4 percent from 1900 to 1938, they increased by 6 percent from 1956 to 1980 (Minami, 1986, pp. 301, 309). Due to Japan's high economic growth rate after World War II, real wages increased much faster in Japan than in other developed nations. According to Ohno (2006):

Japan's per capita income surpassed that of Italy in 1966 and that of Britain around 1975. Japan did not overtake the US, West Germany or France but came close to them by the mid-1970s. Thus, it can be said that Japan was firmly in the highest income group by the 1970s. (p. 185)

Table 14. Average annual real GNP growth rates in industrial countries, 1960-85

Percent			
<i>Country</i>	<i>1960-69</i>	<i>1970-73</i>	<i>1974-85</i>
Japan	12.1	7.5	3.8
United States	4.1	3.2	2.2
West Germany	5.7	4.2	1.8
France^b	5.8	5.6	2.1
Great Britain^b	3.1	3.7	1.3

Note. b. Data are for GDP. Reprinted from *Japan: Facing economic maturity* (p. 3), by E. J. Lincoln, 2010, Washington, DC. Brookings Institution Press. Copyright (2010) by E. J. Lincoln.

3.1.5.5 Less than 20% of the workforce in agriculture through a shift towards services

During the course of Japan's economic growth, there was a considerable change in the distribution of employees among industries. The primary sector's share of total employment gradually decreased and constituted 11 percent in 1980 (as compared to 30 percent in 1960 and 17 percent in 1970). *"The decline of the agricultural labour force that occurred in almost every developed country was delayed in Japan, but finally began during the post-war period, when rapid economic growth brought about a largescale outflow of agricultural labour"* (Minami, 2016, p. 251). Especially the growing employment in the industrial belt of Japan contributed to an increasing rural exodus. Old farmers were not replaced by younger ones, and agricultural work was often only done for additional income (Fukui, 1975, pp. 136-137).

The demand for labor in the non-primary sector, however, has increased strongly due to fast economic growth since the mid-1950s. The manufacturing sector's share of total employment rose from 19 percent in 1910 to 41 percent in 1980, whereas the proportion of workers in the service sector grew from 21 percent to 48 percent during that time. Especially in the 1970s, the share of the service sector grew significantly (Minami, 1986, pp. 272-273). During the 1980s, the proportion of employees engaged in the manufacturing sector began to decrease progressively, while the service sector's share further increased. In 2017, the rates of the three industrial sectors constituted 3.4 percent, 24.2 percent, and 72.4 percent, respectively (Statistics Bureau Japan, 2018: Chapter 12).

3.2 Case Study: South Korea

3.2.1 Stage 1: The Traditional Society

3.2.1.1 Overview: Stage 1

Table 15. *W. W. Rostow's Stage 1*

Stage 1: The traditional society	- Limited production possibilities and technology - Characterized by hunting and gathering or agriculture - Hierarchical social structure and strong connections between family and clan - Political power in the hands of landowners
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

In the following chapters, Rostow's five individual growth stages are examined step by step and applied to South Korea. Table 15 shows Rostow's key criteria, which, according to him, a country normally exhibits in its first economic phase.

3.2.1.2 Limited production possibilities and technology

Korea had almost no contact with the outside world for nearly two and a half centuries. During the long isolationist period from 1637 to 1876, the country's economy was very traditional (Hulbert, 2014, p. 121). "*It operated within limited production functions based on pre-Newtonian technology and attitudes toward the physical world*" (Chung, 2006, pp. 10-11). This traditional economy was almost stagnant, with a low level of attainable per capita output. Agriculture provided the largest part of Korea's total production, and there were moderate advancements in irrigation and an increase in cultivated acreage. These improvements in agriculture led to a slight production increase. Korean farmers used primitive and labor-intensive methods, which hardly changed over the centuries, in order to cultivate their land. Due to almost no progress in technology, there was a low and stagnant level of productivity (Chung, 2006, pp. 11-12). Song (1990) states, however, that peasants in traditional Korea were famous as they pioneered rice cultivation in Central Asia and invented the first rain gauge in 1442 (p. 31). Shin (2005) discusses the Goryeo dynasty (918-1392) and mentions the development of ceramic arts and printing technology at that time. According to him, the movable metal type was invented in Korea during the Goryeo dynasty (p. 65).

3.2.1.3 Characterized by hunting and gathering or agriculture

Almost 90 percent of Korea's labor force was devoted to agriculture in the traditional period. The main source of income was rice production, but also crops like wheat, barley, beans, and vegetables were cultivated. As already mentioned before, farmers used primitive and labor-intensive techniques that hardly changed over the centuries in order to cultivate their fields. Production was small and hinged on manual labor and that of bulls at times. Chung (2006) emphasizes that *"the work was often conducted cooperatively within one's community. Agricultural implements, such as wooden plowshares, hoes, hooks, knives, harrows, bamboo rakes, and wooden spades, were crudely designed and constructed and were not widely available"* (p. 12). The peasant population was clearly separated into five groups, namely into (1) landlords who were usually *yangban* (see chapter 1.1.1.3), (2) part landowner-cultivators, (3) part landowner-tenants, (4) tenants, and (5) servants. The landlords held more than 60 percent of Korea's farmland and leased the land to tenant farmers instead of cultivating it themselves. They were at the top of the social hierarchy and monopolized wealth and political power (see chapter 3.2.1.4). Tenants made up the largest group of the peasant population. They rented the land in order to till it and make their living from it (Chung, 2006, pp. 12-13).

After the devastating Japanese invasions of Korea, also referred to as the Imjin War (1592-1598), huge areas of farmland were destroyed. Beyond the loss of millions of lives, Korea experienced a great famine, which was accompanied by the outbreak of highly infectious diseases. During the years 1670-71, almost one million people died of starvation. This constant turmoil during the seventeenth century led to a severe financial crisis. In order to fill the empty state coffers, the government adjusted the tax system by introducing the Uniform Land Tax Law. It stipulated tax payments in rice depending on the amount of profit made from the cultivated land. The tax burden on farmers increased heavily and made up over half of Korea's finances (Lee, 2004, pp. 161-162). By 1750, the government had introduced the Military Service Tax Law. According to Shin (2005), *"this law allowed peasants to make payments in cloth in lieu of military services. However, the new tax systems spawned corruption and abuses and ended up increasing the burden on the peasants"* (pp. 91-92).

3.2.1.4 Hierarchical social structure and strong connections between family and clan

In traditional Korea, society was ruled by the *yangban*, a powerful bureaucratic elite at the top of Korea's social hierarchy (see chapter 3.2.1.4). Below the *yangban* class were the *jungin*, the middle class, which was composed of low- and middle-level government officials, low-

enforcement officials, geographers, accountants, copyists, and interpreters. Yet, most of Korea's society was composed of commoners, consisting of peasants, merchants, fishermen, miners, low-ranking government workers, boatmen, innkeepers, messenger boys, and fortune-tellers. The majority of commoners, however, were closely connected with farming. Korean society's lowest class consisted of the so-called low-born people, a group that included butchers, certain merchants, and Buddhist monks. But since their services were important for society, some of them were very prosperous. In order to maintain the structure of the social classes, the government introduced a system that assigned families to appointed trades. The idea was to control and maintain the number of workers in each profession. As the father handed his occupation to his son in the traditional period, the social structure could not be violated. Middle- and noble-class families were excluded from this regulation (Chung, 2006, p. 8).

The *yangban* ruled Korean society according to Confucian principles, and during the Joseon dynasty, Neo-Confucianism became a state religion. It was no longer only a political ideology but also the moral philosophy that ruled the principles of education. Moreover, it became a family religion that emphasized ancestral worship. The new state religion had a crucial impact on the sense of community and Korean family ethics (Tu, 2010, p. 250). Father and son formed the basic relationship within the traditional family. Lee (1998) states that "*the son was taught to use the highest honorific terminology in addressing his father, to never stand higher than his father, to enter a room after his father, and never smoke or drink in front of him*" (p. 251). The son repaid the parental love and training with filial piety, the primary duty of obedience and respect for the parents in Confucianism. Filial piety ranged from the support of material benefits for old parents to the promotion of family honor by becoming an honorable man. Besides, it represented loyalty to the state and the lord. Filial piety was also expected to enforce good relationships and solidarity among family members (Lee, 1998, pp. 249-251).

Korea's traditional family was characterized by a strict hierarchy in which each member had to fulfill certain duties. The patriarchal structure provided a strong labor division between men and women. The father was responsible for the control of the family and its property as well as for the representation of the family in society, while the first son had to practice ancestral worship. Although women played an inferior role, it was their duty to control the apportionment and consumption of resources within the household. Moreover, they took care of the children and the housework (Lee, 1998, p. 252). Confucianism required a society based on a superior/inferior relationship. Alongside the regulation that the ruler had total control over the nation, two crucial rules were (1) elders over youngers and (2) men over women. This

hierarchical structure was not only reflected within the family but also in society (Becker, 1991, p. 47).

3.2.1.5 Political power in the hands of landowners

At the end of the fourteenth century, general Yi Taejo founded the Joseon dynasty (1392-1910). The Korean government was centralized in its administration and organizational structure, and political rule was centered in the capital, Seoul, protected by soldiers and civil servants. As Yi Taejo was supported by China, Korea became a vassal state (Becker, 1991, p. 46). The aristocratic ruling class were the *yangban* (see chapter 3.2.1.3) who represented the administrative backbone of society and the economy. They ruled Korean society according to Confucian principles and represented the interests of slaves and landowners. The *yangban* were the only ones who received education. They monopolized wealth and political power and enjoyed the sole right to occupy government positions. Moreover, the majority of *yangban* were landlords who leased their land to farmers. The *yangban* hired superintendents in order to supervise the tenant farmers and collect rental fees. Some *yangban* retained around 1,500 farmers (Chung, 2006, pp. 7-8, 17). The title of *yangban* was only granted to the most sedulous students who passed competitive state examinations, which were administered by the king. Schwekendiek (2016) emphasizes that *“in the beginning of the Joseon dynasty, perhaps only some 5 percent were yangban, as opposed to some 65 percent commoners and 30 percent in the unfree class”* (p. 31).

After several foreign invasions and the devastating Imjin War, Korea was bankrupt, huge areas of farmland were destroyed, and millions of lives were lost. This led to a vulnerable and corrupt country in which the *yangban* title could be obtained through faked registrations and corruption (Hart, 2001, pp. 62-64). Consequently, incompetent bureaucrats were recruited who hampered Korea from introducing crucial reforms to boost the economy. Taxes to peasants were overcharged, which led to peasant revolts, and investments in infrastructure were ignored by these bureaucrats. This caused destabilizing prices, falling land productivity, and famines (Schwekendiek, 2016, pp. 30-32). According to Chung (2006), the late Joseon dynasty counted about 2 million *yangban* (p. 8).

3.2.2 Stage 2: The Preconditions for Take-Off

3.2.2.1 Overview: Stage 2

Table 16. W. W. Rostow's Stage 2

Stage 2: The pre-conditions for take-off	- The two cases of the preconditions for take-off - Impulses through Western colonialism (optional) - Change of thinking in society and better education - Building up social overhead capital - Establishment of an effective modern government - Rising investment rate (to about 5% of national income) - Improved production techniques and new industries - Increase in domestic and foreign trade - Increase in agricultural production capacity (around 75% of the workforce in agriculture) - Population growth and increasing urbanization
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 16 shows Rostow's main criteria that he considers a country normally exhibits in its second economic stage. In the following sections, these criteria are examined in more detail and applied to South Korea.

3.2.2.2 The two cases of the preconditions for take-off

Korea is classified by Rostow as a general case because basic changes took place in traditional society to achieve the preconditions for take-off, including a shift in the social structure, the political system, and production techniques. Moreover, Korea was able to build up social overhead capital and achieve technological development in agriculture and industry. Rostow (1960) states that these changes mostly arise from external penetration by more developed societies (p. 17). The following sections show that Korea's transformation away from a traditional society was not internally but due to pressure from abroad, initiated by Japan's forced opening of Korea in 1876 and the later colonization through Japan.

3.2.2.3 Impulses through Western colonialism (optional)

Korea had almost no contact with the outside world for about two centuries. During the long isolationist period from 1637 to 1876, contact was limited to Chinese and Japanese diplomats. According to Chung (2006), fewer than 100 Western people visited Korea before 1876. Those people were Christian missionaries, American and European government representatives, or

seamen who washed ashore from ship wrecks. Most contacts triggered hostilities, and the foreigners were often put to death (p. 9). During the isolation period, foreign nations tried forcefully to open the country's borders in order to arrange trade agreements. After the effective opening of Japan by the Americans in 1854, they also wanted to terminate the closed-door policy of Korea but failed. In the end, the Japanese enforced the opening of the Korean border in 1876 via the Korea-Japan Treaty, also known as the Gangwha Treaty. Consequently, selected ports were opened to foreign ships. In 1882, the Korea-America Treaty of Amity and Commerce was signed, followed by further treaties with other nations (Kuznets, 1977, pp. 4-5). *"Though still a vassal nation to China, Korea was officially recognized as independent"* (Becker, 1991, p. 47).

Foreign settlement began immediately, and the Japanese made up the largest group of immigrants in Korea. According to reports, they accounted for over 95 percent of total foreigners in 1897 and gained fast-growing influence on economic affairs. They introduced Western goods, constructed Western-style buildings, and played a main role in the modernization of Korea (see chapter 3.2.2.10). The influx of Westerners, however, remained low after the opening of the borders, with Christian missionaries as the main representatives. Apart from the introduction of a new religion, those missionaries brought Western goods, ideas, and technology into the country. Moreover, they imported the Western educational system (see chapter 3.2.2.3), remarkably contributed to health care and medical science, brought new industries, and provided foreign resources for investment. In addition to the Japanese, they played a crucial role in the modernization of the country (Chung, 2006, pp. 43-45, 80). Nevertheless, Westerners as well as Japanese triggered strong criticism against themselves. Korean people had almost been completely cut off from the rest of the world for about two centuries and believed that China was the center of the universe. Consequently, the opening of the country was a shocking experience for many Koreans. Most of them regarded Western cultures, habits, and innovations as barbarian. According to Chung (2006), *"they did not understand much about the outside world and did not want it, wishing only to be left alone in their 'hermit kingdom' "* (p. 60). Dallet (1954), in turn, states that the Korean people were *"less arrogant, less unfriendly towards all kinds of betterment and progress and less fanatical in their pretended superiority over the barbarians [Westerners] than other Asians"* (p. 186).

Chinese dominance over Korea ended in 1894 with the outbreak of the First Sino-Japanese War. The main reason for the war was a dispute between China and Japan over influence in Korea. China was defeated by Japan in 1895 and accepted Japan's influence over Korea via the Treaty of Shimonoseki. In 1905, the Japan-Korea Treaty was signed, and Korea

became a protectorate of Japan. The Annexation Treaty of 1910 officially annexed Korea, and Japan's new colony served as a resource for raw materials and rice production (Becker, 1991, p. 48). According to Kuznets (1977), Korea should supplement Japan's economy without regard to autarchy. He further argues that Japan economically exploited its colony and politically as well as socially oppressed its inhabitants, who hardly benefited from Korea's industrial growth (pp. 29, 40). Chung (2006) mentions numerous reforms that were conducted by the Japanese government after taking control of the country. The goal was to change Korea's traditional economy into a modern one that met the needs of Japan. Monetary, administrative, and financial structures were overhauled, following the Japanese model, while the old administration was abolished. *"The Japanese established modern financial institutions and built necessary infrastructure, reformed the currency, conducted land surveys, and introduced new incorporation laws"* (Chung, 2006, p. 91). Additionally, the tax system as well as the method of collection were revised. Japan's main interest, however, was focused on the development of Korea as a supplier of raw materials and food. Especially after World War I, Japan's prospering economy relied on agricultural products and raw materials from Korea (pp. 91-92, 115).

