

International Trade and Economic Growth in the Korean Economy

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By

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Please note that one of the authors of this book, Shin-Haing Kim, sadly passed away between the book's writing and publication. In order to honour the original work of this author, this book has been published as it was submitted by the authors with no significant changes. We hope that the reader can excuse any inconsistencies or incompleteness that may arise as a result of this.

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CHAPTER 1

INTRODUCTION

1. Overview of the Korean Economy

After World War II, Korea was divided into North and South. In 1950, the country experienced the Korean War, and at that time, it was one of the poorest countries in the world. However, since then, the economy of South Korea (henceforth referred to as Korea and South Korea interchangeably) has achieved remarkable economic growth and it has become an advanced country. During the process of rapid growth, exports increased significantly. According to the World Bank, Korea's per capita GDP was only US\$82 in 1960, but it grew to US\$34,997 by 2021, and Korea's exports increased from US\$313 million in 1960 to US\$644 billion in 2021. Over the past 60 years, Korea's per capita income has increased by about 426 times, and exports by about 2,050 times. Korea's experience of high growth provides many implications for developing countries that want to achieve economic development.

In the 1960s, the Korean government pursued a policy of fostering industries through export expansion by providing institutional and financial support to the private sector. This included subsidies, tax incentives, and policies to encourage investment in export-oriented industries. Since then, Korea's manufacturing industry has grown rapidly, and the current account turned into a surplus in the late 1980s. However, in 1997, Korea faced a foreign exchange crisis due to factors such as high levels of corporate debt,

a weak banking system, and excessive short-term foreign debt. The crisis led to a sharp decline in GDP, a surge in unemployment, and widespread social unrest. However, in the process of overcoming this economic crisis, Korea strengthened corporate governance, strengthened the soundness of financial institutions, and promoted innovation, leading to the fostering of high-tech industries. As a result, today, Korea is a competitive player in global, high-tech industries such as electronics, automobiles, and chemicals.

Korea's rapid growth is largely attributable to the increase in exports. The reasons for Korea's rapid growth have been analyzed in various ways in terms of politics, the economy, and society. However, there is no disagreement in the view that it is thanks to the growth of the manufacturing industry, supported by an export-oriented policy. Korea was able to achieve efficiency in resource allocation through a market opening policy and achieve economies of scale through export expansion. In other words, by exporting products to the international market, it was possible to acquire advanced technology and enjoy the benefits of economies of scale, which led to the growth of the manufacturing industry and the creation of jobs. As companies competed in the international market, new product development and technological innovation took place. However, Korea's openness policy was not completely free trade and was partially used in connection with protection policies to protect domestic industries. Nevertheless, unlike Latin American countries that pursued import-substitution growth policies, Korea continued to pursue a policy of fundamentally opening the market. As a result, it is believed that Korea was able to achieve high growth.

Lucas (1993) describes Korea's rapid growth as a miracle. Factors contributing to this growth include increased exports due to openness policies, rapid improvements in education levels, and high savings rates. It

is explained that the accumulation of human capital through increased exports and improved education levels has improved the productivity of workers, becoming a key factor in rapid growth. However, there are also skeptical views about Korea's rapid growth. Krugman (1994) argues that the increase in factor input played a relatively larger role in the growth of East Asian countries, including Korea, than the increase in productivity. The cheap and abundant labor force of the agrarian society was converted into the industrial sector, and the quality of workers was improved through the education system. In addition, rapid capital formation was achieved through a high investment rate based on high domestic savings and foreign investments. As such, it is pointed out that the increase in labor input and investment expansion acted as important factors for economic growth, and the increase in productivity itself was not large. Therefore, in order to achieve Korea's long-term high growth, it is necessary to expand productivity through technological innovation.

Korea has undergone significant changes in its industrial structure during its economic growth. In its early stages, the growth was led by the manufacturing industry. The manufacturing industry accounted for only 12% of the total added value in 1953-60, but it increased to 23% on average in 1971-80. Additionally, there was an increase in the proportion of heavy and chemical industries, while the proportion of light industries decreased. This means that the industrial structure gradually shifted from a simple labor-intensive industry to a capital-intensive industry, and from 1990 onwards, it gradually changed to a technology-intensive industry. In summary, Korea's economy was agriculture-oriented in the 1950s, but later moved to labor-intensive textile, clothing, and shoes industries, and then gradually shifted from capital-intensive shipbuilding, steel, and chemicals to high-tech

industries such as automobiles, electronics, and semiconductors. Overall, this change in the industrial structure has shifted Korea from an agricultural-based economy to manufacturing and, more recently, to a high-tech industry. With these changes in the industrial structure, the sophistication of export products also progressed. As the income level increased, the preference for variety also increased, and technological progress led to increased production of product differentiation.

