

# **THE RELEVANCE OF FOREIGN TRADE IN EXPLAINING GROWTH - A LOOK AT EAST ASIA**

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## **ABSTRACT**

This paper investigates in the role of foreign trade for explaining economic growth. It introduces two contrary views that try to explain the East Asian growth process between 1960-1990 with special emphasis on the role of trade on growth. The first concept was introduced by Rodrik in 1995 and it stresses the importance of institutional intervention as it explains the growth process. Rodrik points at the fact that an increasing trade orientation alongside an investment boom could be observed in Asia as he turns around the causal relationship between exports, imports and investment. The second approach is made by Ventura in 1997. His explanation of the growth process is based on a formal mathematical model that strengthens the role of the capital accumulation within the growth process. The result of this approach points at the importance to engage in trade to reach long-run growth.

*Keywords:* international trade and growth, capital accumulation, industrial policy

*JEL classification:* F1, O2, O4,

## 1. INTRODUCTION

The world economy has seen a quite successful time in accelerating growth. Measurements in per capita income reveal that the world economy grew by eighteen percent from 1500 until 1820. From 1820 until today per capita income has grown by more than 750 percent.<sup>1</sup> Growth rates have been very unsystematic throughout the growth phase and growth was not distributed equally across the world. Some regions in the world were left behind while others succeeded in positive long-term growth rates. Quite astonishing is the contribution of world trade to growth. From 1870 to 1998 growth in world trade has quadrupled growth in world income (see Figure 1).<sup>2</sup> This picture is supported by a large body of empirical studies that show a strong and positive correlation between trade and growth in absolute GDP as well as growth in per capita income.

However, economic theory is not sufficiently able to present a clear picture on the link between trade and growth, i.e. they do not know exactly how policies that e.g. support outward-orientation affect growth. That is why this paper tries to investigate the link between trade and growth.

First in a more general perspective, as chapter II will briefly introduce basic models on economic growth and trade, it will further give a short introduction into the trade strategies of export promotion and import substitution and the determinants of growth. In Chapter III, we turn to get some insights on the growth through export orientation debate. We will introduce the most successfully growing countries in the period of 1960s - 1990s, the East Asian Tigers.<sup>3</sup> We will then take a look at two different approaches that try to give either evidence on the export orientation strategy as well as one approach

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<sup>1</sup> See Maddison (2001) data.

<sup>2</sup> All figures and tables are displayed in Appendix A.2.

<sup>3</sup> East Asian Tigers (World Bank, 1993) are Hong Kong, Republic of Korea, Taiwan and Singapore. Further we do not attempt to provide an all-embracing explanation of all variables or channels that have influenced the Asian growth process. Therefore we will leave out the perspective on the influence of the "Overseas Chinese", which was demanded by the co-author.

that denies the strong role of export orientation on behalf of the East Asian Tigers. The paper closes with a short conclusion.

## **2. BASIC THEORY**

### **2.1. Neoclassical Growth and Trade Theory**

Neoclassical growth theory goes back to Solow (1956) and Swan (1956). Even though the assumptions made by the model are not able to explain economic growth of LDCs<sup>4</sup> in a fully sufficient way, the model remains a basic reference point to start from with further investigations in growth literature. The model underlines that growth depends on capital accumulation, i.e. rising income per person leads to a rising stock of capital (human and physical) per person. The ratio of capital to labor rises as economic growth continues, until a steady state level is reached. The neoclassical growth theory predicts positive but decreasing returns to capital. As the model assumes that poor countries will start their growth process with a lower initial stock of capital, the return to scarce capital should be higher. Therefore, poor countries should be able to grow faster than rich countries. That is why the model also serves as a framework to study convergence across countries, an important issue in development economics that will not be treated in this paper. The recent economic theory deals with endogenous growth models since this approach centers its findings around the assumption that new ideas and products are the key of long-term growth rather than capital accumulation.