During 1941-53, Korea went through a period of instability and regression, triggered by the destruction of World War II, Japan's subsequent exit from Korea, the division of North and South Korea, and the Korean War (1950-1953). *"Nevertheless, South Korea now found itself liberated, responsible for its own self-sufficiency and economic development. The foundation that Japan laid, combined with a new sense of nationalistic identity, provided the essential preconditions for South Korea's takeoff"* (Brooks & Kulkarni, 2011, p. 48).

3.2.2.4 Change of thinking in society and better education

Once the country was open, Korean special envoys as well as students and artisans had the chance to meet Chinese and Japanese people in order to be taught by an advanced civilization. They brought back Western thought, like Christianity, which greatly changed the worldview and mindset of a part of the Joseon population (Shin, 2005, pp. 101, 106). Some Koreans changed their minds and no longer believed that China was the most progressive country worldwide. But most of them saw Western people as barbaric aggressors with a dangerous religion (Chung, 2006, p. 10).

The Westerners most representative in Korea after the opening of the borders were Christian missionaries. They made up four-fifths of all Westerners in the country at the onset of the 20th century. Their most important intention, besides preaching their religion, was the introduction of a modern Western educational system in Korea. It was organized and

maintained by them, with 950 Christian schools and over 25,000 students, from 1885 to 1909. Moreover, they stood up for women's education, medical science, and technical knowledge. Christian schools were the main channels through which Western science and notions could enter Korea. Missionaries preached against certain traditions of the Korean culture, including ancestor worship as well as the deep belief in spirits. Besides the new religion, modern values and notions like the concept of equality and the idea of democracy were conveyed (Chung, 2006, pp. 44-45). According to Huang (1967), numerous converted Christians completely changed their lives and quit smoking, drinking, gambling, and buying expensive goods (pp. 48-50). These modern notions contributed to the adoption of Western lifestyles. The Christian schools "*were hotbeds of revolution and Westernization*" (Chung, 2006, p. 45).

Nevertheless, the reach of Western education was limited and not available throughout the country. The traditional educational institutions that taught Confucian teachings still dominated, especially in rural areas. With the colonization of Korea, the Japanese government greatly improved the modern educational system. As the number of educational institutions increased, so did the number of students. The volume of students enrolled in Korea grew from 110,800 in 1910 to 1,407,100 in 1939 (McCune, 1950, pp. 261-263). Despite growing student numbers, not all citizens were able to benefit from the modern education system. The level of education among Koreans remained low. According to the Bank of Korea (1948), in 1944, over 91 percent of South Koreans had a level of education lower than primary schooling. Only 2.4 percent had a higher education than elementary school (pp. 1, 8).

The opening of Korean borders left behind a divided society at the end of the nineteenth century. Conservatives wanted to preserve Confucian values, while progressives were fighting for enlightenment and Western progress (Shin, 2005, p. 106). Chung (2006) emphasizes that "*the progressive and reform-minded young intellectuals who formed the core of the modernization movement came from well-established Seoul yangban families. Most had passed the highly prized royal civil-service examination, and they were regarded as young men with promising futures*". The progressive youths referred to the necessity of agricultural development, industrial improvement, and the strengthening of infrastructure (p. 59).

3.2.2.5 Building up social overhead capital

After the opening of the borders, Japanese immigration started immediately. They built up a chamber of commerce, banks, schools, and hospitals. Moreover, they organized their own fire and police department, telegraph network, and modern post offices, and "*city services such as cleaning and sanitation were maintained by the Japanese government*" (Chung, 2006, p. 43).

At the time of annexation in 1910, the rising Japanese settlement led to a demand for better infrastructure within the country. Large-scale public works projects were initiated by the colonial government in order to improve hygiene and public services in Korea. The Japanese government constructed sanitation systems, hospitals, and water works (Chung, 2006, pp. 92, 119). In addition, more than one-third of the government's investment was put into the improvement of harbor facilities, river navigation, and streets to satisfy the needs of the Japanese, particularly their military, in the mid-1930s (Hosokawa, 1941, p. 253).

During the traditional phase, Korean regions were mostly self-sufficient and did not need comprehensive transport or communication infrastructure. After the annexation, however, the transportation and communication sectors developed very fast. Especially the expansion of the rail network was crucial for the colonial government. *"Among all forms of public overhead capital, the construction of railroads was the most important and challenging project undertaken by the Japanese"* (Chung, 2006, p. 120). About half of total public investments were spent on this sector by 1942. The public rail network expanded from 1,620 to 4,537 kilometers between 1910 and 1942 and carried over 100 million people as well as 28 million tons of freight at the beginning of the 1940s (Chung, 2006, pp. 120, 226). While the most significant industry within the social overhead capital (SOC) sector was the construction of railroads, the electric power industry took second place, followed by communications networks.

After taking over the country, the Japanese government carried out surveys on Korea's hydroelectric power sources, which were mostly located on the Tumen and Yalu rivers (Kimura, 2018, p. 36). Japan's energy demand rose constantly due to its prospering chemical industry and the progressive electrification of the railway. To meet the ascending energy demand, the development of power generation became a main priority. As Korea was rich in resources, wide-ranging projects focusing on hydroelectric power were implemented by the government as well as by the private sector. Numerous dams were built in order to generate electricity, with the positive side effects of flood control measures and the supply of water for irrigation and industries (Rozman, Kim, & Kotkin, 2006, pp. 95-96). Furthermore, Korea's communication network was controlled by the Japanese government, which spent a huge amount of financial resources on telephone and telegraph lines. According to Chung (2006), Korea's telephone lines rose from 500 to 13,400 kilometers during 1910 and 1942, while its telegraph lines expanded from 5,500 to 8,800 kilometers in the same time frame (p. 226).

3.2.2.6 Establishment of an effective modern government

The Korean government introduced a modernization policy and undertook numerous reform measures after the opening of the borders. In 1894, for example, the Gabo reform concluded over 200 laws that abolished many of the customs of Korea's traditional society. Hwang (2017) states that:

The Deliberative Assembly declared an end to hereditary social status and slavery, a cessation of contract marriages of adolescents along with a lifting of the prohibition on widow remarriage, and the opening of the path to government service by commoners. (p. 115)

Additionally, the government launched several institutional reforms, developed a modern budget, and remodeled the army and the court. Besides, a new Customs Bureau and a Foreign Office were opened in 1882, and a modern postal service was introduced in 1895. In 1894, the Korean government reformed the tax system. The land tax changed from payments in kind to payments in money. Consequently, grain was now available for export. The reforms should, on the one hand, abandon traditional lifestyles and, on the other hand, build up a market-oriented and modern economy (Chung, 2006, p. 58). The reform of the tax system made it possible to sell grain from now on. Trade was boosted, and more than 1,000 markets developed throughout the country. Moreover, entrepreneurial craftsmen and traders emerged. These led to an enormous economic transformation and promoted Korea's modernization process (Shin, 2005, p. 92). Despite efforts, the success of the reforms and the advancement of modernization remained limited. The administration structure scarcely changed, and the government was inefficient as, among other things, it commonly borrowed money from Japan in order to meet budgetary needs. *“Government expenditures were about 10 percent above its revenues. As the monetary reforms fell into chaos, the debased currency became worthless overnight”* (Chung, 2006, p. 59). Furthermore, the reforms received insufficient support from society since the traditional economic lifestyle and old notions were deeply anchored (Chung, 2006, pp. 59-60).

3.2.2.7 Rising investment rate (to about 5% of national income)

When Korea opened its borders, foreign businesses started to emerge throughout the country, and investments were implemented. However, investment was very limited before the colonization by Japan. There were improvements in modernization ahead of that time, but the government as well as Korean citizens invested too little in order to accumulate enough capital to improve the almost stagnant economy. Under colonial rule, numerous investments were

made in Korea through the Japanese government. Especially investments in social overhead capital (SOC) were forced, and the transportation and communication sectors were greatly enlarged during colonization (Chung, 2006, pp. 80-81). *"The originally almost nonexistent, small, and insignificant investment in it in the early years expanded rapidly and came to represent one of the major portions of capital formation in Korea under Japanese rule"* (Chung, 2006, p. 151). Moreover, public investment was put into agricultural infrastructure, including watering and research (Tae, 1972, p. 16). The remarkable increase in investment made it possible that net investment likely averaged 9 to 10 percent of annual Korean GDP during colonization. According to Chung (2006), the accumulation of capital provided the foundation for Korea's economic growth in the future (p. 115).

There were significant disparities in terms of Korean capital investment and Japanese capital investment. Local entrepreneurial investment was very low compared to *zaibatsu* investment, and the capital coming into Korea came from additional Japanese investors. The proportion of capital in Korea that was controlled by Japanese *zaibatsu* in 1940 has been approximated to be 74 percent of the entire capital investment in the colony. According to McNamara (1990),

Firms based in Japan held a large share of the investment on the peninsula, with 76 percent of the total paid-in capital in finance, 73 percent in commerce, and 56 percent in manufacturing. . . . Even among only those firms with headquarters on the peninsula, Korean-owned companies represented only 11 percent of the total capital in finance on the peninsula, 26 percent in commerce, and 12 percent in industry. (p. 2)

Numerous estimations have been made on the scale of investment in Korea during colonization. However, economists have not been able to give accurate figures, as comprehensive statistical data, which includes human capital investment and public investment in SOC during that time, does not exist. Calculated investment figures from official statistics thus depict principally private investments in manufacturers' inventory and plants (Chung, 2006, p. 94).

3.2.2.8 Improved production techniques and new industries

With the opening of the country in 1876, modern Western technologies as well as a stricter work ethic were introduced. In addition, new industries were established, and new machinery and tooling were used, such as equipment for grain washing, textile machinery, photographic devices, and recording players. Nevertheless, Korea's industry was economically underdeveloped by the time Japan gained power in 1905. There were mainly traditional

enterprises of handicraft and metallurgy, producing the essentials for a traditional economy. Typical Korean industries were forge making, wood carpentry, coloring, cannery, brewery, and pickle making. With an increasing number of immigrants, small industrial enterprises emerged during the first period of Japanese rule. Both migrants and native entrepreneurs copied foreign products, innovated the pre-existing industry, and founded new businesses that produced, for example, coals, bricks, tiles, tinned goods, metallic items, wooden goods, tobaccos, and leathers (Chung, 2006, pp. 47, 122, 323).

According to Brooks and Kulkarni (2011), industrial development was neglected as the colonial period began because of the Corporation Law, which was intended to restrain non-agricultural investment and discourage the emergence of native enterprises. By 1920, the law was abolished, triggering a rapid increase in industrial production in Korea (p. 48). Table 17 shows that the importance of agriculture diminished over the course of the colonial period, while the manufacturing economy became increasingly significant. The agricultural sector fell from 84.6 percent in 1910-12 to 49.6 percent in 1939-1941. Simultaneously, the share of manufactured goods climbed from only 6.7 percent in 1910-12 to 29 percent in 1939-1941.

Table 17. *Industrial structure (percent share of net commodity product), 1910-41*

	<i>Agriculture</i>	<i>Forestry</i>	<i>Fishing</i>	<i>Mining</i>	<i>Manufacturing</i>	<i>Total</i>
1910-12	84.6	5.3	1.9	1.5	6.7	100.0
1919-21	78.6	2.7	3.0	1.4	14.3	100.0
1929-31	63.1	6.6	5.8	2.2	22.3	100.0
1939-41	49.6	7.2	6.3	7.9	29.0	100.0

Note. Reprinted from *Economic growth and structure in the Republic of Korea* (p. 23), by P. W. Kuznets, 1977, New Haven, CT. Yale University Press. Copyright (1977) by P. W. Kuznets.

Kimura (2018) also mentions a gradual change away from a predominantly agrarian to a predominantly non-agrarian economy. He points out that during the period from 1912 to 1939, traditional industries, in particular the agricultural sector, declined from around 70 percent to around 40 percent of the GDP, while the share of the mining and manufacturing sectors increased considerably, namely from around 5 percent to around 20 percent of the total economy (p. 23).

3.2.2.9 Increase in domestic and foreign trade

Before the ports were opened to foreigners in 1876, commerce between Korea and the West was non-existent. According to Chung (2006), fewer than 100 Westerners visited the country

before 1876 (pp. 9-10). Foreign trade was only made possible by the Korea-Japan Treaty, which was concluded in 1876 to open up Korean harbors (see chapter 3.2.2.2). Sailors from Japan then set out for Korea, packed with textiles, oil, and agricultural tools, in order to return loaded with soy beans and rice. *"With trade came Japanese merchants, new ideas and institutions of enterprise and association, and a modern capitalist interstate system of polity and commerce"* (McNamara, 2018, p. 19). Increasingly higher agricultural yields, as well as the change in the taxation system, led to a rapid development of trade. In 1894, the land tax changed from payments in kind to payments in money, so from then on, grain was available for export (see 3.2.2.5). Numerous markets appeared across the country, and private traders began to amass capital. The emergence of free markets as well as the appearance of independent merchants and craftsmen led to an enormous economic transformation in the Joseon dynasty. According to Shin (2005), that transformation was *"a self initiated progress toward modernization"* (p. 92).

During the period of colonization, Korea's trading ability in terms of foreign trade developed greatly (Becker, 1991, p. 50). The proportion of traded goods to total goods available in economic activity (domestically produced plus imports) moved up from 20 percent in the years 1911-1915 to 60.4 percent during 1936-1940. Moreover, throughout time, the combination of traded services and commodities shifted. In the beginning, most Korean exports came from raw materials and unprocessed food products ranging from gold to rice. In most cases, they were made with traditional methods of agriculture, raw material extraction, and handicrafts. Table 18 shows that exports of raw food products fell in relative terms by the time the Korean economy evolved during Japanese rule, namely from around 66.5 percent of total volume in 1910 to around 26.1 percent by 1939. Instead, the export of fabricated goods, refined raw materials, and processed groceries grew in importance. As Japan's rule came to an end, finished and semi-finished products such as hard oil, agricultural fertilizers, explosives, and pulp supported the export business. Also, the demand in Korea for imported products shifted throughout the period, indicating that the Korean economy was becoming more industrialized. Manufacturing material importation, either crude or semi-finished, rose steadily from 20.6 to 26.9 percent from 1910 to 1939. In contrast, the volume of finished product imports went down in Korea within this period of time (see table 18). During colonization, the majority of imports flowed from Japan and accounted for around four-fifths of Korea's entire imports. Korean export products to Japan financed 84 percent of these imports (Chung, 2006, pp. 196, 230-231).

Table 18. *Share of Korea's imports and exports (percent), 1910-39*

Goods	Imports			Exports		
	1910	1933	1939	1910	1933	1939
Raw materials	10.4	10.8	12.9	19.2	13.7	17.4
Intermediate goods	10.2	13.5	14.0	0.6	16.6	24.7
Crude food	3.3	8.5	8.5	66.5	51.9	26.1
Processed food	11.3	6.4	4.7	0.1	3.4	3.7
Manufactured goods	56.3	55.6	55.4	3.3	8.7	22.6
Miscellaneous goods	8.5	4.7	4.2	9.3	5.5	5.2
Reimport goods		0.5	0.3	1.0	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note. Reprinted from *Capital formation and economic transformation* (p. 231), by Y. I. Chung, 2006, New York, NY. Oxford University Press. Copyright (2006) by Y. I. Chung.

3.2.2.10 Increase in agricultural production capacity (around 75% of the workforce in agriculture)

During the traditional period, Korean agriculture depended on simple tools and labor-intensive techniques that hardly changed over the centuries. Following the annexation to Japan in 1910, agricultural production increased rapidly (Kuznets, 1977, p. 23). Under Japanese rule, numerous measures and plans were initiated to raise productivity and enhance rice exports to Japan. Landownership systems and trade policies were introduced, and the colonial government sent agricultural technicians and constructed model farms and training institutes in which Korean farmers could learn recent farming practices (Brooks & Kulkarni, 2011, p. 47). Modern farm machinery, agricultural tools, improved seeds, and better irrigation systems were introduced. One of the most important contributing factors to Korea's prospering agriculture, however, was the growing use of commercial fertilizers, which rose from zero in 1910 to 868,025 tons in 1939. Moreover, mountains and hills were afforested, dams were built, and wetland areas as well as uncultivated land were converted into arable farmland. Consequently, Korea's acreage of cultivated land expanded by 10 percent during colonial rule (Chung, 2006, pp. 126-127, 228). The Japanese government also initiated a series of coercive measures in Korea's rural regions. All farmers, for example, were forced to sell a certain amount of rice to the government. Low selling prices and other measures were responsible for the scarcity of rice in Korea. Japan's prospering economy after World War I relied on agricultural products from the colony. Besides, the Second Sino-Japanese War (1937-1945) demanded huge amounts of rice by the Japanese military (Moon, 1975, p. 385).