The rapid economic growth and changes in the industrial structure of the Korean economy in its early days were attributed to the accumulation of human capital based on a strong passion for education and the accumulation of capital through high savings rates. In other words, before 1990, the growth of the Korean economy was mainly achieved through an increase in input factors, but after that, economic growth through technological progress became necessary. Early economic growth was achieved by improving the quality of labor and accumulating capital. However, due to diminishing marginal returns, growth through increasing input factors reached its limit, and the growth rate of the Korean economy gradually stagnated. To achieve sustainable economic growth, technological progress is now required rather than an increase in input factors. Since 1990, patent applications and R&D investments have rapidly increased to promote technological progress, which is necessary for the sustainable growth of the Korean economy. The expansion of technological progress is crucial for the continued growth of the Korean economy in the future.

2. Overview of the Volume

This book examines the growth of the Korean economy, both theoretically and empirically, with a focus on international trade. It is divided into 5 parts

consisting of 19 topics related to the Korean economy. Part 1 deals with theoretical models of trade and economic growth, while Part 2 explains the growth process of the Korean economy. Part 3 analyzes changes in Korea's trade structure and industrial structure, and Part 4 focuses on technology transfer and diffusion, as well as the effect of exports on increasing productivity. Finally, Part 5 addresses income inequality caused by trade, and environmental issues.

2.1 Theory of Trade and Growth

Part 1 covers the theoretical model of trade and economic growth. Chapter 2 discusses Hicks's neo-Austrian approach to the production process and economic growth theories. Chapter 3 examines the relationship between trade and economic growth, focusing on the positive impact of North-South trade involving capital goods versus consumer goods. Chapter 4 discusses intra-industry trade (IIT), specifically horizontal intra-industry trade (HIIT) and vertical intra-industry trade (VIIT), and analyzes Korea's IIT with other countries. Finally, Chapter 5 explores the impact of intellectual property rights (IPRs) on the welfare and growth of two trading regions in an open economy, utilizing an intermediate final good trade model developed within the framework of the overlapping generation model.

Chapter 2 discusses Hicks's neo-Austrian approach to the production process, which considers time as a scarce factor of production that contributes value to output. The model extends the traditional "point-input point-output" model to a "flow-input flow-output" model, which involves the transition from an old process to a new one through the construction of new equipment. The model also introduces two agents in the economy: an individual worker and a producer. The producer must decide how to allocate

their time between the construction and utilization periods, while the individual's allocation problem is related to when they should start engaging in the production of final goods. This chapter also covers topics related to economic growth theories, including Hicks' traverse in a small open economy and the concept of capital gain in a neo-Austrian framework. It concludes by emphasizing the importance of the distance between domestic knowledge levels and the rest of the world in determining which economies will benefit from growth gains from trade.

Chapter 3 discusses the relationship between trade and economic growth, which is not always positively correlated, as suggested by the existing research on this topic. These mixed results are due to differing interpretations of openness and the need to modify its meaning. Specifically, we focus on the positive effect of trade in a North-South trade featuring the trade of capital goods versus consumer goods, and how it can lead to an increase in the economy's growth rate by enabling investment in human capital to match the level of imported capital goods. This chapter concludes that small open economies with a high savings rate and human capital vintage can benefit from knowledge spillovers and reach advanced income levels in a shorter time period, joining the convergence club of the North. Despite many simplifying assumptions and restrictions on the economy's parameters, a neo-Austrian theory is comparable to mainstream neo-classical growth theory. This study introduces a neo-Austrian trade model and highlights its relation to a standard neo-classical trade model and its relevance to the growth experience of the East Asian economies.

Chapter 4 discusses intra-industry trade (IIT) and its causes, specifically horizontal intra-industry trade (HIIT) and vertical intra-industry trade (VIIT). HIIT is caused by product differentiation and economies of scale,

while VIIT is caused by differences in product quality. This chapter also examines Korea's IIT with other countries and finds that the increase in IIT is primarily due to the increase in high quality VIIT, indicating that Korea's industrial and trade structure is shifting towards high quality products. A comparison of Korea's trade with China and Japan reveals that the proportion of high quality VIIT is high in trade with China, while the proportion of low quality VIIT is high in trade with Japan. This means that Korea exports superior-quality products to China and imports inferior-quality products from China, while it exports inferior-quality products to Japan and imports superior-quality products from Japan.