A starting point to analyze the role of trade on growth, as Krugman and Obstfeld (2000: 43) argue, is the static theory of comparative advantage, which dates back to Ricardo and Mill. According to this theory, people engage in trade because they have a comparative advantage in terms of resource endowments or natural abilities in producing a good which means that they specialize in the export of the good which they can produce at lower relative

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<sup>4</sup> Least Developed Countries

costs than their trading partner. This labor cost model allows for fixed but differing labor productivities. A modified version of the classical theory of free trade is presented by Heckscher and Ohlin. The factor endowment trade theory takes differences in factor supplies into account. Countries relatively abundant with labor will have a relative cost and price advantage over countries with relatively scarce labor endowments. They should, according to Heckscher-Ohlin, engage in the production of labor intensive commodities and export the surplus in return for imports of capital-intensive commodities. Countries will tend to specialize in the production of goods that use their abundant resources intensively. Thus, trade allows for a more sufficient use of resources of an economy, by using the export surplus to import goods (in developing countries often capital-intensive or intermediate goods) that could have otherwise only been produced at higher resource costs. Exports therefore allow imports to be paid for. Gains from trade arise as the quantity of feasible consumption points is no longer restricted by the production possibility frontier but by the isovalue line (relative prices at world level) tangent to the production possibility frontier. World output is increased translating into rising incomes of owners of a country's abundant factor, as owners of the scarce factor will lose. Another implication of the model is that if relative prices of goods converge because of trade this convergence causes an adjustment of relative prices of factors as well. This is called the factor equalization theorem.

## **2.2. Import Substitution versus Export Promotion**

Since the Second World War economists as well as politicians are engaging in improving human well-being among the least developed countries. Policy recommendations, as mentioned in Krueger (1997), which were given to LDCs in order to install growth fostering economic activities, were based on an import-substitution strategy. This inward-looking strategy promoted industrialization based on substitution of domestic production which should satisfy the domestic markets, combined with incentives for domestic production either in form of protection against imports or even import

prohibition. The “infant industry” argument, as stated in Todaro and Smith (2003: 485), was introduced to development economics as an argument to protect fragile industries and to later engage in export activities with formerly protected goods that were now able to compete on international price standards. In the 1950s countries around the world followed this policy recommendation as for example India, China, or diverse Latin American states. The general economic thinking changed in the 1960s towards a more outward oriented strategy, the so-called export promotion strategy. As demanded by international institutions, liberalization of trade regimes by removing protection systems and uniform incentives on both imports as well as exports mainly through the exchange rate, are now believed to be key elements to successfully fostering economic growth<sup>5</sup>. Developing countries changed their trade policies according to the recommendations of IMF or World Bank and gained growth, some more or less successful. Many success stories were created around the East Asian Tigers, the so called “superexporters” (Krueger 1990); but others e.g. as Burma, Nepal, India or Bangladesh as well as many Latin American and African states failed to translate the export promotion strategy into growth.

### **2.3. Determinants of Economic Growth**

To understand the role of trade in explaining economic growth among LDCs, one has to identify the different channels through which growth can be achieved. A broad range of literature exists that focuses on the determinants of economic growth. Theories by Grossman and Helpman (1991) focus on the role of technology, talking about the beneficial effects on growth generated through knowledge and technical spillovers; Rodrik (1999, 2001) focuses on the role of institutions as well as on educational implications; research advised by international institutions e.g. World Bank (Balassa 1982 & 1991, Krueger 1997) focus on the role of free markets, i.e. openness indicators to support

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<sup>5</sup> The observation that outward-oriented developing economies really do grow more rapidly is supported by a heavily cited empirical study, introduced by David Dollar in 1992, which gives proof to the assumption that outward orientation results in faster growth.

the beneficial effect on growth, macroeconomic stability (inflation, exchange rates, international borrowing), high saving and investment rates; Romer (1987) emphasis on explaining the role of R&D on economic growth and the role of capital accumulation (human and physical) as explained by all of the above mentioned authors seems to have a major impact on economic growth as well. Also the link between trade and growth seemed to be clear, since various empirical studies (Edwards 1998, Dollar 1992, Sachs and Warner (1995) supported the assumption. As Sachs and Warner (*ibid.*) put it, export growth and overall GDP growth in developing countries are still strikingly correlated. But a study by Rodriguez and Rodrik (1999) questions the results of above mentioned studies and states that the links between e.g. open trade policies and economic growth are not as clear. Therefore, Rodrik (1995a) came up with the idea that the most successfully growing countries between the mid 1960s and the early 1990s, the East Asian Tigers, succeeded in growth, not because of their export oriented growth strategy. He favors<sup>6</sup> to reverse the general economic causality as explained by the Asia Report of the World Bank (1993), i.e. growth leads to more trade. So, is there something wrong with the export oriented growth strategy?