According to Chung (2006), the significance of agriculture progressively decreased at the end of colonial rule. While agricultural output represented 93 percent of Korea's total

commodity production in the early twentieth century, it went down to 37.4 percent in 1944. Korean agriculture, however, took a more important position in the economy than agriculture did in neighboring countries. In Japan, for example, agricultural output accounted for only 16.1 percent of total commodity production in 1938. Similarly, most of the Korean workers were employed in the agricultural sector, namely more than 85 percent in 1905 and around 65 percent at the end of the colonial era. Chung further states that the agricultural output of Korean farmers was very small compared with farmers in other countries, such as Japan. According to him, *“gross value of production per farm in Korea was only \$153 in 1938, in comparison with \$248 for the Japanese and \$1,828 for the American farmers”* (p. 229).

3.2.2.11 Population growth and increasing urbanization

Korea's total population doubled from 1904 to 1943, namely from 13.1 million to 26.5 million inhabitants. Simultaneously, the average household size went up from 4.7 people per household to 5.5 during 1906 and 1942 because larger families could be supported over the years (Chung, 2006, p. 216). During colonization, the urban population increased constantly, namely from 3 percent of the total population in 1910 to 13 percent in 1944. The capital, Seoul, flourished as an important commercial and industrial epicenter for almost one million people. Urban regions, like Busan in the south and Pyongyang in the north, became local trade and manufacturing centers (McNamara, 1990, pp. 1-2). Brooks and Kulkarni (2011) state that *“though population growth was accompanied by increasing urbanization and changes in the sectoral distribution of the labor force, the increase in rural population was much larger absolutely than the increase in urban population”* (p. 48). They further mention that the country was still mainly rural when the colonial period was over.

Chung (2006) deals with the issue of Japanese immigration and mentions that it started with the opening of the Korean borders in 1876. The Japanese mainly lived in large and medium-sized cities such as Seoul, Inchon, Busan, and Wonsan. After the time of annexation in 1910, Japanese immigration rose sharply, leading to a rising demand for better infrastructure within the country. While 32,000 immigrants arrived in Korea in 1906, the number reached 171,500 in 1910 and peaked at 752,823 by 1942. Although Japanese people did not represent more than three percent of the total population, they were highly influential on the development of the country (pp. 43, 90).

3.2.3 Stage 3: The Take-Off

3.2.3.1 Overview: Stage 3

Table 19. *W. W. Rostow's Stage 3*

Stage 3: The take-off	- Strong stimulus (political revolution, technological innovation, or new international environment) - Radical change in production methods - Development of one or more industrial lead sectors with a high growth rate - Innovations in coal, iron, and heavy engineering through the railroad - Rising investment rate (to more than 10% of national income) - Sign of inflation (optional) - Around 40% of the workforce in agriculture at the end of take-off - Duration of around 20 years
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 19 shows Rostow's key criteria that, according to him, a country should fulfill in its third economic stage. In the following chapters, these criteria are examined in more detail and applied to Japan.

3.2.3.2 Strong stimulus (political revolution, technological innovation, or new international environment)

Colonial domination by Japan ceased in 1945, when Japan surrendered at the end of World War II. Korea was then separated into two military-occupied territories along the 38th parallel. With the United States occupying Korea's southern half, the Soviet Union seized its northern part. US troops established a military government to rule South Korea during a three-year period. However, US military, political, and economic aid was maintained throughout the Korean War (1950-1953) and thereafter until 1961 (Brooks & Kulkarni, 2011, p. 45). It is important to note that in the following chapters, this thesis refers only to South Korea, officially the Republic of Korea (ROK), rather than North Korea. Terms such as the country, the nation, Korea, Koreans, etc. denote only South Korea from now on.

Dividing the North and the South was also dividing the industries. Mining, heavy industry, and electric power plants settled in the North, while agriculture and light industry were located in the South. By the 1945 partition of Korea, both regions were forced to depend on

their sponsors for the majority of their necessities. For economic needs, the United States provided money, though more than 90 percent of the foreign aid came in the form of groceries, clothes, fertilizers, fuels, and other consumer durables. A large portion also went to the military due to the threat to security posed by the North (Becker, 1991, pp. 45, 51-52). Both Korean regimes, which had evolved from the Soviet and US occupation zones, saw themselves as the only legitimate successors to the Empire of Korea. Although the two were dedicated to national reunification, they reflected contrasting ideological approaches. After the withdrawal of occupying foreign military forces, the North Korean leadership, decisively outnumbering the South in terms of military power, began the Korean War by launching a sneak offensive in June 1950. In response to this attack, American forces provided the requested assistance to the South Korean troops. With military support from the US for the South and the People's Republic of China for the North, it became a proxy war that lasted three years and amounted to a holocaust of human lives. The conflict resulted in the deaths of three million Koreans, including soldiers and civilians, more than one million Chinese, and nearly 55,000 US soldiers. Moreover, the war destroyed most of the country's industry. Thus, an ideological struggle inside a country turned into a catastrophe of international proportions. After two years of negotiations, an armistice agreement was reached in July 1953. The war, however, led to a tense post-war relationship on either side of the border that continues to this day. Following 1953, both competing regimes built up military units of over a half-million soldiers each to combat the other in the event of renewed fighting. The two parts of the country were turned into strongly weaponized military bases with an authoritarian political structure (Young, 2000, pp. 27-28).

In South Korea, what followed were decades of radical shifts in government, as well as vast technological and industrial expansion. The nation emerged from the devastation of the Korean War into a highly developed economy. From the 1960s onward, the ROK has experienced enormous growth due to an export-oriented policy, making it one of the world's leading industrialized nations today (Brooks & Kulkarni, 2011, p. 45). The unexpectedly strong economic development of South Korea became known as the "Miracle on the Han River" (Young, 2000, p. 28).

3.2.3.3 Radical change in production methods

Park Chunghee claimed political leadership over the Republic of Korea in 1961. *"Despite the many criticism Park Chunghee received for seizing power through a military coup, it was during his reign that Korea made the transformation from an economically impoverished country into a booming industrialized country"* (Shin, 2005, p. 138). On the one hand, Park

ruled the nation with dictatorial severity and suppressed the democracy movement. On the other hand, he laid the foundation for South Korea's rise among the leading industrial states with his rigorous economic policies in the 1960s and 1970s. By using five-year economic development plans, his primary goal was to make the country self-sufficient. The first of a total of seven five-year plans was introduced in 1962 (Pascha, 1996, p. 29). With the aim of boosting economic growth, the nation started normalizing its diplomatic relationship with Japan in 1965. These had previously suffered badly due to exploitation during the colonial period. As a result, Korea received less expensive materials, increased capital, and expanded access to markets. The first five-year plan stimulated an export-driven industrial upswing, in which trading activities prospered with the United States (Becker, 1991, p. 53). Chun (2018) emphasizes that the rebounding relationship with Japan also had a significant dimension extending further than monetary compensation. The new openness for economic exchange offered the opportunity to learn and acquire new technology, modern production methods, management skills, and capital equipment. This in turn led to an increase in per capita production (p. 145). According to Brooks and Kulkarni (2011), the Korean cultural background was another contributing factor to the success of industrialization. They state that:

Because of the long tradition of Confucianism, Koreans respond strongly to moral persuasion based on a sense of loyalty to family, firm, and country. The maxim 'loyalty to the country through export' has been very effective in enlisting the support of Korean entrepreneurs and the people generally. (p. 51)

From the start of the export offensive at the beginning of the 1960s up to the mid-1970s, there was a belief among Korean political leaders that an outward-oriented policy covering both commerce and industry was crucial to national development (Rhee, Ross-Larson, & Purcell, 1984, p. 5).

3.2.3.4 Development of one or more industrial lead sectors with a high growth rate

Through time, the pattern of the Korean economy has changed significantly. As already mentioned in chapter 3.2.2.7, the importance of agriculture diminished over the years, while manufacturing gained in importance. Figure 3 shows that agriculture's share of GDP declined from 50.4 percent to 18.3 percent between 1955 and 1981. By contrast, the share of the manufacturing sector rose from 6.8 percent to 35.9 percent at the same time. "*By 1972, non-agricultural sectors were employing more labor than agriculture*" (Brooks & Kulkarni, 2011, p. 50).

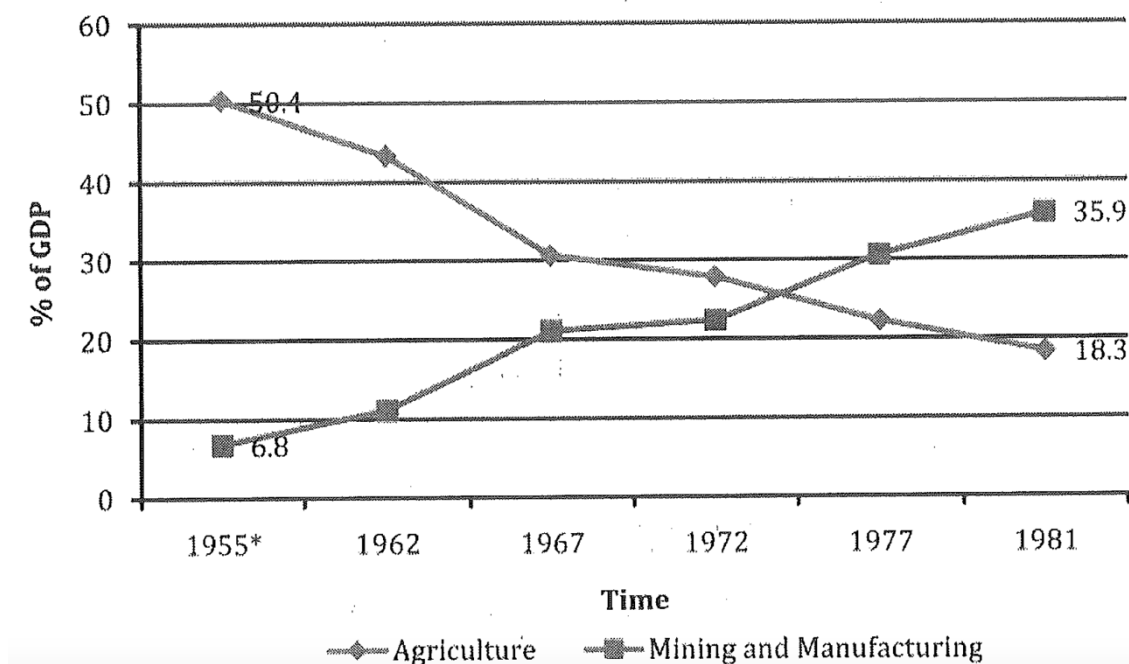


Figure 3. Changes in output structure, 1955-81.

Reprinted from *Applying Rostow's stages of economic growth to South Korea* (p. 50), by M. Brooks, & K. G. Kulkarni, 2011, Denver, CO. Copyright (2011) by M. Brooks, & K. G. Kulkarni.

Among manufacturing industries, a distinct shift from light to heavy industry took place. While the light industry mainly produced fabrics, processed foods, pottery, and wooden products, the heavy and chemical industry specialized in fertilizer production, metals, and machinery. In the 1930s, there was considerable support from the Japanese government for the advancement of the heavy and chemical industries in Korea due to the territory expansion policy of Japan across Asia. Chemical plants that fabricated explosives, fertilizers, oils, pharmaceuticals, and rubber goods were the industries that saw the most impressive growth in investment in the manufacturing sector, followed by the metal and machine industry. In manufacturing, the share of heavy and chemical industry facilities rose from practically none in 1910 to 49 percent in 1943, compared with a decline in the share of light industry over the same period (Chung, 2006, pp. 93, 123, 220-224). Rhee, Ross-Larson and Purcell (1984) also deal with the topic and mention that in the early years of Korea's take-off, traditional goods, including clothing, plywood, and shoes, proved to be the most important exports. The exporter's range of products expanded by the middle of the 1970s, however, and the focus shifted to the exports of electrical engineering, products in steel and iron, and shipping (p. 15). It is also worth noting that Korea's manufacturing sector gradually turned from producing semi-manufactured products to more finished goods during that time (Chung, 2006, p. 224).

3.2.3.5 Innovations in coal, iron, and heavy engineering through the railroad

Regarding technology and economic growth, Korea's years of Japanese occupation were not only detrimental. In the course of its imperialist enlargement, Japan equipped Korea with a good infrastructure, such as the railroad line that crossed the mainland from Pusan to Seoul to Shinyiju, strategically connecting with the main cities in Manchuria (Cho & Kim, 1991, p. 6). However, with the end of World War II, the railroad system in Korea was in bad condition. During the Korean War, it was damaged even worse, and the war severed all railroad connections to North Korea. After the war, as part of the revitalization of the South Korean economy, the plan was to renovate and enlarge the rail system (Hoare, 2015, p. 474). One new line in that plan was the 86.4-kilometer Yeongam Line from Yeongju to Cheoram. A rail line had to be built that connected the areas with mineral resources with their manufacturing plants. The Yeongam Line, which opened in 1955, served as Korea's main industrial transportation line and provided a crucial link for the transport of, for example, anthracite, coke, cement, iron ore, and steel scrap (Lee, 2014, p. 32).

As the nation's economy grew, Korea intensified its railroad-building efforts, as well as road and port construction. Steam locomotives accounted for the first locomotives in service in Korea until they were gradually replaced in the 1950s. The last steam locomotive was taken out of service in 1967. The age of electrical railroads started with the completion of the Jungang Line, the Taebaek Line, and the Yeongdong Line, which served as industrial railroads in the seventies. Electrical locomotives with high tractive effort were primarily used for the transportation of mineral resources. The year 1972 marked the beginning of container traffic in Korea. Freight transport by rail brought logistical innovations that enabled high productivity. As mentioned in the previous chapter 3.2.3.3, a significant shift from light to heavy industry took place in Korea's third stage. The railroad was supportive of the rapid development of the export sector, and the focus of exports shifted to electrical engineering, steel, and iron products (Chung, 2006, pp. 220-224). Moreover, high-speed trains began to operate on the rail lines with the launch of more powerful locomotives and convenient passenger coaches. The Mugunghwa bullet train, covering the distance from Seoul to Busan in about six hours and 40 minutes, first started operation in early 1960. In 1969, it only took the train four hours and 50 minutes to cover the same distance (Lee, 2014, pp. 11, 31-37). According to Hoare (2015), locomotives were imported mainly from foreign countries in the beginning, but in 1976 the production of electric engines and in 1979 of diesel engines started domestically (p. 474).

3.2.3.6 Rising investment rate (to more than 10% of national income)

Fast economic growth, which took place during Park's rule of Korea, was due to various factors, one of which was investment. That period was further marked by an extreme rise in capital accumulation. The annual average share of GNP dedicated to gross domestic investment grew from around 15 percent by 1963 to almost 35 percent in 1979 (Cho & Kim, 1991, p. xxvi). According to Becker (1991), Korea's enormous economic expansion during that time was due to a large capital inflow from abroad. After the Korean War, high amounts of money streamed to the country. For example, the United States targeted South Korea's economic development in an attempt to gain an advantage over North Korea (p. 64). Almost two-thirds of Korea's entire investment needs were covered by foreign financing from 1953 to 1963. The majority of that came from American economic grants. Cho and Kim mention that capital invested from Japan was responsible for the substantial increase in Korea's industrial sector. In the middle of the 1960s, though, the government managed to use domestic resources, thanks to a large-scale tax and financial reform. While the gross domestic saving rate was still below 5 percent at the beginning of the 1960s, it grew to almost 30 percent by the end of the 1970s (Cho & Kim, 1991, pp. xxvi-xxvii, 6). It must be mentioned that a prolonged economic upswing can only be accompanied by a continuing rise in investments. *"Yet limits had already been reached for financing the required capital investment by means of domestic saving and the mobilization of financial resources through commercial banks. The government's industrial financing policy resulted in excessive monetary expansion and inflation"* (Cho & Kim, 1991, p. 22).