Chapter 5 discusses the effects of intellectual property rights (IPRs) on the welfare and growth of two trading regions in an open economy. The literature on IPRs highlights the conflict of interest between the North and South and suggests that global welfare generally declines with the strengthening of IPRs. However, empirical research shows a strong positive correlation between intellectual property protection and economic growth. Using an intermediate final good trade model developed within the framework of the overlapping generation model, this chapter demonstrates that tightening IPRs in the South increases the investment rate, improving the welfare of the two trading regions. This is in contrast to contemporary IPR literature, which shows conflicting results for the two interest groups. The chapter concludes that investment-related intermediate goods trade brings about a favorable outcome for the growth of the South, and the increase in the Southern investment rate by enforcing IPRs reduces the impediment for the case in which the technological efficiency level is properly distanced from that of the North.

2.2 Growth of Korean Economy

Part II discuss various aspects of the economic development of South Korea. Chapter 6 explores the role of exports in financing industrialization and promoting growth. It highlights the export-promotion policy of the 1960s, the heavy chemical industrial policy of the 1970s, and industrial coordination policies of the 1980s as the key factors that contributed to South Korea's sustained growth. Chapter 7 investigates the historical trend of total factor productivity of industries and analyzes economic growth in Korea using industry level data. The chapter confirms the importance of productivity growth in Korea and suggests some policy implications based on the findings. Chapter 8 presents a growth model of firms based on Tobin's q , which shows that "chaebol-incumbents" outperform "non-incumbents" in terms of growth, attributed to their ability to diversify multi-products and realize the "economy of scope." Chapter 9 analyzes investment decisions and adjustment costs of Korean manufacturing firms, finding that group firms have lower adjustment costs and higher investment rates than independent firms.

Chapter 6 discusses the economic development of South Korea from 1960 to 2004, with a focus on the role of exports in financing industrialization and promoting growth. It explains how South Korea, despite lacking natural resources, sustained increased investments through exports and foreign direct investments. The chapter also explores the export-promotion policy of the 1960s, the heavy chemical industrial policy of the 1970s, and the industrial coordination policies of the 1980s. It concludes that South Korea's sustained growth was possible through joint risk-taking by the state and business, investments in human capital, and the adoption of an outward-looking export-promotion strategy.

Chapter 7 investigates the historical trend of total factor productivity of industries and analyzes economic growth in Korea using industry-level data. The chapter focuses on a structural break by checking whether there were regime changes between contributing factors, such as input and productivity, and whether there were any significant changes in the relationship between international trade and those variables. The authors use new econometric methods of time-series, unit-root tests, and cointegration analyses to search for a structural break. The results confirm the importance of productivity growth in Korea, and the authors suggest some policy implications based on these findings.

Chapter 8 presents a growth model of firms based on Tobin's q . The study finds that "chaebol-incumbents" outperform "non-incumbents" in terms of growth, which is attributed to their capacity for diversifying multi-products and realizing the "economy of scope." The paper develops Tobin's q , which incorporates fixed capital goods in the investment decision of a firm, and suggests that the sharing of knowledge embodied in physical capital goods across adjacent industries makes the indivisibility of fixed capital goods divisible. It also discusses the modified version of Uzawa-Hayashi's adjustment cost function and presents an endogenous growth path of a "multi-product firm." Overall, the study highlights the importance of investments in fixed capital goods and diversification for firms to achieve sustained growth.

Chapter 9 investigates investment decisions and adjustment costs of Korean manufacturing firms based on Tobin's q . Regression analyses were performed on panel data of 1,106 Korean manufacturing firms from 1982 to 2015. The results show that group firms have larger investment rates and lower adjustment costs compared to independent firms. Tobin's q is a

significant determinant of investment, and the coefficient of Tobin's q is larger in group firms than in independent firms. This implies that group firms can share investment experiences, which can lower the adjustment cost of new investments. Cash holdings and foreign ownership also contribute to increasing investment. The study suggests that Korean chaebols have contributed to the growth of the Korean economy through investment expansion due to low adjustment costs.