### **3. EXPLAINING THE ROLE OF FOREIGN TRADE IN THE EAST ASIAN GROWTH PROCESS**

The East Asian growth process is understood to be a product of an outstanding increase in the volume of manufacturing exports<sup>7</sup> (see Table 1). But the way this output increase was achieved is object to various controversial discussions that try to explain the growth miracle.

The orthodox view, as advocated by e.g. the World Bank (1993) and Krueger (1990), on the miracle is that a “market-friendly” approach was the key to the

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<sup>6</sup> Rodrik (1999) also attacks the causal relationship between trade and growth as he questions whether trade (openness) generates growth or growth leads to more trading. He finds that there exist no sufficient empirical studies to support this theoretical assumption.

<sup>7</sup> See Young 1995.

success story of the HPAEs.<sup>8</sup> This view favored policy interventions limited to human capital investment, opening the economy to trade, maintaining macroeconomic stability and establishing a competitive climate for private enterprises. Following the World Bank (1993: 34), the HPAEs introduced an export push strategy to promote economic growth. But this view strongly rejects the impact of a comprehensive industrial policy, as stated in Kuznets (1996).

A contrary position to the World Bank view regarding the miracle process is introduced by Dani Rodrik (1995a). He lays emphasis on the issue that active industrial policy, e.g. in the case of South Korea, an increase in the private return to capital which was obtained through removing impediments to investment and alleviating a coordination failure, accompanied by advantageous initial conditions, i.e. a beneficial human capital endowment and quite equal distribution of income and wealth, was the cause for the economic growth process in the HPAEs. He rejects the 'overvalued' view that exports were the key factor within the success story. Rodrik analyses especially the conditions of the take-off phase within the Asian growth process.

The paper will further provide a theoretical model introduced by Jaume Ventura (1997). He shows that it is possible to explain the East Asian Miracle with the help of a model that combines a weak form of the factor-price-equalization theorem of international trade with an exogenous model of economic growth, based on Ramsey. The model gives explanation to the role of high rates of capital accumulation for long periods without driving down the marginal product of capital. Further, Ventura shows that a small country which opens its economy to international trade can accumulate capital faster and therefore foster economic growth for a prolonged period. Ventura's analyses focuses on the long term effects on growth through capital formation within the Asian growth process.

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<sup>8</sup> High Performing Asian Economies, (World Bank 1993: 12)

### **3.1. Policies**

To understand the controversial debate about the impact of export-led growth, one has to take a brief look at the industrial policies that were introduced to the Asian countries. As we take a closer look at the South Korean growth process, we will introduce their strategy very briefly. South Korea, as well as the other HPAEs, had experienced a period of import substitution strategy, mostly in the early 1950s, with high levels of trade protection, multiple exchange rates and further growth impeding policies. This strategy was mostly abandoned in the late 1950s (EIU 2005: 42-47) as the governments successfully adopted export promoting strategies (for further details see Table 3, Appendix). This kind of orientation in brief led to specialization according to the comparative advantage, free trade by opening of the economy through market liberalization which resulted in rising incomes, investment, savings and high productivity. As we argued above there is controversy among economists whether the export story (e.g. free trade, export oriented policies) reveals to be true to sufficiently explain the East Asian miracle or not.

### **3.2. The Rodrik Model**

Rodrik (1995a) attacks the orthodox view as “[...] incomplete and quite misleading on the importance it attaches to the role of export orientation in the growth performance.”. Analyzing the growth process of South Korea and Taiwan, he turns around the causal relationship between exports, investment and growth. As he denies the possibility that an increase in the relative profitability of exports (exchange rate interventions, incentives for export markets) was the key to the initial economic take-off, he draws attention to the increase in demand for investment subsequently of an exogenous increase in the private return to capital. Rodrik successfully identifies government interventions (industrial policy) based on advantageous basic conditions as favorable to translate investment into growth.