3.2.3.7 Sign of inflation (optional)

Becker (1991) is convinced that a high level of growth is usually combined with high inflation. In Korea, too, people suffered from the effects of inflation, which occurred during take-off. The government undertook minimal action to stop it and continued to pursue its growth politics at any price. First, inflation led to a redistribution of wealth from the creditors to the debtors. The reason was that interest rates did not catch up with inflation, making credit inexpensive. Thus, the wealthy got wealthier while the poor got poorer (p. 62). Becker states that:

Because of the banking industry's inability to adjust interest rates to keep up with the inflation, the interest accumulated on savings was not equal to the value of the money in real terms. Quite simply, money was worth less when it was put in savings accounts. This created a crisis of confidence throughout the Korean population in the financial institutions. (pp. 62-63)

Koreans started to invest their savings in non-financial markets, such as the property market. Real estate was retaining its worth, but that money remained out of reach for industry to invest. Song (1990) blames inflation for the comparatively depressed savings rate in the country up to 1985, a problem Rostow (1960, p. 47) called 'the problem of hoarding'. Moreover, inflation helped to spread a disorganized underground credit market, which accounted for about 50 percent of Korea's regulated market at the end of the 1960s. There was no easing of the problem until 1982, when the government took inflation-fighting measures (p. 72).

3.2.3.8 Around 40% of the workforce in agriculture at the end of take-off

The transformation of South Korea's economy was also evident in the changing sectoral distribution. According to Richardson and Kim (1986), "*by the end of the 1950s, . . . more than 80% of the labor force worked in agriculture. . . .*" (p. 2). With the start of the take-off stage, the composition of the working population has changed dramatically. Only around half of the Korean workforce was employed in agriculture at the end of that high-growth period (Richardson & Kim, 1986, p. 4). In 1955, agriculture accounted for a significant 50.4 percent of GDP, but this dropped sharply to 18.3% by 1981. In contrast, the share of mining and manufacturing rose from 6.8 percent to 35.9 percent between 1955 and 1981 (see figure 3). In 1972, the non-agricultural sectors overtook agriculture in terms of production and employment (Brooks & Kulkarni, 2011, p. 50). Furthermore, manufacturing saw substantial job growth, shifting from light to heavy industries. In the initial phase of the take-off, traditional goods like plywood, textiles, and shoes dominated exports. In the 1970s, however, exports from Korea started to diversify and focused on the export of electronics, vessels, and iron and steel goods (Rhee, Ross-Larson, & Purcell, 1984, p. 15).

3.2.3.9 Duration of around 20 years

Rostow (1960) states that "*historically, it would appear that something like sixty years was required to move a society from the beginning of take-off to maturity*" (p. 10). According to him, take-off generally lasts around 20 years, while the fourth stage holds up for about 40 years (p. 9). He sets the time for the take-off in Korea from 1961 to 1968 and mentions that Korea's period of high growth rates was comparatively brief (1983, p. 47). Brooks and Kulkarni (2011) date the beginning of Korea's take-off to the late 1950s. They mention that "*the country experienced significant acceleration and substantial structural change during this time relative to other periods*" (p. 49). Cho and Kim (1991) see the take-off of the ROK during the early 1970s (p. 36).

3.2.4 Stage 4: The Drive to Maturity

3.2.4.1 Overview: Stage 4

Table 20. *W. W. Rostow's Stage 4*

Stage 4: The drive to maturity	- New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead - Rising investment rate (to 10-20% of national income) - Changing structure of the workforce (wages, composition, and qualifications) - Increasing population and rising urbanization - Around 20% of the workforce in agriculture by maturity (optional) - Duration of around 40 years (optional)
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 20 shows Rostow's main criteria that he believes a country should fulfill in its fourth economic stage. In the following parts, these criteria are discussed in more detail and applied to South Korea.

3.2.4.2 **New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead**

During Korea's take-off phase, there was already a shift in industrial sectors from light industry to heavy industry (see chapter 3.2.3.3). According to Rhee, Ross-Larson and Purcell (1984), traditional light industry goods were the most important exports in the early years of the Korean upswing. In the mid-1970s, however, the exporter's product range expanded, and the focus shifted to exports of vessels, products made of steel and iron, as well as electronics (p. 15). While Korea's first five-year plan stimulated an export-driven industrial boom (see chapter 3.2.3.2), the focus of the second and third five-year plans was on promoting key industries, especially heavy and chemical ones (HCI), including iron and steel production, machinery, chemical products, and synthetic materials. These sectors were seen by the government as the foundation of a flourishing industrial economy (Koh, 2010, pp. 20-21). "*The economic success Korea achieved through exports and the development of heavy and chemical industries has made Korea a model for developing countries*" (Shin, 2005, p. 138). In 1972, the share of HCI production amounted to 35 percent and the share of exports to 27 percent. In 1981, production rose to 51 percent and exports reached 65 percent (Joh, Kim, & Koh, 2010, pp. 177-226).

According to Kwan (1991), Korea made rapid progress towards developing into a fully industrialized nation. The primary metal and steel industries, especially construction, experienced significant growth. Due to strong demand through the Vietnam War, the construction sector experienced significant expansion and drove the fast economic development of the 1970s. Following the establishment of major steel mills, the government focused on other industries that consumed large amounts of steel. The shipbuilding sector, for example, beginning with fishery vessels, used a highly educated workforce and solid government funding to diversify its products and build modern ships, including tankers, cargo ships, steamships, and drill vessels. The government focused not only on shipbuilding and the construction sector but also on the machinery industry. In the 1970s, it recorded a growth rate that was around 2.5 times higher than that of the manufacturing industry in total (pp. 7-8).

3.2.4.3 Rising investment rate (to 10-20% of national income)

As mentioned in the previous chapter 3.2.4.1, there was considerable investment in the heavy and chemical industries in the 1970s. This fast industrial development brought enormous shifts in the structure of industry and the organization of the market. The distribution of economic power also changed noticeably and many family-run large companies, so-called chaebols, developed (Cho & Kim, 1991, p. 33). Chaebols have strongly influenced the Korean economy and played a key role in the development of new markets, industries, and export products, as they still do today. They were strongly supported by the government through incentives such as capital for investment, beneficial reforms, and loans. Samsung is a good example of one of these family-controlled conglomerates in South Korea (Kim, 2013, p. 2). As shown in Table 21, the intervention of the Korean government in the economy increased during the entire observed period from 1963 to 1986. While the figure for public enterprises stabilized in the 1970s, the value added to the economy increased rapidly. Starting from an investment of 21.6 billion won in the year 1963, public enterprises invested almost 4 trillion won in the mid-1980s. Despite the fact that the percentage of total investment fell at the end of the observation period, the volume of investment rose significantly (Becker, 1991, pp. 58-59).

According to the Bank of Korea (2020), the investment ratio of national income in South Korea was subject to considerable fluctuations between 1960 and 2000. In the early 1960s, the investment rate was relatively low but began to rise sharply in the 1970s and 1980s as the country's economy developed rapidly. The investment ratio as a percentage of GDP generally ranged from around 10 percent in the early 1960s to about 40 percent in the 1990s (p. 178).

Table 21. *The public enterprise sector in Korea, 1963-86*

	1963	1970	1975	1980	1986
Number of enterprises	52	119	116	111	107
Sectoral value-added (billion won)	31.8	262.1	848.5	6680.0	6859.0
% of GDP	7.0	9.2	8.3	9.1	9.1
Sectoral employment in thousands				280	341.9
% of total employment				1.9	2.0
Sectoral Investment billion won	21.6	216.3	918.6	3253.7	3897.3
% total investment	31.7	18.9	33.2	27.6	15.6

Note. Reprinted from Modernization and development: An empirical study of South Korea and Brazil (p. 58), by D. J. Becker, 1991, *Honors Projects*, Paper 4. Copyright (1991) by D. J. Becker.

3.2.4.4 Changing structure of the workforce (wages, composition, and qualifications)

South Korea has made a strong commitment to human capital, focusing on both the quantity and quality of education (Kwan, 1991, p. 58). Initially, the country relied on unskilled labor, but the shift from light to heavy industry, particularly in shipbuilding, electronics, and steel, led to a growing demand for skilled labor (Kwack, 1990, pp. 74-75). This shift was supported by significant investment in education, which was crucial to the country's rapid economic growth. Between 1960 and 1980, on average, the number of years of schooling for the working population almost doubled, contributing to a rapid increase in urban employment, workforce productivity, and salary levels (Cho & Kim, 1991, p. xxvii).

In contrast to more capital-intensive economies, the industrialization of South Korea was labor-intensive. The country used its relatively cheap and competitive labor force to export labor-intensive products while importing capital-intensive goods, which facilitated its integration into regional and global markets (Sugihara, 2007, p. 137). Industrialization was encouraged by the state's focus on education and the development of a highly skilled workforce. By the 1980s, significant improvements in education led to a growing proportion of skilled workers, with the proportion of employees with a high school diploma or higher education in the machinery sector increasing from 17.6% in 1967 to 59.3% in 1984 (Kim, 1993, p. 236).

3.2.4.5 Increasing population and rising urbanization

According to Young (2000), “in fifty years, the ROK has been transformed from an agrarian society into an urban-industrial one with about 80% of its population residing in cities” (p. 28). Savada and Shaw (1992) also deal with this topic and mention that South Korea underwent a

period of fast growth in urban regions due to the migration of a large amount of rural people. Between 1955 and 1985, the proportion of the urban population in South Korea increased from 24.4 percent to 65.4 percent (see figure 4). The majority of this urban population growth was caused by immigration rather than by natural growth. The urban birth rate was in general below the nationwide average (pp. 81-84).

The rural population left the countryside looking for better education and job prospects in the big cities. By the end of the 1960s, emigration began to be a severe problem. This was partly a result of urban overcrowding and partly due to the fact that rural regions experienced a loss of their most productive labor force (Richardson & Kim, 1986, p. 4). At the beginning of the 1970s, the government initiated a rural recovery and self-help program to restore economic growth in the countryside and reduce migration to the cities. The aim was also to counteract the large income gap separating rural and urban regions. As of 1985, the biggest urban centers were Seoul (9,645,932 residents), Pusan (3,516,807), Taegu (2,030,672), Inch'on (1,387,491), Kwangju (906,129), and Taejon (866,695). Figure 3 shows that in 1985, the population of Seoul accounted for 23.8 percent of the total population of South Korea (Savada & Shaw, 1992, pp. 84-85).

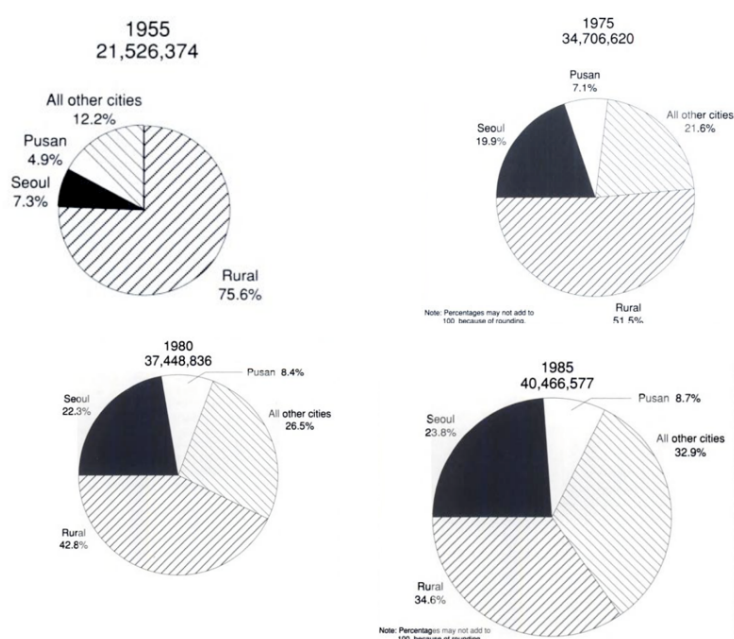


Figure 4. Rural and urban population distribution in South Korea, 1955-85.

Reprinted from *South Korea: A country study* (pp. 82-83), by A. M. Savada & W. Shaw, 1992, Washington, DC. Research Division, Library of Congress. Copyright (1992) by A. M. Savada & W. Shaw.

3.2.4.6 Around 20% of the workforce in agriculture by maturity (optional)

As shown in table 22, the focus of the Korean economy in the late 1970s shifted away from agriculture. Agriculture made up 40 percent of Korea's GDP in 1960, but only 11 percent in 1989. This implies that the government has succeeded in shifting the economy away from rice production and mining to a more diverse economy (Becker, 1991, p.55). According to Brooks and Kulkarni (2011), productivity in agriculture has risen sharply due to improvements in technological innovation. This is reflected in the growing agricultural value added per worker, which serves as a key indicator of productivity. As a result of higher productivity per worker, a lower proportion of the workforce had to be engaged in the agrarian sector. The share of the labor force working in agriculture fell to the 20 percent recommended by Rostow for a country in the mature phase by 1988 (see figure 5). The industrial and manufacturing sectors remained rather constant, ranging from 26 percent to 36 percent of the total workforce. In the meantime, employment in the service sector grew significantly, rising from 37 percent of total employment in 1980 to almost 67 percent in 2007 (p. 53).

Table 22. Distribution of GDP, 1960-89

	Agricult.	Industry	Manufacturing	Services
1960	40	19	12	41
1965	38	25	18	36
1977	27	35	25	38
1979	27	34	n/a	39
1981	20	39	27	41
1985	14	39	27	47
1987	14	41	28	45
1989	11	43	30	46

note: % of GDP accounted to manufacturing is a part of % of the GDP accounted to industry.

Note. Reprinted from Modernization and development: An empirical study of South Korea and Brazil (p. 55), by D. J. Becker, 1991, *Honors Projects*, Paper 4. Copyright (1991) by D. J. Becker.

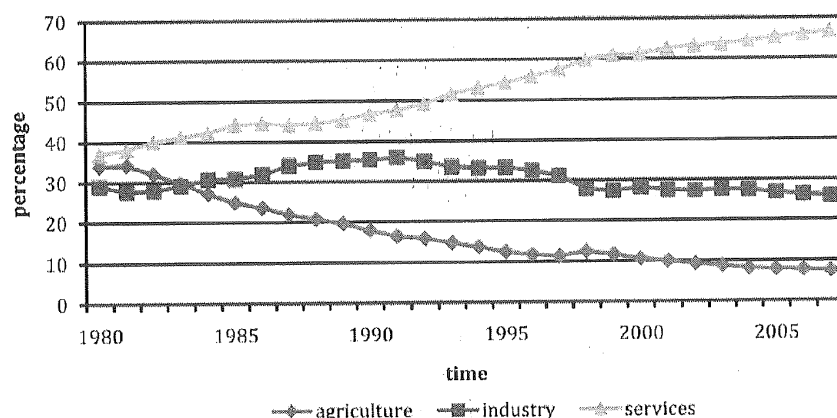


Figure 5. Employment by sector (as a percentage of total employment), 1980-2005. Reprinted from *Applying Rostow's stages of economic growth to South Korea* (p. 54), by M. Brooks, & K. G. Kulkarni, 2011, Denver, CO. Copyright (2011) by M. Brooks, & K. G. Kulkarni.