2.3 Changes in Trade and Industry

Part III explores changes in trade and industry in Korea, including the growth of Korea's exports, changes in its industrial structure and trade patterns, the relationship between labor mobility and productivity change, and the development of the liquid crystal display (LCD) industry in East Asia. Chapter 10 analyzes the growth of Korea's exports, changes in its industrial structure and trade patterns, and factors affecting trade volume differences by country from 1963 to 2009. Chapter 11 examines the relationship between labor mobility and productivity change in Korea from 1974 to 2014. While the industrial structure has shifted from labor-intensive to capital-intensive industries, labor mobility among Korean industries is gradually decreasing, and the growth rate of labor productivity is slowing down. Chapter 12 discusses the improvement in the quality of Korean exports from 1992 to 2008 and suggests that Korea's industrial structure has shifted from labor-intensive to capital- and technology-intensive industries. Chapter 13 explores the development of the LCD industry in East Asia and various economic development models that can explain it, including the Flying geese model, Bamboo capitalism, and Water lily model.

Chapter 10 discusses the growth of Korea's exports and changes in its industrial structure and trade patterns from 1963 to 2009. The analysis is based on trade statistics and data from the UN Comtrade and World Bank databases. The chapter covers the factors that have contributed to Korea's export growth, how the industrial structure has changed, and what factors affect trade volume differences among countries. The findings show that Korea's global market share has significantly increased due to improved export competitiveness, rather than changes in industrial structure. Intra-industry trade has continued to increase over the period, and the trade volume by country is well explained by the gravity model. The chapter provides a comprehensive analysis of Korea's export industry's dynamic changes and summarizes the main findings of the analysis.

Chapter 11 discusses the relationship between labor mobility and productivity change in Korea from 1974 to 2014. The industrial structure has shifted from labor-intensive to capital-intensive industries, leading to an increase in overall labor productivity. Factors such as workers' human capital levels and movement from low- to high-productivity sectors have also contributed to increased labor productivity. However, labor mobility among Korean industries is gradually decreasing, and the growth rate of labor productivity is slowing down, particularly in the service industry. Despite this, labor is moving from manufacturing to the service industry, including low-productivity sectors within it. The decline in labor productivity across the entire Korean economy is due to the service industry's productivity slowdown and labor movement to the service sector. The study suggests that policy efforts to improve labor productivity in the service industry and vocational training to increase labor mobility are necessary to enhance the entire economy's labor productivity.

Chapter 12 examines the improvement in the quality of Korean exports from 1992 to 2008, using two methods: analyzing the change in the number of export items of superior quality and estimating the quality index. The study found that Korean export quality has improved overall, with high-tech industries showing more significant improvement than low-tech industries. The results suggest that Korea's industrial structure has shifted from labor-intensive to capital- and technology-intensive industries, leading to an improvement in product quality.

Chapter 13 discusses the development of the liquid crystal display (LCD) industry in East Asia and explores various economic development models that can explain it, including the Flying geese model, Bamboo capitalism, and Water lily model. The chapter provides a brief history of the LCD industry in East Asia, analyzes the trade structure and competitiveness of the region using international trade data, and highlights the importance of LCD products in the IT industry. The chapter also mentions the division of labor among the East Asian countries in the LCD industry, with Japan specializing in manufacturing equipment and materials, Korea and Taiwan focusing on intermediary goods like display panels, and China producing final goods with cheaper labor. The LCD industry's current structure is between the Bamboo capitalism and Water lily model, but it is moving from the one to the other.

2.4. International Trade and Technology

Part IV is about topics related to trade and technology on Korea's economic growth. Chapter 14 explores the impact of trade and R&D spillovers on productivity in Korean manufacturing, finding that foreign R&D has a greater impact than domestic R&D and that productivity is higher in export

industries. Chapter 15 compares productivity between exporting firms and domestic firms, finding that exporting firms have higher output growth and TFP growth, and that exports contribute significantly to Korea's economic growth. Chapter 16 examines the effects of patent system reforms on knowledge activities and productivity growth in Korean manufacturing firms, finding that policy changes had positive effects on R&D expenditure and patent applications, and increased knowledge and productivity growth.

Chapter 14 discusses the impact of trade and R&D spillovers on Korea's economic growth. The study shows that foreign R&D had a greater impact on productivity in Korean manufacturing than domestic R&D, and that R&D spillovers occurred both domestically and internationally. Japanese R&D had a larger impact on Korean productivity than other foreign R&D stocks. The study also finds that productivity is greater in export and more open industries, and the effects of foreign R&D capital are greater in industries with large import shares or large intra-industry trade shares.