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Rodrik (ibid.) argues that e.g. an outstanding increase in the profitability of exports could not be observed<sup>9</sup> in cases of Korea and Taiwan (see Figure 2 and 3) compared to other export growth nations as Turkey or Chile (see Figure 4 and 5). For Turkey and Chile he argues, the sustained export booms were pushed through export-oriented policy reforms as various subsidies on exports, lowering trade barriers and real exchange rate depreciations much more than those observed in Asia. Rodrik also rules out the possibility that Asian growth could be primarily achieved through productivity spillovers from exports. This view gets support from Young (1995). He argues that once factor accumulation is taken into account, productivity growth within the tradable manufacturing sectors appears not to be the key component to explain economic growth. As outward oriented strategies are often associated with productivity growth, this argumentation seems not to hold for this experience. Instead the investment to GDP ratio in Korea as well as in Taiwan (see Figure 6) over a long period (1960's-mid 1980's) is quite outstanding.

The causal relationship between exports and imports, growth and investment for Rodrik follows a different path of explanation than the orthodox view. An exogenous increase in the profitability of investment in Korea and Taiwan comes along with an increase in the share of investment on GDP. Both countries do not have a comparative advantage in capital intensive production; therefore the investment boom requires a commensurate increase in imports. Since borrowing is limited, the share of exports relative to GDP must increase as well to keep the balance of payments balanced. Rodrik (1995a) states, "Hence, we will observe an increasing trade orientation alongside the boom in investment." (see Figures 7 and 8). To explain the remarkable growth rate, following Rodrik, one has to investigate why it became highly profitable to invest in countries like South Korea or Taiwan.

He builds up a set of conditions that are able to explain the increased profitability of investment. First, initial conditions, e.g. a well-educated labor force, mirrored by an unprecedented high enrolment rate in primary as well as secondary school enrolments (see Table 2), and equal distribution of income

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<sup>9</sup> This observation was also made by several other authors as Jones and Sakong (1980: 25) or Wade (1990: 93).

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were fundamentals for successful government policies. Second, one could not observe a coordination failure. Both governments underwent a sole coordination and subsidy of private investment through active and efficient government intervention (without leading to rent-seeking behavior among bureaucrats) which got supported by stable initial conditions. Coordinated macroeconomic policies kept the increased import demand equal to export supply.

The initial conditions need no further explanation. The absence of a coordination failure is a more complex vehicle. It is necessary to state that there was a substantial transformation in government priorities during the late 1950s in Taiwan and the early 1960s in Korea towards economics related issues, as Rodrik states. Investment subsidies were given in form of credit extensions at negative real interest rates to large businesses that engaged in investments of technology-based businesses, fostering domestic linkages and economies of scale. Especially South Korea, known for its large *chaebols* (conglomerates), which were used as an instrument for an industrial diversification strategy and therefore were treated with special credit programs. Investment was further subsidized<sup>10</sup> as the government guaranteed to bail out those entrepreneurs that were not successful in establishing businesses favored by the governments. Also, public enterprises were established to enhance the profitability of private investment. As Rodrik (1995a) states, "They did so by ensuring that key inputs were available locally for private producers downstream." This gives evidence to Rodriks' assumption that their economic activities were not introduced in favor of exports. They favored import substitution even though different export inducements were installed too. Hence, in both countries there was a sharp improvement in the investment climate. Furthermore, the investment to GDP ratio rose, followed by an increase in imports of capital goods, even though

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<sup>10</sup> Capital imports were subsidized in a large manner as well. De Melo (1985: 84) supports the view of Rodrik as he notices that capital import substitution accounted for more than one-third of manufactured growth, in periods prior to the rapid manufactured export growth. Further results of the study also reveal the important role of export expansion for later growth experiences of both countries.

neither South Korea nor Taiwan had a comparative advantage in producing those goods. Rodrik follows that because of adequate macroeconomic policies the increased import demand was serviced by increased export supply. He favors the view that exports pay for the increased demand for imports, rather than the other way around. The success of the coordination strategy to enhance profitability of investment as seen by Rodrik (2001) was, among other things, supported by an initial imbalance between low endowment with physical capital and a well-educated labor force, leading to high returns on capital.

As Rodrik states that economic growth could take off as a consequence of a successful intervention by the South Korean and Taiwanese politics and by downplaying the role of exports – Jaume Ventura (1997) comes up with another explanation on the East Asia growth miracle. And he puts emphasis on the issue that exports, or more general, the ability to trade and continuous capital accumulation, played a key role in explaining the growth process.