3.2.4.7 Duration of around 40 years (optional)

According to Rostow (1960), society has fully experienced industrialization at the end of the fourth stage and is then ready to move forward to the last stage. He claims that maturity is reached about 60 years after the take-off, however, he does not deny that each country has its own experience. He states that the definition of maturity must be an estimation when applied to a whole national society (p. 10). Todaro and Smith (2020) say that:

South Korea's ascent has seemed to epitomise Rostow's notion of an economy in the midst of a "drive to maturity," well on its way toward mastering the range of currently available technologies; and has apparently entered an "age of high mass consumption." (p. 140)

In their work published in 2011, Brooks and Kulkarni say that South Korea has been on the road to maturity for some time and already exhibits some of the characteristics of a society with high mass consumption (p. 53). Akanda (2022) sets South Korea's drive to maturity from the mid-1980s to the end of the 1990s. According to him, industry's share of GDP reached its peak in 1988 at 36.6 percent and has not grown since. In 1997, at the time of the Asian financial crisis, South Korea's economy suffered its first major setback. He defines the year 2000 as the transition to the age of high mass consumption in South Korea and therefore places the end of the maturity period shortly after the financial crisis (pp. 121-122).

3.2.5 Stage 5: The Age of High Mass-Consumption

3.2.5.1 Overview: Stage 5

Table 23. *W. W. Rostow's Stage 5*

Stage 5: The age of high mass-consumption	- Increased resources for social welfare and security - Rising consumption of durable and luxury goods - High per capita consumption and high real per capita income - Less than 20% of the workforce in agriculture through a shift towards services
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Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Table 23 shows Rostow's main criteria that, according to him, a country should fulfill in its fifth economic stage. In the following chapters, these criteria are discussed in more detail and applied to South Korea.

3.2.5.2 Increased resources for social welfare and security

In an age of high mass-consumption, the public must be given increased safety and security, welfare, and leisure. According to Rostow (1960), society's interests undergo a significant shift. Consumption and welfare become very important, and societies choose to allocate increased resources to social welfare and security. Rostow emphasizes that in the fifth stage of his model, the emergence of the welfare state is a manifestation of a society's moving beyond technical maturity (pp. 72-74). Akanda (2022) mentions that South Korea has significantly increased its social spending since the 2000s, from 4.4 percent of GDP in 2000 to over 10 percent in 2017. The welfare state became an important issue in Korea after the Asian financial crisis in 1997. Awareness of the need for better social protection became increasingly clear (p. 122). The Organization for Economic Cooperation and Development (OECD) says that Korean social spending in 2019 is well under the OECD average at 12 percent of GDP (see figure 6), in part due to the still young Korean population and low retirement benefits in a pension system only less than 35 years in operation. These trends will reverse in the upcoming years, however, as the population ages rapidly, according to the OECD. Under current conditions, public expenditures are forecasted to nearly double by 2060, whereby the greatest spending increases are related to population aging (OECD, 2022).

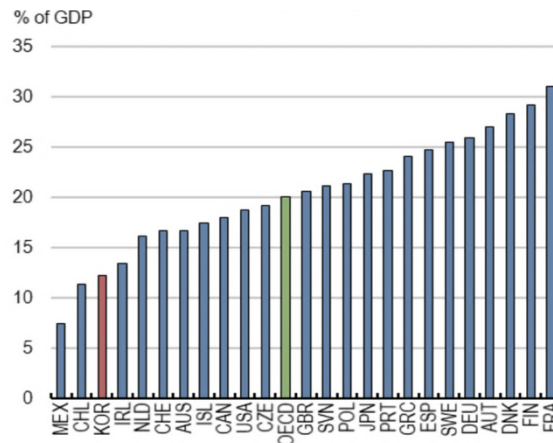


Figure 6. Public social spending in various countries, 2019.
Reprinted from *OECD economic surveys: Korea 2022* (p. 70),
2022, Paris, FR. OECD Publishing. Copyright (2022) by OECD.

3.2.5.3 Rising consumption of durable and luxury goods

With rapid economic growth, rising incomes, and improving living standards, Koreans' consumption habits have changed dramatically. According to Brooks (2011), the ownership of consumer goods such as televisions, refrigerators, telephones, washing machines, air conditioners, and cars increased significantly in Korea in the 1980s (p. 55). While only 6.6 percent of households owned a television in 1970, this figure had risen to 99 percent by 1990. In 1975, only 1 percent of Korean households had a washing machine, whereas by 1990 this figure had risen to 64.3 percent. These consumer goods increasingly became standard appliances in South Korean households (Chua, 2000, p. 68). Table 24 shows more recent figures on consumer spending by Korean households between 2014 and 2019 and also illustrates an increasing consumption of consumer durables and luxury goods (Bank of Korea, 2020, p. 166).

Table 24. Consumption expenditure of Korean household by purpose, 2014-19

In billion won						
During	당 해 년 가 격			At Current Prices		
	2014	2015	2016	2017	2018	2019p
(by Purpose)						
Food and non-alcoholic beverages	84,784.8	87,059.4	91,244.2	94,781.8	98,237.8	100,304.2
Alcoholic beverages and tobacco	11,873.5	15,075.9	16,501.3	16,526.4	16,459.2	16,305.1
Clothing and footwear	49,885.3	50,014.7	51,661.0	51,829.3	53,467.5	53,561.4
Housing, water, electricity, gas and other fuels	135,549.5	138,367.8	141,940.6	145,976.4	151,314.6	155,161.0
Furnishings, household equipment and routine household maintenance of the house	19,871.2	20,240.3	22,135.9	24,007.3	25,919.4	26,560.5
Health	34,460.9	36,640.4	39,496.1	41,419.4	44,359.0	48,765.4
Transport	82,619.8	84,373.6	86,138.2	88,826.6	93,281.6	93,615.8
Information and communication	40,637.2	40,872.3	44,325.1	46,264.9	46,234.9	45,631.4
Recreation, sport and culture	55,080.4	56,925.5	56,378.9	58,361.9	62,408.1	64,873.7
Education services	45,045.4	44,752.5	44,577.5	45,658.1	46,562.6	48,275.7
Restaurants and accommodation services	76,929.5	77,688.1	81,335.2	84,414.5	88,161.7	92,613.0
Miscellaneous goods and services	109,549.7	112,289.4	114,696.8	120,841.2	130,668.8	135,826.3

Note. Reprinted from *Economic statistics yearbook* (p. 166), 2020, Seoul, KR. Bank of Korea. Copyright (2020) by Bank of Korea.

3.2.5.4 High per capita consumption and high real per capita income

South Korea's consumption patterns have changed significantly since the upswing. The Korean population has recorded a rise in absolute consumption and consumer spending. This indicates a transformation in Korean mindset to a more consumer-oriented society. Spending on advertising also saw strong growth. In the year 2000, the gross spending on advertising increased by 26.7 percent compared to the year before, with internet advertisements alone growing by 67.5 percent (Brooks, 2011, p.56). According to Akanda (2022), in the period from 2000 to 2020, a rise of 53 to 132 in the retail sales index for durable goods indicates an upturn in consumption. Due to the increase in per capita income, consumers were able to afford significantly more durable goods than before (p. 122).

Korean per capita income has risen fast in recent decades and exceeded the OECD average in the year 2020. However, according to the OECD (2022), social inclusion has not matched the economic upturn. Both income disparities as well as the relative poverty increased significantly after the Asian financial crisis of 1997 and stayed high during the last years. Todaro and Smith also comment on the topic of income and emphasize that South Korea was among the world's poorest nations during the mid-1950s and is today categorized as a high-income economy by the World Bank (Todaro & Smith, 2020, p. 676). According to Todaro and Smith (2009):

South Korea's per capita income has grown by more than 7% annually for the whole 1965–1990 period. Even in the 1990–2002 period, as a more mature economy and in the face of the Asian financial crisis of 1997–1998, the economy grew at a 5.8% rate. In 2002–2011, it grew at less than 4% on average, still substantially higher than most other high-income countries. (p142)

3.2.5.5 Less than 20% of the workforce in agriculture through a shift towards services

The number of people employed in agriculture has declined further due to the rise in productivity. The service sector employs a growing number of people and has long since become the dominant sector (Brooks, 2011, p. 58). The World Bank (2024) also confirms that the primary sector's share of total employment continued to decline and was only 5.2 percent in 2015 (compared to 11 percent in 2000 and 16.4 percent in 1991). The manufacturing sector's share of total employment declined as well, from 36 percent in 1991 to 25.4 percent in 2015, whereas the proportion of workers in the service sector grew from 47.7 percent to 69.4 percent

during that time. The Organization for Economic Cooperation and Development (OECD) also points out that agriculture, forestry, and fishing have become less important in Korea. The share of total employment in agriculture, forestry, and fishing sectors fell to 5 percent in 2016. It also mentions that the requirement for workers in the service sector has grown significantly due to fast economic growth. The focus on high-tech industries and education has contributed to the emergence of a service-oriented economy (OECD, 2022).

4 ANALYSIS OF JAPAN AND SOUTH KOREA IN COMPARISON

4.1 Overview: Analysis

After the analytical framework was applied to Japan and Korea in chapter 3, the following section briefly summarizes the individual five economic stages and compares the results of the two countries in relation to Rostow's criteria. Table 25 once again reflects Rostow's key criteria and also shows whether the respective country has fulfilled them. The main objective is to find out whether Rostow's theory is suitable for such a comparison or not.

Table 25. Overview of the fulfillment of W. W. Rostow's key criteria in the five stages

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 1: The traditional society		
- Limited production possibilities and technology	✓	✓
- Characterized by hunting and gathering or agriculture	✓	✓
- Hierarchical social structure and strong connections between family and clan	✓	✓
- Political power in the hands of landowners	✓	✓
Stage 2: The pre-conditions for take-off		
- The two cases of the preconditions for take-off	✓	✓
- Impulses through Western colonialism (optional)	✓	✓
- Change of thinking in society and better education	✓	✓
- Building up social overhead capital	✓	✓
- Establishment of an effective modern government	✓	X
- Rising investment rate (to about 5% of national income)	✓	✓
- Improved production techniques and new industries	✓	✓
- Increase in domestic and foreign trade	✓	✓
- Increase in agricultural production capacity (around 75% of the workforce in agriculture)	✓	✓
- Population growth and increasing urbanization	✓	✓
Stage 3: The take-off		
- Strong stimulus (political revolution, technological innovation, or new international environment)	✓	✓
- Radical change in production methods	✓	✓
- Development of one or more industrial lead sectors with a high growth rate	✓	✓
- Innovations in coal, iron, and heavy engineering through the railroad	✓	✓
- Rising investment rate (to more than 10% of national income)	✓	✓
- Sign of inflation (optional)	✓	✓
	X	X

- Around 40% of the workforce in agriculture at the end of take-off - Duration of around 20 years	✓	X
Stage 4: The drive to maturity - New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead - Rising investment rate (to 10-20% of national income) - Changing structure of the workforce (wages, composition, and qualifications) - Increasing population and rising urbanization - Around 20% of the workforce in agriculture by maturity (optional) - Duration of around 40 years (optional)	✓ ✓ ✓ ✓ X ✓	✓ ✓ ✓ ✓ ✓ X
Stage 5: The age of high mass- consumption - Increased resources for social welfare and security - Rising consumption of durable and luxury goods - High per capita consumption and high real per capita income - Less than 20% of the workforce in agriculture through a shift towards services	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

4.2 Stage 1: The Traditional Society

4.2.1 Summary of W. W. Rostow's Stage 1

Table 26. Overview of the fulfillment of W. W. Rostow's Stage 1

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 1: The traditional society		
- Limited production possibilities and technology	✓	✓
- Characterized by hunting and gathering or agriculture	✓	✓
- Hierarchical social structure and strong connections between family and clan	✓	✓
- Political power in the hands of landowners	✓	✓

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Rostow's first stage of economic growth is characterized by four key criteria (see table 26). A main feature is the limited production possibilities and technologies of the traditional economy. Although there is an upper limit on the attainable output per head, Rostow mentions that society is not static and does not rule out an increase in production, which can be achieved, for example, through the usage of new agricultural methods (see chapter 2.3.1). Another feature of traditional society is the importance of hunting, gathering, or agriculture. Due to the limitations on productivity, a very high share of resources is devoted to these traditional economic activities. In this wholly primary sector economy, more than 75 percent of the labor force works in food production. Moreover, traditional society deals with a hierarchical social structure and a strong connection between family and clan. The society's value system is characterized by the assumption that the options open for one's grandchildren will be the same as they were for one's grandparents. Another key criterion is the political power of landowners. Although central political rule often exists in traditional societies, the focus of political power lays in the hands of the landowners, who independently control their property and rely on the possession of civil servants and soldiers.

4.2.2 Japan and Korea in comparison

Limited production possibilities and technology

Both countries under investigation had no contact with the outside world for over two centuries. In Japan, the isolation period lasted from 1639 to 1854, while it was even longer in Korea, namely from 1637 to 1876. Due to these isolation policies, the economies of both countries

were very simple and traditional during that time. In spite of limited production capacity, advancements in agriculture increased production slightly. In Japan, new rice varieties resistant to disease and drought were introduced, double cropping of fields was possible through better fertilizers, and improved irrigation techniques increased harvests and the quality of crops. But also in Korea, moderate advancements in irrigation and a rise in cultivated acreage increased production. Peasants in both countries, however, used primitive and labor-intensive farming methods, which hardly changed over the centuries. Due to almost no progress in technology, there was a low and stagnant level of productivity and attainable per capita output in Japan as well as in Korea. The two countries examined thus fulfill Rostow's criteria of limited production possibilities and limited technology.

Characterized by hunting and gathering or agriculture

Around 90 percent of Japan's and Korea's labor force was devoted to agriculture during the traditional period. The main source of income was rice production, but also crops like wheat, barley, and beans were cultivated. In general, agriculture developed very slowly. Farmers used primitive and labor-intensive techniques that hardly changed over the centuries in order to cultivate their fields. Production was small and hinged on manual labor and that of bulls at times. Besides, irrigation techniques were very basic and poorly developed. Regular crop failures and famines were the consequences in both countries. In Japan, a severe famine took place in the early 1180s, which was accompanied by a plague. Korea experienced a great famine after the Imjin War. During the years 1670-71, almost one million people died of starvation. Beyond the loss of millions of lives and the destruction of huge areas of farmland, Korea was plunged into a severe financial crisis. In order to fill the empty state coffers, the government adjusted the tax system by introducing the Uniform Land Tax Law. It stipulated tax payments in rice depending on the amount of profit made from the cultivated land. The tax burden on farmers increased heavily and made up over half of Korea's finances. By 1750, the government introduced the Military Service Tax Law, which allowed farmers to pay in cloth instead of doing military service. In Japan, farmers had to pay rice taxes, which were levied on the whole village, not on individual peasants. There were two possibilities to find out how much tax had to be paid. Villagers could decide between an inspection system and a fixed-amount system. Korea's Military Service Tax Law and Japan's inspection system had to deal with severe tax revenue corruption. That corruption was the main reason for the permanent revenue shortages of Japan's Edo government and Korea's late Joseon dynasty. Rostow's criterion of an important agricultural sector in traditional society therefore applies to both countries in this respect.

Hierarchical social structure and strong connections between family and clan

Both countries had a strong hierarchical social structure. In Japan, society was strictly divided into four main classes, namely samurai, farmers, who made up the largest social class, craftsmen, and merchants. Each class lived in its own, segregated area of the city and had a separate ruling system. In Korea, the *yangban*, a powerful bureaucratic elite, were at the top of the social hierarchy, followed by the middle class. Yet, like in Japan, most of Korea's society was middle-class and closely connected to farming. In order to maintain the structure of the social classes, the governments of both countries established systems that defined the trade of single families. In Japan, the *ie* system specified the hereditary class structure, while in Korea, a Board of Works maintained the number of workers in most professions. As, in both nations, the father handed his occupation to his son, the social structure could not be violated. There is a substantial difference between the countries under investigation, as in Korea, middle- and upper-class families were excluded from this regulation. In Japan, all hierarchical groups were affected, and even samurai were not allowed to engage in another activity, like farming or trade.