Chapter 15 examines the productivity difference between exporting firms and domestic firms in the Korean manufacturing industry. The analysis covers approximately 150,000 firms from 1984 to 2021. The study finds that exporting firms have a significantly higher output growth rate, and the growth rate of TFP is higher in exporting firms than in domestic firms. Additionally, the productivity increase effect of exports is lower or similar for medium-sized firms but greater for the smallest firms compared to large firms. The study suggests that exports have significantly contributed to Korea's economic growth, serve as an important channel for introducing new production technologies and disseminating knowledge, and policy efforts should focus on enhancing the export capabilities of SMEs to achieve sustainable economic growth in Korea.

Chapter 16 discusses the effects of patent system reforms in Korea on knowledge activities such as R&D expenditure and patent applications, and their impact on productivity growth in Korean manufacturing firms. The analyzed data covers the years 1985-2007 for 216 firms. The results show that R&D expenditure and patents increased faster than output and inputs, particularly in high technology firms. The Korean patent system experienced major policy changes in 1986, 1990, 1995, and 2002, which had positive effects on R&D expenditure and patent applications. Panel data regression with policy dummy variables shows that these policy reforms had a positive effect on increase in knowledge and productivity growth in Korean manufacturing firms, particularly in the high technology sector. Evidence of knowledge spillovers among firms was also detected.

2.5. Trade, Inequality, and Environment

Part V covers discussions on the relationship between international trade and income inequality, as well as topics related to the environment. Chapter 17 investigates the existence of an exporter wage premium in Korean manufacturing firms and finds that while there was a premium before 2010, it has gradually decreased over time and is not significant in recent data. Chapter 18 examines the relationship between international trade and polarization in the Korean economy and finds that there is a positive relationship between the export ratio and polarization, which can widen income gaps. Chapter 19 proposes that imposing a tariff on eco-friendly goods imported from advanced countries can reduce environmental damage and lead to the development of environmentally friendly techniques, helping reduce the growth gap between advanced and developing countries. Chapter 20 analyzes how each country's environmental regulations affect trade patterns, finding that the strengthening of environmental regulations in

foreign countries reduces the competitiveness of their products in the overall industry, generating an increase in the exports of Korean products.

Chapter 17 examines the existence of an "exporter wage premium" in Korean manufacturing companies. This wage premium refers to the difference between the wages of exporting companies and domestic companies that cannot be explained by productivity differences. The study uses data from 2007-2016 and examines company characteristics such as size, location, and industry classification in addition to productivity differences. The study found that an exporter wage premium existed before 2010 but gradually decreased over time, and there was no significant premium in recent data. The study also found that the wage premium did not appear in firms with a very large export proportion. Overall, the study contributes to the existing research by analyzing more recent data and considering factors beyond productivity differences that could explain the wage gap.

Chapter 18 examines the relationship between international trade and polarization in the Korean economy. It explores the concentration of export-centric industries and firms within industries, which can result in polarization of the economy. The study uses industry and firm level data and finds a positive relationship between the export ratio and polarization, suggesting that international trade can contribute to polarization and income inequality in the Korean economy. It concludes that international trade can change the production patterns of an economy and result in concentration in export-centric industries and polarization within industries, which can widen income gaps.

Chapter 19 analyzes the environmental problems faced by a developing economy (the South) that trades with an advanced economy (the North). The South has more physical capital, while the North has more human capital, and physical capital-intensive goods harm the environment while human capital-intensive goods are eco-friendly. The study proposes that imposing a tariff on eco-friendly goods imported from the North can reduce environmental damage and lead to the development of environmentally friendly techniques. This can also help reduce the growth gap between the North and the South. The optimal tariff rate is determined by the planner's valuation of natural assets and pollution abatement costs. The study suggests that investing in pollution abatement and preserving natural resources can reduce the urgency of natural disasters and lead to a lower optimum rate of tariff.

Chapter 20 analyzes how each country's environmental regulations affect trade patterns, specifically how Korea's exports are affected by foreign environmental regulations. The study uses regression analysis with various indicators to represent the degree of environmental regulation in countries around the world. The gravity model is used as the basic model, and cross-sectional analysis is performed. The results indicate that the strengthening of environmental regulations in foreign countries reduces the competitiveness of their products in the overall industry, generating an increase in the exports of Korean products. The impact of environmental regulations was greater in environmentally polluting industries and in high-income countries. Overall, the paper supports the hypothesis that environmentally polluting industries will be more affected by environmental regulations.