### **3.3. Ventura Model**

As already mentioned, a major contribution in accelerating growth in Asia was made by investment. As e.g. South Korea accomplished sustained growth between 1960s and 1990s, capital accumulation functioned as a key source of this economic growth. This leaves economists to ask why the law of diminishing returns did not affect South Korean investments. Additionally, the link between capital accumulation, trade and growth has to be explained.

Ventura's<sup>11</sup> starting point is again the finding by Young (1995) that growth in Asia cannot be explained by large productivity growth rates. As Young states, the rapid growth of manufactured exports is believed to be the result of extraordinary productivity growth. But this view underestimates the role of capital accumulation in the case of East Asia. Therefore, Ventura follows a different path as he tries to explain sustained investment in these countries.

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<sup>11</sup> The following section is based on Ventura (1997).

He states that South Korea and Taiwan are small countries in an integrated world economy. As Grossman (see Rodrik 1995a) states, "They are able to accumulate capital over a long period without facing the law of diminishing returns because they are able to reallocate resources among sectors with different factor intensities."

Ventura develops a dynamic competitive equilibrium model that combines a weak form of the factor-price-equalization theorem, formerly developed by Trefler, with the Ramsey model of growth. The model abstracts from international factor movements, i.e. capital is immobile – and countries are assumed to be identical except for their initial capital stock and labor productivity.

The basic assumptions of the Ventura model are that factor prices are set at the world level. The Ventura model uses a C.E.S. technology that displays the declining marginal product to capital and is able to exhibit a large elasticity of substitution between the factors labor and capital. Standard growth theory would predict that capital accumulation, as fostered by South Korea, would lead to the use of more capital-intensive techniques in the production of the same goods. And it would further lead to a decline of the marginal product of capital. In the case of an exogenous growth model, as developed by Solow (1956), the country would return to average growth rates even though its saving rates were high, as observed in the case of South Korea.

Ventura answers the question, why the East Asian economies did not suffer a decline of the marginal product of capital, as follows: East Asian production sectors (capital and labor intensive) underwent large structural movements as the capital stock started growing. Resources were moved from the labor-intensive sector to the capital-intensive sector, which raised the demand for capital and sustained the value of its marginal product. As the countries engaged in international trade, the excess production within the capital-intensive manufactured sector was translated into exports instead of falling prices.

To account for the above stated argument, we have to look at the aggregated technology underlying the model.

In an autarky situation the Ventura model would predict that an increase in  $k$  (capital labor ratio) would lead to changes in the price, as the country would start to make use of labor-saving technologies:

$$(1) \quad \text{GDP (autarky)} = (k_j^b + A_j^b)^{1/b} .$$

But the smallness assumption of the Ventura model, i.e. prices are set at the world level, allows the country to behave as if it had a linear technology:

$$(2) \quad \text{GDP (free trade)} = p_1 * A_j + p_2 * k .$$

Equation (2) indicates that an economy is able to grow without bounds if it uses a linear technology and accumulates capital. If  $k$  starts rising and  $p_2$ , the marginal product of capital is exogenous, the model unambiguously predicts a continual rise in GDP. This can only be achieved by opening up to international trade.

Since capital movements are not permitted per assumption, the economy must exhibit a high savings rate. This could be achieved through policy intervention. As the government introduces instruments that favor either a low time preference or high rental rates, and controls for population growth, the country remains small and high savings rates could be established. Ventura thus summarizes that the miracle observed in East Asia was made possible by opening up being patient in terms of consumption.

### 3.4. Critical assessments of the concepts

Rodrik (1995a) argues that manufactured exports as a share of the total economic activity are not the key to the initial take off in case of South Korea and Taiwan. Exports were less than 5% of GDP in South Korea in 1960 and close to 10% in Taiwan. The key issue introduced by Rodrik (1995a) that “[...] an increasing trade orientation alongside the boom in investment.” took place, becomes rejected by Quibria (2002: 27). He cites a study on South Korea which explains that domestic investment started to rise after a shift to a

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greater outward orientation. Therefore, he reverses the Rodrik argument. It is quite difficult to draw a conclusive result from both statements as both data sets rely on the Penn World Table (different versions) with different implications. But, the Quibria (2002) view is also supported by Ventura, as he predicts within its model that an increasing output of manufactured exports accompanies the structural shift between the labor and capital-intensive sectors.