In both nations, society was ruled according to Confucian principles. With the help of Neo-Confucianism, the Japanese and Korean rulers could maintain social and political order. It was a moral philosophy that ruled over the principles of education and obedience. Two crucial rules were (1) elder over younger and (2) men over women. The patriarchal structure provided a strong labor division between men and women. Women did the time-consuming work, including taking care of the children and the housework, while men were responsible for the control of the family and its property as well as for the representation of the family in society. Both Japan and Korea thus fulfill Rostow's criterion on this point.

Political power in the hands of landowners

In both countries, political rule was centralized toward the end of the traditional stage. During the Edo period in Japan, the central government had absolute power over each local government. Economically, the Edo society was more decentralized since the central government did not conduct constant economic policies. Each local government was allowed to decide its own internal policies and economic regulations. While in Japan only the political rule was centralized, Korea had a unified and direct rule politically and economically. The Korean government was centralized in its administration and organizational structure, and the political rule of the Joseon dynasty was centered in the capital, Seoul.

In both countries under investigation, the focus of political power was in the hands of large landowners. The Kamakura government in Japan, for example, was formed by the leaders

of the samurai warriors and guaranteed certain rights for samurai to own land and to distribute land to others. During the Edo period, the central government of the *Shogun* held widespread territories. *Daimyos* got land from the *Shogun* in order to administer the territory and collect taxes from landholding farmers. In Korea, the aristocratic ruling class was the *yangban*, who represented the administrative backbone of society and the economy. Most of them were landlords who leased their land to farmers. Another similarity is that both countries relied on the possession of civil servants and soldiers. In Japan, the *Shogun* had around 80,000 retainers provided by his *daimyos*. The Korean *yangban* hired superintendents in order to supervise the tenant farmers and collect rental fees. Some *yangban* retained around 1,500 farmers. Rostow's key criterion of the political power of landowners thus also applies to the two countries in this respect.

4.3 Stage 2: The Preconditions for Take-Off

4.3.1 Summary of W. W. Rostow's Stage 2

Table 27. Overview of the fulfillment of W. W. Rostow's Stage 2

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 2: The pre-conditions for take-off		
- The two cases of the preconditions for take-off	✓	✓
- Impulses through Western colonialism (optional)	✓	✓
- Change of thinking in society and better education	✓	✓
- Building up social overhead capital	✓	✓
- Establishment of an effective modern government	✓	X
- Rising investment rate (to about 5% of national income)	✓	✓
- Improved production techniques and new industries	✓	✓
- Increase in domestic and foreign trade	✓	✓
- Increase in agricultural production capacity (around 75% of the workforce in agriculture)	✓	✓
- Population growth and increasing urbanization	✓	✓

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

In Rostow's second stage, societies are preparing for continuous growth and economic advancement. They are in the process of transition, and preconditions are being developed for take-off. This stage is characterized by ten key criteria (see table 27). An optional criterion is the impulse of Western colonialism. According to Rostow, imperial powers often pursue policies that are advantageous for the development of a society and introduce modernization (see chapter 2.3.2). Another feature of stage 2 is that a change of thinking takes place. There is a realization in society that economic advancement is a crucial condition for other positive purposes. Additionally, a change in education is necessary to adapt to modern economic activity. Furthermore, the building of social overhead capital is characteristic of the transition phase. A very high proportion of total investment should go into transport and other socially useful infrastructure projects. Rostow mentions that it is the responsibility of the government to build up SOC and to organize the country. Therefore, the formation of a modern and efficient government plays a very important role in the preconditions period. Another key criterion of stage 2 is a rising investment rate to about 5 percent of national income. According to Rostow, this is very crucial for the transition process from a traditional society to a successful take-off. Furthermore, new industries emerge in this stage that use improved production methods, and the economic interests of other countries lead to a rise in domestic and foreign trade. Rostow

emphasizes, however, that this development proceeds very slowly within a society with traditional low-productivity methods and an old social structure. Moreover, stage 2 is characterized by an increase in agricultural production capacity and a labor force of around 75 percent in the agricultural sector. However, agriculture can reach its limit in production during the transition phase. Another feature of this stage is population growth as well as increasing urbanization.

4.3.2 Japan and Korea in comparison

The two cases of the preconditions for take-off

Japan as well as Korea are classified by Rostow as general cases. In both countries, basic changes took place in traditional society in order to achieve the preconditions for take-off, like building up social overhead capital and finding an economic environment where a change from agriculture to manufacturing was lucrative. Rostow cites Japan's Meiji restoration in 1868 as a typical stimulus for the general case. Moreover, Korea's colonization by Japan can be seen as such a stimulus.

Impulses through Western colonialism (optional)

Both of the countries studied were affected by Western colonialism. Although Japan was never colonized, its fear of colonization led, among other things, to a long period of self-isolation. Korea was colonized by Japan. Western influences, however, could be found in both countries. In Japan, people from the West made their first appearance in the mid-sixteenth century and established a flourishing trade. In contrast, not more than 100 Westerners had visited Korea before the isolation policy. During the isolation periods of the two countries, foreign nations tried forcefully to open the borders in order to arrange trade agreements. The Americans terminated Japan's closed-door policy in 1854 but failed to open Korea. However, the Japanese enforced the opening of the Korean border in 1876. In both countries, the end of the isolationist period caused economic and social renewals based on the Western model.

In Japan as well as in Korea, contact with Western people triggered hostilities. Especially Catholicism was seen as a severe threat by the rulers. Although Christian missionaries brought Western goods and ideas into the two countries and played a crucial role in modernization, they received strong criticism. Their cultures and habits were often seen as barbarian, and an anti-foreigner movement developed after the opening of the borders. In Japan, people soon changed their methods and switched to a policy of good cooperation. Massive overseas markets for tea

and silk arose, and Westerners were suddenly seen as modern and civilized. In 1910, Japan took Korea as a colony that served as a resource for raw materials and agricultural products. In subsequent years, the Japanese government conducted numerous reforms and changed Korea's economy into a modern one that met the needs of the colonial power. While in Japan, the demonstration effect of the British-Chinese Opium War and Commodore Perry's friendship treaty triggered modernization, in Korea, a new sense of nationalism and the foundation that Japan laid provided the necessary preconditions for the take-off. Rostow's optional criterion of an impulse from Western colonialism thus applies to both countries to some extent, as both Japan and Korea were affected by it.

Change of thinking in society and better education

In both countries under investigation, a change of thinking took place. In Japan, the public realized the importance of a high-quality education during the Edo period. Many researchers are convinced that the good education system at that time was responsible for the fast industrialization in later periods. In Korea, a modern Western educational system as well as Western science and notions were introduced by Christian missionaries as soon as the country was open. Modern values like the concept of equality and the idea of democracy were conveyed. Christianity greatly changed the worldview of a part of the population.

In Japan, education was not only available in large cities but almost nationwide. Private primary schools taught reading, writing, and arithmetic to young children. The alphabetization rate was high at the end of the Edo period, however, it varied greatly from region to region. It was elevated in cities and areas with advanced trade but remained rather low in rural places. In 1872, compulsory primary education was introduced. In Korea, the reach of Western education was limited and not available throughout the country. Traditional educational institutions that taught Confucian teachings still dominated, especially in rural areas. Although the Japanese government greatly improved the modern educational system after annexation, not all citizens were able to benefit from it. The level of education among Koreans thus remained low during stage 2. Rostow's criteria of rethinking and increasing education apply here for both countries, although the level of education during the second stage was significantly higher in Japan than in Korea.

Building up social overhead capital

Japan's street network improved during the Edo period, as did river and coastal water transportation. The opening to the West in the 1850s led to the introduction of a rail network

and the formation of modern social overhead capital. A telegraph service, the postal service, and a railway line emerged. Japan's fast-growing social overhead capital contributed to the country's consecutive economic growth. In Korea, the building of modern social overhead capital started not before the opening of the borders in 1876. Japanese immigrants built up hospitals, schools, and banks and constructed a telegraph network, modern post offices, and sanitation systems. At the time of annexation in 1910, rising Japanese immigration led to a demand for better infrastructure, so large-scale public works projects were initiated by the Japanese government. Harbor facilities, river navigation, and streets were improved, and the public rail network expanded enormously. Besides Korea's transportation sector, the electric power industry as well as communication networks developed very fast. Hence, it can be said that the Japanese government was largely responsible for improving the infrastructure in Korea. Rostow's criterion for building up social overhead capital is therefore fulfilled in both countries.

Establishment of an effective modern government

After the opening of their borders, the governments of both countries under investigation introduced a modernization policy and undertook numerous reform measures. In Japan, the shocking realization of its own backwardness toward Americans and Europeans triggered industrialization. The main goals of the government were modernization and Westernization by introducing Western technology and systems. Japan tried to attain economic, military, and political modernization and became the first country outside the West with a functioning constitution. In Korea, the Gabo reform concluded over 200 laws that, among other things, abolished mores of the traditional society. Moreover, institutional reforms were launched, a modern budget was developed, and the army and the court were remodeled. The reforms should build up a market-oriented and modern economy. In both countries, the tax systems were reformed in the course of modernization. The land tax changed from payments in kind to payments in money. Subsequently, grain was available for sale and export. In Korea, however, the success of the reforms and the advancement of modernization remained limited. The government was inefficient, and the administration structure scarcely changed. Besides, the reforms received insufficient support from society. Although both countries under study adopted modernization policies during stage 2, Rostow's key criterion of building a modern government was rather only fulfilled by Japan.

Rising investment rate (to about 5% of national income)

In Korea, investment was very limited before the colonization by Japan. Under colonial rule, the Japanese government initiated numerous investments throughout the country. Especially investments in social overhead capital were forced, so that the transportation and communication sectors enlarged greatly in Korea during that time. Local entrepreneurial investment, however, was very low compared to the capital coming into Korea from Japanese investors. Japan, in contrast, saw almost no foreign direct investment during the Meiji period. The reason was the fear of foreign control. In Japan, public investment was mainly used for expenditures on education and to build up infrastructure. Economists have not been able to give accurate investment figures for the early Meiji period in Japan or the period of colonization in Korea because of a lack of comprehensive statistical data that includes public investment in SOC and human capital investment in these countries. Due to the shortage of reliable figures, it is not possible to answer here whether Rostow's key criterion of a rising investment rate of over 5 percent of national income has been met. However, it can be said that investments rose in both countries during the preconditions period.

Improved production techniques and new industries

Prior to the opening of the countries in the mid-nineteenth century, Japan's as well as Korea's societies were economically very simple, and agriculture provided the largest part of total production. Although the non-agricultural sector developed earlier in Japan, the country remained economically regressive until the opening of the borders. Korea's industry was still underdeveloped from an economic point of view at the time Japan took power in 1905. In both nations, however, the opening of the ports contributed a lot to the economic transformation. Westerners brought new industries, better technologies, and modern production methods to the countries. During the Edo period, Japan stood on the brink of industrialization. In Korea, it was the time of colonization that led to an economic rise. Both countries underwent a gradual change from a predominantly agrarian to a predominantly non-agricultural economy. Rostow's criteria of improved production techniques and new industries therefore apply to both countries.

Increase in domestic and foreign trade

Before the ports were opened to foreigners in 1876, commerce between Korea and the West was non-existent. In contrast, Japan was actively engaged in foreign trade with Europe until the 1630s. Its isolation policy, starting in 1639, terminated almost all foreign relations, except the surviving Dutch and Chinese trade through the port of Nagasaki. After the opening of Japanese

borders in the mid-nineteenth century, products like tea and silk found enormous overseas markets. Although foreign trade was important in the Edo period, domestic activity was the heart of Japan's economy during that time. In Korea, internal trade also played the most important role until the time of colonization. It developed rapidly due to higher agricultural yields as well as changes in the tax system in 1894.

During the time of colonization, Korea's trading ability in terms of foreign trade developed greatly. Over the years, the combination of traded services and commodities shifted. In the beginning, most Korean exports came from raw materials and unprocessed food products. By the time the economy evolved during Japanese rule, however, the export of fabricated goods, refined raw materials, and processed groceries grew in importance. As the Korean economy became more industrialized, the demand for imported products shifted from finished goods to crude or semi-finished manufacturing materials. During colonization, four-fifths of Korea's imports flowed from Japan. Japan's most important markets were East Asia, Europe, and North America. Especially from the Meiji period onwards, foreign trade had a great impact on economic growth and was closely connected to Japan's industrialization. Large parts of the raw materials, fuels, and capital equipment were imported because Japan had few natural resources. Meanwhile, exports expanded as the competitiveness of Japan's technologically improved products rose on the world market. The two countries under review therefore fulfill Rostow's criterion of a rise in trade.

Increase in agricultural production capacity (around 75% of the workforce in agriculture)

Both countries documented significant improvements in agricultural productivity. While agriculture depended on simple tools and labor-intensive techniques in the traditional period, the use of better-quality seeds, advanced irrigation techniques, and commercial fertilizers greatly increased harvests during stage 2. Moreover, arable land expanded vastly through wide-ranging water management projects in Japan as well as in Korea. At the end of the seventeenth century, Japan's quantitative expansion of farmland stopped. Simultaneously, agricultural productivity increased rapidly as technology improved. Modern tools and farm machinery emerged, new fertilizers appeared, and better species of rice were used. Korea's agricultural productivity made considerable progress under Japanese rule. The colonial government initiated numerous measures to raise production and increase rice exports to Japan. While the lives of Japanese farmers were significantly enhanced by improvements in agriculture, low selling prices and coercive measures in Korea's rural regions were responsible for the scarcity

of rice in Korea. Japan relied on agricultural products from the colony and forced Korean farmers to sell a certain amount of rice to the government. Korean agriculture took a more important position in the economy than agriculture did in Japan. Most of the workers were employed in the agricultural sector in Korea, namely more than 85 percent in 1905 and around 64 percent at the end of the colonial era. In Japan, 72 percent of the total workforce was engaged in agriculture in 1872. The agricultural output of Korean farmers, however, was very small compared with farmers in Japan. According to Rostow, stage 2 is characterized by an increase in agricultural production capacity and a labor force share of around 75 percent in the agricultural sector, criteria that both countries examined achieved.

Population growth and increasing urbanization

From the middle of the fifteenth century to the late seventeenth century, Japan's population started to increase considerably as arable land expanded. At the end of the seventeenth century, population growth stopped and remained stable at around 30 million. That rapid population rise was rarely observed in a pre-modern society. Korea saw a large increase in population during the colonial period. The total population doubled to more than 26 million inhabitants from 1904 to 1943. Thus, both countries recorded a strong population increase in their pre-modern periods. In Japan, there was a huge growth in the urban population simultaneously. Though urbanization went along with population growth in Korea too, the rise in urban population was much lower than the rise in rural population. Demographic growth in the two countries was accompanied by a rising demand for food, fuel, and shelter requirements, as well as better infrastructure. Both Japan and Korea, therefore, also meet Rostow's criteria here.