PART I

THEORY OF TRADE AND GROWTH

CHAPTER 2

HICKS' NEO-AUSTRIAN THEORY

1. Introduction

This chapter provides an overview of Hicks's neo-Austrian technique of the production process, which views the relationship between inputs and outputs of production over time. Unlike traditional production function approaches, this Austrian method considers time as a scarce factor of production that contributes value to output, or views labor inputs as complementary to time. For example, the value of wine improves over time as it matures, and similarly, a tree increases in value as it grows. While there are costs associated with labor during the initial stages of planting a tree or fermenting grapes, the value additions of wine or trees are predominantly a result of the passage of time.

From an economist's perspective, it is important to determine when to harvest the tree or bottle the wine, taking into account the nature of their growth, as well as the prevailing rate of interest and wage rates. Once bottled or cut, a final consumer good is produced. This model is commonly referred to as a "point-input point-output" model. Hicks (1973) extends this simple model into a "flow-input flow-output" neo-Austrian model.

2. A Technique of a Production Process

In neo-Austrian theory, a production process is described as a sequence of inputs $\{a_t\}_0^T$ and outputs $\{b_t\}_0^T$, and has a life period $0 < T < \infty$ after

which it comes to an end. Additionally, individuals in the economy have their own corresponding working-life period T , and the economy is inhabited by a population size $A^*(\tau)$ consisting of members of a generation $\tau \in (0, T)$. Each member of a generation engages in the production process, and the size of the population remains unchanged. The production process consists of two periods: the construction period of the physical capital good $(0, v)$ and its utilization period (v, T) . The level of activities in the economy, denoted by x_t , represents the aggregate output, capital stock, and aggregate employment at a given point in time.

The aggregate economic output of a generation τ at a time period t denoted by $B^*(t)$ is written as follows:¹

$$B^*(t) = \sum_0^{T-v} (1 - \delta)^\tau b_\tau^* K^*(t - \tau); \quad (T - v) > 0; 0 < \delta < 1. \quad (2-1)$$

The physical capital stock depreciates at the rate of $0 < \delta < 1$. The one produced by a τ -old generation, $K^*(t - \tau)$, contributes to the output by a factor of $(1 - \delta)^\tau b_\tau^*$.

Likewise, the aggregate capital stock and the aggregate level of employment across the members of a generation are, respectively, as follows:

$$K^*(t) = \sum_0^v a_\tau^* x_{t-\tau}; \quad A^*(t) = \sum_0^T a_\tau^* x_{t-\tau}. \quad (2-2)$$

In a steady state, the economy's capital stock remains constant as old capital goods are replaced with new ones at a constant rate of depreciation δ . In the constant technique, the coefficients $\{a_\tau, b_\tau\}$, which represent the ratio of total output and total capital stock to employment, remain constant. This

¹ To maintain consistency with Hicks' notation, the variables for traditional techniques are denoted by a superscript star (*).

can be verified by substituting $(1 + g)^{-\tau} x_t$ for $x_{t-\tau}$ at a steady-state growth rate of g . The ratio of aggregate output $(B/A)^*$ and capital stock $(K/A)^*$ to the level of employment is independent of time t , satisfying Hicks' social accounting principles.

Hicks' social accounting presents a relationship among these variables based on the following accounting identity:

$$\text{Wages } (wA) + \text{Profits } (rK) = \text{Consumption } (B) + \text{Net Investment } (gK)$$

at a wage rate w and the rate of profit r for a steady state growth rate of g . This social accounting relationship gives us a distribution of income as explained by per capita capital $(K/A)^*$ and its productivity of $(B/A)^*$ (Hicks 1973, p. 67):

$$(K/A)^* = \frac{(B/A)^* - w}{r - g} = \frac{(B/A)^* - w}{(1-s)r} \quad (2-3)$$

The classical savings assumption of the capital fund market, $g = sr$, for a propensity to save in the economy ($0 < s < 1$), holds. Substituting " sr " for " g " on the denominator of the first row of (2-3) generates its second row.

For a given economic endowment, the per capita economic capital stock $(K/A)^*$ and productivity $(B/A)^*$ are inversely related to the wage and profit rates in equation (2-3). This negative relationship between factor prices (w, r) is consistent with the "factor-price-frontier" (or efficiency curve) of the neoclassical aggregate production function approach for a