The Rodrik statement of favorable initial conditions such as educational attainment provided through active government policy gets initial support by Thomas and Wang (1997) - but they state that aggregate government expenditure on education relative to GDP did not differ significantly from other emerging economies. Education expenditure per pupil rose as GDP grew due to the slowing down of the overall population growth. Nonetheless, Bosworth and Collins (2000) show that approximately 15% of the growth of output per worker is accounted for by human capital inputs.<sup>12</sup>

Recently, Tarr and Navaretti (2005: 3) give support to the Rodrik view that a competent and non-corrupt government was needed to install complex trade and industrial policies. Further, they explain that “[...] the key role of an efficient regulatory regime in offsetting the anti-export bias of the trade regimes [...]” could be observed in case of South Korea and Japan.

Concerning the Ventura model, two comments should be made. First, the smallness assumption, which ensures that the economy does not leave the factor-price-equalization set, i.e. that the range of the capital per effective worker ratios stays the way as constructed within the model, seems to be quite unrealistic. It would mean that a government has to introduce controlled population growth measures, which, following Todaro and Smith (2003: 269), have to be planned decades in advance, because of a lasting effect. Even though slow population growth could be observed in case of South Korea, countries within the East Asian region are in general not well-known for low

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<sup>12</sup> The overall positive linkage between male education and growth within cross-country regressions was formulated and tested by Barro (1999: 19-21).

population growth. As in the case of China, which installed population growth measures in the 80's. The applied measures were faced with negative outcomes, such as oversized male population. This might even become a constraint to growth in the nearest future, as stated by Todaro and Smith (2003: 271). To sum up, the smallness assumption within the model, which allows among other factors for unlimited growth, might become detrimental through negative impacts of controlled population growth.

Second, the assumption that capital is not mobile seems to be quite unrealistic in the first place. But as stated in Rodrik (1995b), FDI took place in South Korea though it does not play a key role in explaining capital accumulation. This view is supported by Lucas (1990), who states that empirics show no significant capital flows from industrialized to developing countries (and South Korea was rated a developing country in the early 1960's). Norman (in Rodrik 1995a) states, that an outstanding increase in saving rates in the case of South Korea could be observed, e.g. savings of public enterprises increased in 1963-64 and accounted for 31,2% of the overall capital formation.

#### **4. CONCLUSION**

Many different factors have been identified as the cause of the HPAEs success story by different research institutes. Different channels such as outward orientation, high savings and investment rates, TFP growth, macroeconomic discipline, public policies or a combination of all have been identified as the key to prolonged growth. What is different is the relative weight that each channel contributes to the success story. Therefore, economic growth in different countries around the world cannot be encouraged by simply introducing a plan A or B. Different basic economic conditions need special treatment to achieve sustained and positive growth rates. But what those studies have in common is the perception that an open economy and therefore foreign trade plays a major role in achieving long-run

growth. Even though Rodrik tries to play down the role of exports in growth accelerating strategies, he does not deny that trade policies that spurred exports were a central part in this complex story of incentives. Investment explains much of the growth experience in Asia. Rodrik and Ventura come up with two possible explanations how these high investment rates could be achieved. Again, their explanations have one thing in common, the necessity of opening up.

Nowadays, economists around the world share the perspective that this kind of outstanding growth as observed in East Asia must be seen in a different light. Within the international trading environment and changing rules of GATT and WTO calling to liberalize imports (Lawrence and Weinstein 2001: 404), the initial growth process based on protectionism as installed in East Asia, would be a hindrance to enter those institutions. As trade, among the 148 members of the WTO, represents 97% of the world's trade turn over (Tarr and Navaretti 2005: 1), this would be a growth retarding scenario.