4.4 Stage 3: The Take-Off

4.4.1 Summary of W. W. Rostow's Stage 3

Table 28. Overview of the fulfillment of W. W. Rostow's Stage 3

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 3: The take-off		
- Strong stimulus (political revolution, technological innovation, or new international environment)	✓	✓
- Radical change in production methods	✓	✓
- Development of one or more industrial lead sectors with a high growth rate	✓	✓
- Innovations in coal, iron, and heavy engineering through the railroad	✓	✓
- Rising investment rate (to more than 10% of national income)	✓	✓
- Sign of inflation (optional)	✓	✓
- Around 40% of the workforce in agriculture at the end of take-off	X	X
- Duration of around 20 years	✓	X

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Rostow's third stage of economic growth is the turning point in the life of a modern society, as here the transition from an underdeveloped country to a developed one takes place. This stage is characterized by eight criteria (see table 28). One of the essential key criteria is a strong stimulus, which can be a political revolution, a technological innovation, or a new international environment. Another criterion is a radical change in production methods. In this stage, new techniques spread in industry and agriculture, and in most take-offs, a crucial change in market organization occurs. The growth of industries with modern production methods results in an obvious increase in per capita production. A fundamental condition for take-off is also the existence of one or more fast-growing industrial lead sectors. Progressive industrialization leads to the creation of new industries, while, at the same time, the sectors that have triggered the economic rise begin to wane. The construction of the railroad is very often one of these new leading sectors. Furthermore, the railroad is conducive to the rapid development of the export sector and leads to innovations in coal, iron, and engineering. Another main feature of the third stage is that the percentage of investment to national income is about 10 percent. Entrepreneurs in the leading sectors reinvest a considerable proportion of profits in new productive investments and are important pioneers of economic advancement. Moreover, inflation can be relevant for some take-offs. Price inflation may help build up capital when resources are shifted

away from consumption to profits. According to Rostow, the take-off phase is characterized by a labor share of around 40 percent in the agricultural sector and generally takes around 20 years to complete (see chapter 2.3.3).

4.4.2 Japan and Korea in comparison

Strong stimulus (political revolution, technological innovation, or new international environment)

The take-off is initiated, in most cases, by a powerful impulse. It does not matter what kind of impulse it is, the important thing is the reaction to it. In Japan, that stimulus was the Meiji restoration in 1868, a pro-Western reform of the government that introduced the Meiji period. After Japan's international isolation over a period of more than 200 years, the country realized its backwardness toward Americans and Europeans. This shocking realization was responsible for Japan's industrialization during the Meiji period. In order not to be colonized by Western nations, Japan wanted to catch up with them by introducing their technology and systems. This target was shared among Japan's population, all politicians, and officials, and was considered strictly necessary to be treated equally by Western countries. The Meiji period marked the rise of Japan as a major player in international economic affairs.

In Korea, the strong stimulus was the end of colonization in 1945 and the subsequent division of the country into two territories. US troops established a military government to rule South Korea during a three-year period and supported the country with foreign aid and consumer durables. Although the Korean War, which took place from 1950 to 1953, destroyed most of the country's industry, it was followed by decades of radical shifts in government as well as vast technological and industrial expansion from the 1960s onward. The Republic of Korea (ROK) has experienced enormous economic growth due to an export-oriented policy, making it one of the world's leading industrialized nations today. The take-off was thus initiated in both countries by a strong impulse, which was also reacted to in each case. The two countries under investigation therefore fulfill Rostow's essential key criterion of a strong stimulus.

Radical change in production methods

In the take-off stage, both countries pursued the goal of achieving economic growth. Japan introduced modern technology from the West, for example, through the guidance of foreign engineers, the training of Japanese students, or the adaptation of modern machines to their own requirements. Korea used five-year economic development plans to implement this goal. The

first five-year plan, introduced in 1962, stimulated an export-driven industrial upswing. Moreover, Korea started normalizing its diplomatic relationship with Japan. The new openness for economic exchange offered an opportunity for learning and acquiring new technology, modern production methods, management skills, and capital equipment. With its rigorous economic policies in the 1960s and 1970s, Korea managed to transform from an economically impoverished country to a booming industrialized nation. In Japan, industrialization could be achieved through an appropriate combination of traditional Japanese technology and imported Western methods. At the end of the Meiji period, Japan was effectively industrialized in light industries, especially textiles. However, as the development of machinery and heavy industries did not start until the First World War, Japan's machinery industry was still greatly dependent on Western technology during the Meiji period. Moreover, the two countries managed to increase their per capita production through the implementation of modern production methods. Both Japan and Korea thus fulfill Rostow's criterion on this point.

Development of one or more industrial lead sectors with a high growth rate

During take-off, the structures of both the Japanese and Korean economies have changed significantly. The importance of agriculture diminished while manufacturing gained in importance. One of Japan's leading industrial sectors during the Meiji period was the cotton industry. It was the largest industry throughout the period, followed by the silk industry. Silk remained Japan's most important export item for almost a century. In Korea, a distinct shift in manufacturing from light to heavy industry took place in stage 3. In the 1930s, there was considerable support from the Japanese government for the advancement of the heavy and chemical industries in Korea due to Japan's territory expansion policy across Asia. As a result, heavy industry gained importance in Korea during take-off, while it became influential in Japan only at a later stage. In Korea, thus, it was industries such as explosives, fertilizers, oils, pharmaceuticals, and rubber goods that achieved the highest growth rates during this phase, followed by the metal and machine industry. Both nations examined therefore fulfill Rostow's criterion of the development of an industrially leading sector.

Innovations in coal, iron, and heavy engineering through the railroad

In both Japan and Korea, railroad expansion played a crucial role in the take-off phase. In the late 19th century, railroad development in Japan was characterized by extensive government support. The rail network not only enabled efficient transportation of people and goods but also promoted progress in industries such as coal, iron, and heavy engineering. Korea also

experienced important innovations in coal, iron, and heavy industry as a direct result of its railroad network development. The establishment of key lines such as the Yeongam Line in 1955 underscored the role of railroads in supporting heavy industry. In both countries, railroads played a major role in promoting industrialization and facilitating the export sector during the upswing. Rostow's criterion that the railroad leads to strong progress is therefore also fulfilled here in both countries.

Rising investment rate (to more than 10% of national income)

Investment rates rose sharply in both countries during their take-off stages, reaching more than 10 percent of national income. In Japan, the introduction of new products and technologies during the Meiji period as well as the expectation of high returns on capital were, among other things, responsible for that increase in investment. Korea's rapid economic rise during its third stage was due to a large capital inflow from abroad. Almost two-thirds of the nation's entire investment needs were covered by foreign financing from 1953 to 1963. The Park era was marked by an extreme rise in capital accumulation, whereby the Korean government succeeded in harnessing domestic resources in the middle of the 1960s, thanks to the tax and financial reforms during that time. In contrast, there was almost no foreign direct investment in Japan at the beginning of the Meiji era due to the fear of foreign control. Domestic capital formation expanded. Rostow's criterion of a growing investment rate to more than 10 percent of national income also applies to both countries in this respect.

Sign of inflation (optional)

Both countries struggled with inflation during their take-off phases. In Japan, unequal commercial treaties with the West, as well as the inflow of foreign products and technology, caused economic turmoil after the opening of Japanese ports, including shifts in relative prices and high inflation. Inflation accelerated as a huge amount of inconvertible paper money was issued by the central government in order to fund a civil war in the early Meiji period. In Korea, high economic growth, initiated by the government's growth-at-any-cost policy, contributed to inflation. A disorganized underground credit market and a comparatively depressed savings rate in the country proliferated. Both nations only managed to keep inflation under control through targeted anti-inflation measures. Japan switched from a policy of expansion to one of austerity. In 1881, inflation was brought to a halt, and commodity prices fell as a result of the new deflationary policy. In Korea, too, the problem did not ease until the government took measures to combat inflation in 1982. Rostow's optional criterion of inflation, which may be

relevant for some take-offs, is thus fulfilled, as both Japan and Korea had to deal with inflation during their take-off phases.

Around 40% of the workforce in agriculture at the end of take-off

During their high growth periods, the primary sector served as the predominant employer in Japan and Korea. In both countries, however, the percentage of the workforce engaged in agriculture fell sharply during that phase. At the end of the third stage, about 60 percent of Japan's labor force was involved in agriculture, whereas in Korea, roughly half of the workforce was employed in agriculture at the end of its period of rapid growth. According to Rostow, the take-off phase is characterized by a labor share of around 40 percent in the agricultural sector, a milestone that neither of the examined countries achieved.

Duration of around 20 years

Rostow's take-off stage lasts around 20 years in most cases. Fundamental economic patterns, along with social and political structures in society, are reshaped during this period in order to maintain constant growth afterwards. Rostow himself places the start of Japan's take-off in the fourth quarter of the nineteenth century. This opinion is shared by several other authors, who would also classify the country's take-off phase in that term. For Korea, Rostow sets the time for take-off from the beginning of the 1960s until the end of that decade, although this period of high growth rates was rather short in comparison with other countries. Additional authors date the beginning of Korea's take-off to the late 1950s until the early 1970s. Rostow's criterion of a take-off phase lasting around 20 years was met by Japan. In Korea, however, the period was only about half as long.

4.5 Stage 4: The Drive to Maturity

4.5.1 Summary of W. W. Rostow's Stage 4

Table 29. Overview of the fulfillment of W. W. Rostow's Stage 4

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 4: The drive to maturity		
- New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead	✓	✓
- Rising investment rate (to 10-20% of national income)	✓	✓
- Changing structure of the workforce (wages, composition, and qualifications)	✓	✓
- Increasing population and rising urbanization	✓	✓
- Around 20% of the workforce in agriculture by maturity (optional)	X	✓
- Duration of around 40 years (optional)	✓	X

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Following the take-off, a prolonged period of uninterrupted, albeit fluctuating, advancement ensues as the economy, now in a state of consistent growth, strives to extend modern technology across the entirety of its economic activity. This stage is characterized by six criteria (see table 29). A key criterion for is the emergence of new leading sectors, such as steel, chemicals, modern ships, and innovative machine tools. New sectors displace the leading industries of the take-off stage, and the economy extends its range into more refined and complex processes. The iron, coal, and heavy engineering industries of the railroad phase are no longer the core industries of growth, but chemicals, steel, modern ships, and innovative machine tools take the lead. These sectors are now responsible for maintaining the growth rate in the economy. Another main feature of the fourth stage is that the share of investment to national income has risen to between 10 and 20 percent. In addition, the structure of the workforce changes in terms of wages, composition, and qualifications. A growing number of workers are employed in technical fields, as professionals, or as office and semi-skilled workers. A further fundamental condition for the maturing period is an increasing population and rising urbanization. According to Rostow, the maturity stage is often characterized by a work share of around 20 percent in the agricultural sector and lasts around 40 years in many countries (see chapter 2.3.4). But he also argues that the technical definition of maturity must be an estimation when applied to a whole national society.

4.5.2 Japan and Korea in comparison

New leading sectors, such as steel, chemicals, modern ships, and innovative machine tools, take the lead

Both the Japanese and Korean governments promoted new key industries in their respective countries, while existing industries disappeared. Shipbuilding, for example, was one of the new leading sectors that became competitive in both countries. The heavy and chemical industries in particular, including iron and steel production, machinery, chemical products, and plastics, played a decisive role in the economic development of both countries. In Japan, the machinery industry was the most important sub-sector of the nation's heavy and chemical industry. In Korea, especially the construction sector recorded significant growth. In both countries surveyed, most economic sectors benefited from an export-driven upturn, as huge amounts of durable consumer goods and production equipment such as automobiles, electrical appliances, and ships were exported all over the world. Rostow's criterion that new leading sectors such as steel, chemicals, modern ships, and innovative machine tools are taking the lead in stage 4 can therefore be confirmed for both countries.

Rising investment rate (to 10-20% of national income)

In both Japan and South Korea, investment rates rose significantly in relation to national income during their respective industrial growth phases. These increases were due to domestic economic factors as well as external influences. Both countries benefited from strong export growth, which stimulated investment activities and caused the investment ratio to rise. In Japan, the outbreak of the First World War led to a significant export boom, as the European powers were unable to meet global demand due to the war and Japan filled the gap. In South Korea too, export growth, particularly through large family-run companies, the *chaebols*, became a central factor in industrial expansion in the 1970s. The *chaebols* in Korea correspond to the importance of *zaibatsu* in Japan. Both the Korean *chaebols* and the Japanese *zaibatsu* have strongly influenced their countries' economies and played a key role in the development of new markets, industries and export products. Both were strongly supported by their respective governments through incentives such as capital for investment, favorable reforms and loans. Rostow's criterion of a rising investment rate also applies to both countries in this respect.

Changing structure of the workforce (wages, composition, and qualifications)

In South Korea and Japan, the structure of the labor force has changed significantly, with major similarities in the development of wages, composition, and skills. Both countries started with a relatively low skilled workforce and transitioned to economies that required higher levels of skilled labor, supported by significant investment in education and industrialization. In both comparator countries, the transition from light to heavy industry led to an increasing demand for skilled labor. In South Korea, the government invested heavily in education between the 1960s and 1980s. This improvement in education helped to increase urban employment, labor productivity, and wage levels. The proportion of skilled workers in the labor force increased significantly, especially in the technical sectors. Japan's shift to heavy industry, particularly in the 1920s, also increased the demand for skilled labor capable of adapting to rapid technological change. In Japan, the introduction of wage systems based on skills and seniority helped to retain and motivate a growing number of skilled workers. The two countries examined thus fulfill Rostow's key criterion of a changing structure of the workforce during the maturing period.

Increasing population and rising urbanization

According to Rostow, a fundamental condition for maturity is a growing population and increasing urbanization. Both Japan and South Korea experienced general population growth in their own countries as well as rapid urbanization. People were looking for better work and education opportunities in the cities and therefore migrated from rural areas. This led to the expansion of urban centers such as Tokyo and Osaka in Japan and Seoul and Pusan in South Korea. Both countries faced challenges related to urbanization, such as the growing income gap between urban and rural areas and the strain on urban infrastructure. Efforts to address these challenges included administrative restructuring in Japan to expand urban boundaries and improve urban infrastructure and rural revitalization programs in South Korea to stem the rural exodus. Both study countries meet Rostow's criterion of a growing population and increasing urbanization in the fourth stage of the model.

Around 20% of the workforce in agriculture by maturity (optional)

According to Rostow, the maturity stage is often characterized by a labor share of around 20 percent in the agricultural sector, a milestone that Japan did not reach, but South Korea did. In Japan, the primary sector still accounted for 45 percent of total employment at the end of the maturity stage. In Korea, the share of the labor force employed in agriculture fell to 20 percent in the middle of its maturing period. Nevertheless, employment in the primary sector declined

steadily in both countries, while at the same time there was an increase in the non-primary sectors.

Duration of around 40 years (optional)

Rostow's maturity stage lasts around 40 years in most cases. According to him, society has fully experienced industrialization at the end of the fourth stage and is then ready to move forward to the last stage. He offers some rounded symbolic dates for arrival at technological maturity and sets the time for Japan's maturing period from 1900 to 1940. Other authors date the end of Japan's fourth stage to the early 1970s, as Japan's spectacular economic growth was over and transition to lower growth was indispensable. For Korea, several authors date the beginning of Korea's maturity stage to the 1980s and do not see the country reaching maturity before the beginning of the twenty-first century. Rostow's criterion of a maturity stage lasting around 40 years was met by Japan. In Korea, however, the period was only about half as long.

4.6 Stage 5: The Age of High Mass-Consumption

4.6.1 Summary of W. W. Rostow's Stage 5

Table 30. Overview of the fulfillment of W. W. Rostow's Stage 5

Stages of economic growth	Country of investigation	
	Japan	Korea
Stage 5: The age of high mass- consumption		
- Increased resources for social welfare and security	✓	✓
- Rising consumption of durable and luxury goods	✓	✓
- High per capita consumption and high real per capita income	✓	✓
- Less than 20% of the workforce in agriculture through a shift towards services	✓	✓

Note. Adapted from *The stages of economic growth. A non-communist manifesto*, by W. W. Rostow, 1960, New York, NY. Cambridge University Press. Copyright (2025) by B. Gigler.

Society has fully experienced industrialization at the end of the fourth stage and is then ready to move forward to the last stage. The longer society finds itself in the maturity stage, the more it changes. Rostow's fifth stage of economic growth is characterized by four key criteria (see table 30). According to Rostow, the leading sectors move toward services and durable consumer goods. Alongside the sewing machine, the bicycle, and the various electric-powered household gadgets, the cheap mass automobile is also gradually spreading (see chapter 2.3.5). Moreover, the final stage of development is characterized by high consumption per capita and a strong interest in luxury goods. In addition to consumption, welfare is also becoming very important, and societies are choosing to allocate increased resources to social welfare and security. In this stage, a society is able to choose between concentrating on security and military issues, on welfare and equality issues, or on developing luxuries for its upper class. According to Rostow, every society chooses its own balance between these three goals, which leads to different results and makes each society unique. The ancient culture, geographical conditions, existing natural resources, and political leadership play a major role. Rostow states that the last stage is characterized by a labor share of less than 20 percent in agriculture through a shift towards services.

