

**Factor Supply and Factor Intensity of Trade in Korea.**—By Wontack Hong. Korea Development Institute, Seoul, Korea. 1976.

The main purpose of the book is to investigate the changes in the factor intensity of Korea's trade. The time span covered for the analysis is 1960-1973, the period during which Korea experienced both rapid capital accumulation and a prodigious expansion of manufactured exports.

The book contains 12 chapters in all. Following an introductory note, Chapter 1 presents an overview of growth and trade in Korea. It is shown that annual commodity exports of Korea, which amounted to less than 100 million before 1962, increased at an average annual rate of 40% during 1962-73 and were around \$3200 million in 1973 and \$4500 million in 1974. The share of manufactured goods in total commodity exports, which never exceeded the 20 percent level during 1953-61, steadily increased thereafter and had reached a level of over 90 percent after 1970. It is further shown that in the Sixties in Korea, import substitution and export expansion went concomitantly and that private entrepreneurs determined the allocation of resources. However, in the Seventies, the government encouraged entrepreneurs to diversify exports away from unskilled labour-intensive manufactures, for example, textiles and ply-wood, to relatively skill intensive and moderately capital-intensive manufacturing, such as the ship-building and machinery industries. This was necessary if the country was to take full advantage of the changing comparative costs which were becoming apparent in her foreign trade.

Chapter 2 briefly discusses the Rybezynski-Stolper—Samuelson theorem which the author has followed as the basic theoretical framework for the empirical analysis. While the standard Leontief analysis to test the comparative advantage is a static one, the present paper looks at the subject from a new dynamic angle, i.e., investigation of the changing factor supply in Korea, and the associated changes in the factor intensity of trade.

Chapters 3 and 4 describe the changes in capital and labour supply in Korea. It is interesting to note that the private sector's contribution to domestic saving was negligible during 1953-71. It was the rapidly increasing contribution of government savings and the steady inflow of foreign savings which enabled Korea to achieve the very high rate of investment during the 1962-73 period.

A noteworthy feature about the labour force is that while the total number of female workers employed in the primary and tertiary sectors increased by 65% in the period 1960-70, in the manufacturing sector it more than quadrupled. The formal educational level of the workers was found to have increased fairly rapidly during 1960-70 and there was a general upgrading of the educational level of the labour force in all occupational categories and in all industrial sectors. This improvement in educational standard served significantly to improve the average quality of Korean labour and contributed to the growth of national income.

Chapter 5 examines the changes in the wage/rental ratio and share of labour in total national income. Chapter 6 presents a simple analysis of growth

factors in Korea. The Author concludes that since 1966 there has been a rapid and significant, capital accumulation and capital deepening in Korea. These changes have been accompanied by notable increases in the wage/rental ratios.

Employing the Leontief input-output procedure to estimate the total capital and labour requirements for export promotion and import substitution, Chapter 7 presents the core of the research i.e., the investigation of changes in the factor intensity of Korea's trade over the period 1960-73. The findings of this chapter indicate that the significantly increasing per capita capital stock accompanied by a rising wage/rental ratio in Korea resulted in increasing the capital intensity of the export bundle. On the other hand, the competitive import commodity bundle did not become less capital intensive.

Chapter 8 investigates the causes of the changes in the factor intensity of Korea's export trade. These were found to be partly due to changes in export composition, but more significantly, due to capital labour substitution in the production process.

One major difference between this study and other work done in this field is the treatment of non-competitive imports. Leontief and his followers had treated natural resource base imports as non-competitive imports and had neglected these in calculating the factor requirements for import replacements. The Author takes those imports as non-natural non-competitive resource base imports, where domestic production was either absent or negligible (and was expected to stay negligible in the foreseeable future). He estimates the factor requirements for non-competitive non-natural resources base imports by applying U.S. and Japanese sectoral factor requirements. The results of Chapter 9 show that the capital intensity of Korea's non-competitive imports was much higher than that of either exports or competitive imports. Therefore, Korean trade was consistent with the comparative advantage doctrine of the Heckscher—Ohlin Theorem.

Chapter 10 examines the skill intensity of trade and concludes that the skill factor was not extremely important in the production process as regards the kinds of commodities exported from and competitively imported to Korea during 1963-72. A static estimation of gains from trade is given in Chapter 11, while Chapter 12 is based on concluding remarks.

Approximately a hundred pages of statistical tables on commodity trade and capital accumulation in Korea are provided as an appendix which should be of considerable assistance to other researchers. A number of tables given in the text provide detailed information on different variables of the model and are very useful to the readers in understanding the text.

The results of the present analysis are not very different from the findings of studies for other countries, i.e., exports are more labour-intensive than competitive imports in the early phase of development and as time passes, the capital intensity of exports increases as a consequence of capital labour substitution in domestic production as well as diversification of exports from primary to manufactured goods. The present study, however, is an improvement over the other studies in the sense that it incorporates non-competitive imports into the analysis.

If such an analysis is made for Pakistan, it will help policy makers in formulating appropriate trade strategies. However, the inadequacy of available data is a drawback in carrying out such research. Any way whatever work has been done with the existing data shows that Pakistan's exports are more labour-intensive than her imports, which implies that the country is still in the initial phase of development.

In the case of Korea, it was the availability of input-output tables for different years, which made it possible to transform the static Leontief model into a dynamic one. Otherwise, for most of the developing countries, input-output tables have not been constructed for different time periods.

Some of the findings of the paper are very interesting. A noteworthy one is that the amount of both capital and labour required per \$100 million worth of non-competitive imports decreases significantly when the more recent set of coefficients of either the U.S. or Japan are applied. This indicates that significant technological progress occurred in both the U.S. and Japan which resulted in a decrease in the factor requirement of per unit of output. Another notable observation is that while the capital requirement did not differ greatly between the U.S. and Japan, the latter required about four times more labour than the former per unit of output.

In short, the study provides an interesting approach to the analysis of employment and the capital implications of trade. The study is both descriptive and empirical, is well written and is useful to researchers interested in international trade. The book could also benefit policy makers, and those interested in the formulation of trade strategies.

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