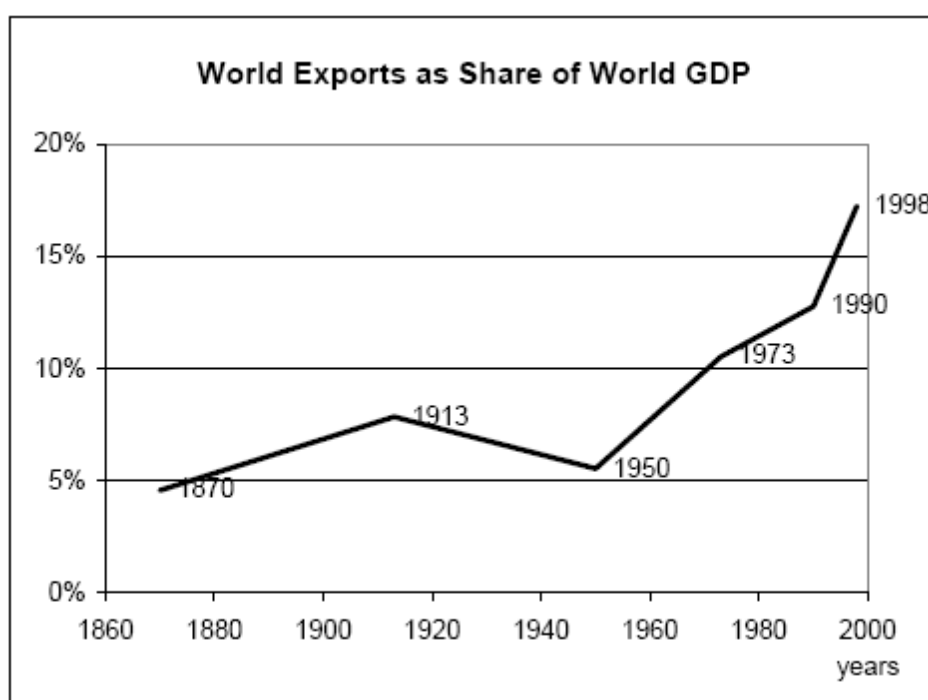
What especially Rodrik tries to achieve is that good economic analysis should invest in uncovering the precise causes and links resulting in growth instead of accepting some vague and generalized answers telling a story of "superexporters".



## 5. APPENDIX

### A.1 Figures

Figure 1: World Exports/ World GDP



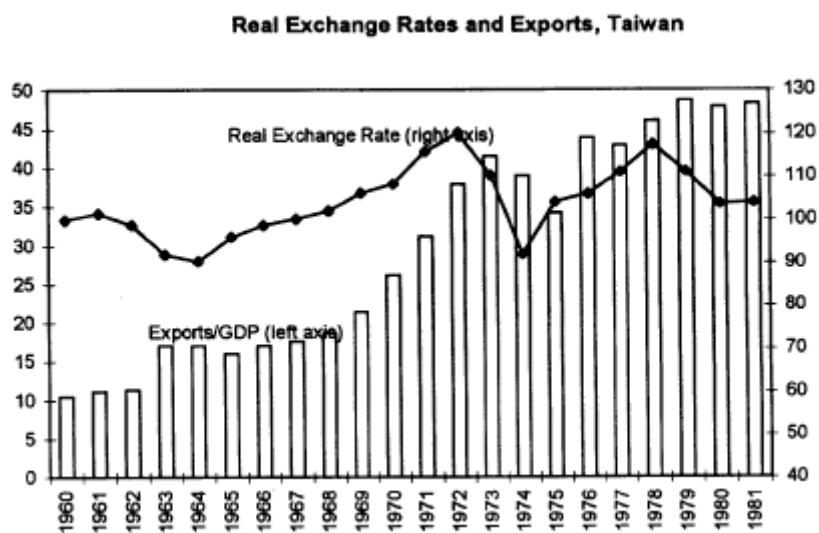
Source: Maddison (2001) data. Volume of World exports over World GDP, in constant US\$, selected data from pages 126, 184, 194, 214, 223;