4.6.2 Japan and Korea in comparison

Increased resources for social welfare and security

Both Japan and South Korea have significantly increased their social welfare and security spending in response to changing demographic and societal needs. In Japan, spending on social

security has risen steadily, especially after the Second World War. One of the main reasons for this is the country's aging population. In 2023, almost 30 percent of the Japanese population was over 65 years old. The country's universal healthcare system contributes to its high life expectancy. South Korea has also increased its social spending, from 4.4 percent of GDP in 2000 to 12 percent in 2019, particularly after the 1997 financial crisis. Although South Korea's social spending was still below the OECD average in 2019, it is expected to increase significantly as the population ages, almost doubling by 2060. While the Japanese social security system has been struggling with an aging population for some time, social spending in Korea is still relatively low due to the younger population. However, the two countries examined both fulfill Rostow's key criterion of increased resources for social welfare and security.

Rising consumption of durable and luxury goods

In both Japan and South Korea, consumption of consumer durables and luxury goods rose significantly. This was due to rising incomes, rapid economic growth, and the improvement in living standards. In both countries, consumer goods such as televisions, refrigerators, telephones, washing machines, and cars increasingly became standard equipment. In Japan, the enormous economic growth of the 1960s led to a significant change in society, with durable goods and luxury items gaining in importance. In Korea, on the other hand, the consumption of durable and luxury goods only began to increase in the 1980s. Rostow's basic condition for the fifth stage, a rising consumption of durable and luxury goods, also applies here for both countries.

High per capita consumption and high real per capita income

Both Japan and South Korea have experienced significant economic growth, resulting in high per capita consumption and a substantial increase in real per capita income. The consumption boom in Japan in the late 1950s and 1960s was characterized by a rapid rise in the purchase of consumer durables, which also became more affordable as a result of growing production and market expansion. Similarly, South Korea saw a sharp increase in consumption from 2000 onwards, particularly of durable goods, as incomes rose and enabled a shift towards a more consumption-oriented society.

Real per capita income rose significantly in both countries. In Japan, income growth was particularly pronounced from the 1950s to the 1970s, as real wages rose rapidly due to labor shortages. In South Korea, per capita income also grew at a remarkable pace, exceeding the

OECD average by 2020, with annual income growth averaging over 7 percent between 1965 and 1990. Both nations examined therefore fulfill Rostow's criteria of high consumption per capita and high real income per head.

Less than 20% of the workforce in agriculture through a shift towards services

The labor markets in Japan and South Korea have changed significantly over time. In both countries, far less than 20 percent of the workforce is now employed in agriculture, as both countries have switched to service-oriented economies. In Japan, the agricultural sector's share of employment declined considerably, from 30 percent in 1960 to 11 percent in 1980 and 3.4 percent in 2017. Rapid industrialization after World War II contributed to this change, with agriculture increasingly being seen as nothing more than an additional source of income. The service sector grew significantly, from 48 percent in 1980 to over 72 percent in 2017. A similar change took place in South Korea, where employment in agriculture fell from 16.4 percent in 1991 to 11 percent in 2000 and only 5.2 percent in 2015. The increase in productivity and the growing service sector, which employed 69.4 percent of the workforce in 2015, played a major role in this change. According to Rostow, the fifth stage is characterized by a labor share of less than 20 percent in the agricultural sector through a shift towards services. Although both countries fulfill this criterion, Japan's agricultural employment was comparatively high for a long time. At the beginning of the fifth phase, Japan's primary sector still accounted for around 30 percent of total employment. In Korea, the share of the labor force employed in agriculture already fell below 20 percent in the middle of its maturing period.

5 CONCLUSION

5.1 Findings

After comparing and discussing the results in detail, this chapter finally answers the research question and draws conclusions from the main outcomes. In the course of the master's thesis, the suitability of Walt Whitman Rostow's growth theory was examined, which was applied to compare the economic development of Japan and South Korea. The main objective was to find out whether Rostow's theory is appropriate for such a comparison or not. Although Rostow's theory has been very influential in economic history and has gained a lot of support, it has also provoked controversy among some scholars. The research question aims to find out whether Rostow's theory is a good choice to study and compare the economic development of Japan and South Korea or whether the critics are right in their criticism of Rostow's Stages of Growth model.

In order to evaluate the suitability of the theory, the following procedure was used: The theoretical part examined what other authors think about Rostow's growth theory, what they see as its strengths, what they criticize about it, and why. This research revealed a very contradictory picture. On this basis, the empirical part of the thesis applied Rostow's theory to Japan and Korea. The results were then summarized, compared, and analyzed in a separate chapter in order to decide whether Rostow's theory is appropriate or not.

The comparative analysis of Japan and South Korea shows that the two countries under study exhibit great similarities in their economic development and have also largely followed Rostow's economic stages. At first glance, the Stages of Growth theory seems to be perfectly suited for comparing these two countries. It provides defined criteria for each of the five stages and therefore offers a good framework for examining a country's economic growth. However, a closer look reveals weaknesses in the theory. The overlap of the stages in Rostow's theory is, in my opinion, a central point of criticism, especially between the "preconditions for take-off" and the "take-off" stages, as they are characterized by similar conditions and therefore partly overlap. I also consider some of Rostow's criteria too vague to clearly define a country's economic progress. This makes it difficult to assign a country to one of the five stages of growth. Rostow's model, with its linear approach to economic development, oversimplifies, in my view, the different paths that countries can take. While the model provides useful insights into economic growth and identifies factors that can help or hinder growth at different stages, it assumes that all countries follow the same Western-style development path. As discussed in the

theoretical section, critics claim that not all economies develop in a linear fashion as Rostow suggests. Instead, many countries may skip stages or follow different paths depending on their particular circumstances. There is also criticism that the model is too focused on Western countries, raising concerns about its applicability to other regions, especially former colonies. Critics argue that Rostow's assumption that economic modernization means following the development paths of North America or Western Europe ignores the specific historical and social contexts of developing countries. According to the critics, this Western-oriented approach reduces the relevance of the model for countries with different experiences. However, these criticisms did not pose a problem for my master's thesis. Both Japan and South Korea demonstrated a linear development path, and despite the Western orientation of the theory, Rostow's model could be successfully applied.

In examining the suitability of Rostow's theory for comparing the economic development of Japan and South Korea, I also considered the issue that Rostow presents a country's growth as a rapid leap rather than as a gradual process. This point of criticism did not apply to my master's thesis, however, as both Japan and South Korea indeed experienced sudden jumps in their production and investment growth rates, which supports Rostow's theory in these cases. In addition, critics complain about Rostow's flexibility in allowing exceptions to the timeframes, which is said to weaken the general applicability of the theory. Since Rostow leaves the time criteria open and describes them as optional, this flexibility may affect the accuracy of the model. Indeed, I can confirm this criticism, as the timeframes in my case study countries did not always align with Rostow's theory either.

5.2 Discussion of the Research Question

This master's thesis attempts to answer the following research question: **Is W. W. Rostow's Stages of Growth theory a good choice for comparing the economic development of Japan and South Korea?** In short, this question can be answered with a simple yes. In my opinion, Rostow's Stages of Growth theory is very suitable for comparing the economic development of Japan and South Korea. The two countries under study fit the criteria of Rostow's model almost perfectly, as they are similar in many respects in their economic development, except for the time frame, as Korea developed later than Japan. What I appreciate most about the theory is that it provides defined criteria for each of the five stages and thus offers a good framework for studying a country's economic growth. However, the partly negative reactions to the theory indicate that Rostow's model cannot always be applied so well to other countries. Despite the strengths of the theory, I can agree with some of the critics and also recognize weaknesses.

What irritates me most is the overlap between the stages of growth. In particular, stages 2 and 3, as well as stages 4 and 5, have similar criteria, making them difficult to classify. Another weakness of the model in my view is Rostow's flexibility in allowing exceptions to the time periods. On the one hand, the model gives recommended durations for the different stages, but on the other hand, it mentions that there may also be deviations. Because of these vague time criteria, it was sometimes difficult for me to classify the individual economic stages.

While writing my master's thesis, I kept asking myself whether the theory was contemporary enough. In this regard, I would say that it is well suited for studying a country within the five economic stages, ranging from the beginnings of a traditional society to a society with high mass consumption. However, I would not recommend the theory for studying the current development of a country. The fifth stage of growth has long been reached in many countries, especially in industrialized nations. Therefore, Rostow's theory cannot be used to analyze recent developments in a country, as it really only refers to economic development until the fifth stage is reached. As mentioned in the theory section of my thesis, Rostow continued to analyze the five stages of growth years after the publication of his economic theory. But the focus there is on politics and not on economic growth. This master's thesis, however, is solely concerned with the appropriateness of Rostow's original Stages of Growth theory from the 1960s.

Relevance of the Results

The results of this research show that Rostow's Stages of Growth theory is a valuable and well-suited method for analyzing and comparing the economic development of Japan and South Korea. Both countries can be integrated almost perfectly into the model, which emphasizes the relevance of Rostow's theory for comparing economies with similar economic development. The findings indicate that Rostow's theory, although criticized in some aspects, offers a useful framework for understanding the transformation of previously underdeveloped countries into industrialized economies. This may be of particular interest to other developing countries facing similar economic difficulties and potentials as Japan and South Korea. Furthermore, understanding Rostow's stages of growth could be beneficial for political decision-makers in developing strategies. The theory could also be useful for businesses and investors when considering the potential of individual countries depending on their stage of growth.

5.3 Résumé

This master's thesis deals with Walt Whitman Rostow's growth theory, one of the most historically and influential models of economic growth. The theory was used to compare the economic development of Japan and South Korea, with the main objective of analyzing the suitability of the theory. The results suggest that Rostow's Stages of Growth theory is very suitable for comparing the two countries under study, as they fit Rostow's model almost perfectly. However, this theory cannot be recommended for analyzing the current development of a country, since it refers only to economic development up to the fifth stage of growth, which has long been reached in many countries, especially in the industrialized countries. On the whole, however, it can be said that Rostow's theory, despite some weaknesses, is a useful model for studying the economic development of a country or for comparing several countries on the basis of the theory.

LIST OF TABLES

Table 1. Three relevant theories on modernization.....	12
Table 2. Schools of classical modernization research.....	13
Table 3. Analytical framework: Key criteria of W. W. Rostow's five stages	27
Table 4. W. W. Rostow's Stage 1	29
Table 5. W. W. Rostow's Stage 2	35
Table 6. Changes in travel time and expenses in Japan, 1890-1912	40
Table 7. W. W. Rostow's Stage 3	46
Table 8. The investment rate in Japan, 1881-1979	52
Table 9. Agriculture's share of the total labor force in developed countries around 1870.....	53
Table 10. W. W. Rostow's Stage 4	55
Table 11. Population by prefecture, 1913-2009	59
Table 12. W. W. Rostow's Stage 5	61
Table 13. Real social security expenses per capita and the ratio of social security expenses to national income in Japan, 1890-1987	62
Table 14. Average annual real GNP growth rates in industrial countries, 1960-85.....	64
Table 15. W. W. Rostow's Stage 1	65
Table 16. W. W. Rostow's Stage 2	69
Table 17. Industrial structure (percent share of net commodity product), 1910-41.....	76
Table 18. Share of Korea's imports and exports (percent), 1910-39.....	78
Table 19. W. W. Rostow's Stage 3	80
Table 20. W. W. Rostow's Stage 4	87
Table 21. The public enterprise sector in Korea, 1963-86	89
Table 22. Distribution of GDP, 1960-89	91
Table 23. W. W. Rostow's Stage 5	93
Table 24. Consumption expenditure of Korean household by purpose, 2014-19	94
Table 25. Overview of the fulfillment of W. W. Rostow's key criteria in the five stages.....	97
Table 26. Overview of the fulfillment of W. W. Rostow's Stage 1	99
Table 27. Overview of the fulfillment of W. W. Rostow's Stage 2	103
Table 28. Overview of the fulfillment of W. W. Rostow's Stage 3	110
Table 29. Overview of the fulfillment of W. W. Rostow's Stage 4	115
Table 30. Overview of the fulfillment of W. W. Rostow's Stage 5	119

LIST OF FIGURES

Figure 1. Social structure in Japan's Edo period, 1603-1868.	32
Figure 2. Employment structure in prewar Japan, 1885-1935.	53
Figure 3. Changes in output structure, 1955-81.	83
Figure 4. Rural and urban population distribution in South Korea, 1955-85.....	90
Figure 5. Employment by sector (as a percentage of total employment), 1980-2005.	91
Figure 6. Public social spending in various countries, 2019.....	94

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APPENDIX 1: IMPORTANT ABBREVIATIONS

FDI	Foreign direct investment
GDP	Gross domestic product
GNE	Gross national expenditure
HCIs	Heavy and chemical industries
JNR	Japanese National Railways
OECD	Organization for Economic Cooperation and Development
R&D	Research and development
ROK	Republic of Korea
SOC	Social overhead capital
SOEs	State-owned enterprises
US	United States

APPENDIX 2: JAPANESE TERMS

Bakufu	Central government of the Shogun
Daimyo	Samurai leader
Edo	Present-day Tokyo
Eta and Hinin	Outcast group in the Edo period
Han	Local government in the Edo period
Ie	Houses and the stem-families that are supposed to inhabit them
Koku	Unit of measurement (one koku was the amount of rice that a man ate in one year)
Sakoku	Japan's isolation foreign policy (1639-1854)
Sankin kotai system	Policy during the Edo period, in which daimyos had to reside alternately in their han and in Edo
Seisho	Politically well-connected businessman
Shoen	Aristocrats' large estates
Shogun	Title which was granted to the nation's top military commander by the Emperor in Japanese history
Shogunate	Central government of the Shogun
Terakoya	Private primary school in the Edo period
Zaibatsu	Business groups of politically well-connected businessmen (seisho), usually organized around a single family

APPENDIX 3: KOREAN TERMS

Jungin	Korea's middle class
Yangban	Bureaucratic elite at the top of the social hierarchy
Chaebol	Large South Korean industrial conglomerate run by a single family

APPENDIX 4: ABSTRACT

This master's thesis deals with the growth theory of Walt Whitman Rostow, one of the historically most influential models for economic growth. The theory is used to compare the economic development of Japan and South Korea, with the main aim of analyzing the suitability of the theory. The theoretical part of the paper examines what other authors think about Rostow's model, where they see its strengths, what they criticize, and why. This results in a very contradictory picture. Building on this, the empirical part of the thesis applies Rostow's theory to the two countries under investigation, Japan and South Korea. The results are then summarized, compared, and analyzed in order to assess whether Rostow's growth theory is suitable for comparing the economic development of the two countries under study.

APPENDIX 5: ZUSAMMENFASSUNG

Diese Masterarbeit befasst sich mit der Wachstumstheorie von Walt Whitman Rostow, einem der historisch einflussreichsten Modelle für Wirtschaftswachstum. Die Theorie wird verwendet, um die wirtschaftliche Entwicklung Japans und Südkoreas zu vergleichen, mit dem Hauptziel, die Eignung der Theorie zu analysieren. Im theoretischen Teil der Arbeit wird untersucht, was andere Autoren über Rostows Modell denken, wo sie seine Stärken sehen, was sie kritisieren und warum. Dabei ergibt sich ein sehr widersprüchliches Bild. Darauf aufbauend wird im empirischen Teil der Arbeit Rostows Theorie auf die beiden Untersuchungsländer Japan und Südkorea angewendet. Die Ergebnisse werden anschließend zusammengefasst, miteinander verglichen und analysiert, um zu beurteilen, ob Rostows Wachstumstheorie für den Vergleich der wirtschaftlichen Entwicklung der beiden Untersuchungsländer geeignet ist.