Figure 2: Korea, relative price of exports, 1955-76



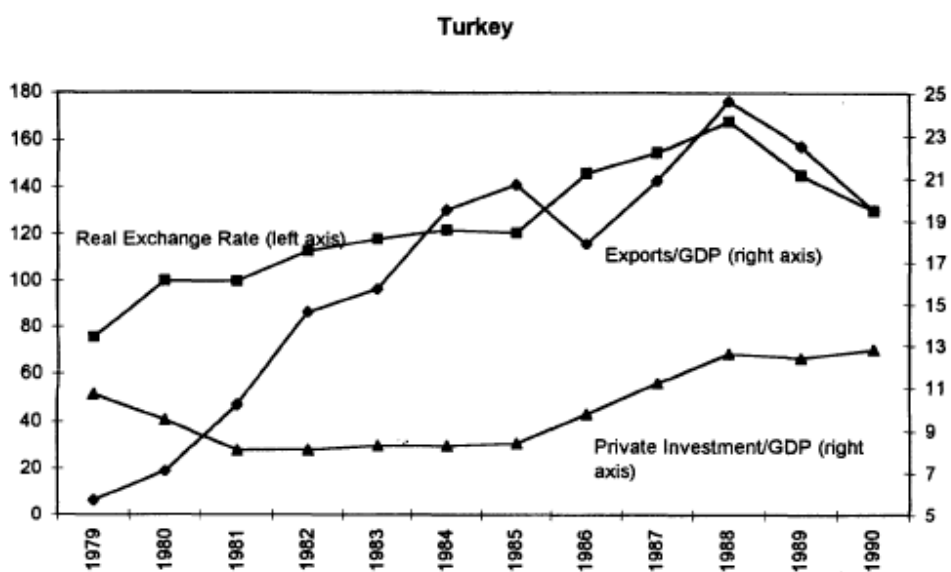
Source: Rodrik (1995a:63).

Figure 3: Taiwan, real exchange rates and exports, 1960-81



Source: see Rodrik (1995a:65).

Figure 4: Real Exchange Rate, Turkey 1979-90



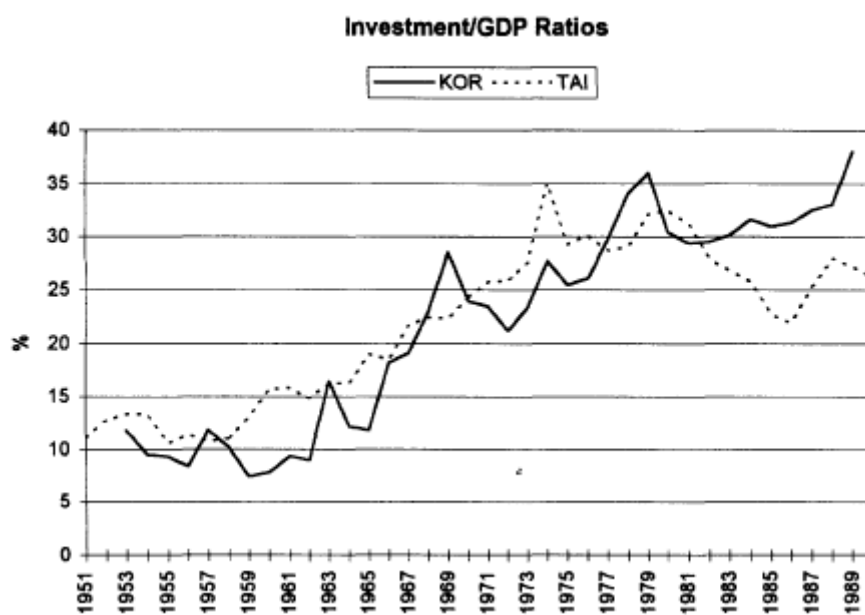
Source: see Rodrik (1995a:66).

Figure 5: Real Exchange Rate, Chile 1980-91



Source: see Rodrik (1995a:67).

Figure 6: Investment/GDP ratios, 1951-90



Source: see Rodrik (1995a:59).

Figure 7: Imports and Investment, Korea, 1960-88.



Source: see. Rodrik (1995a:72).

Figure 8: Imports and Investment, Taiwan, 1952-90



Source: see. Rodrik (1995a:72).

Table 1: Manufactured Exports East Asia

| <i>Economy</i>                 | <i>Share in world export</i> |             |             | <i>Share in developing-economy exports</i> |             |             |
|--------------------------------|------------------------------|-------------|-------------|--|-------------|-------------|
|                                | <i>1965</i>                  | <i>1980</i> | <i>1990</i> | <i>1965</i>                                | <i>1980</i> | <i>1990</i> |
| <i>Total exports</i>           |                              |             |             |  |             |             |
| Japan                          | 5,0                          | 7,0         | 9,0         | /  | /           | /           |
| Four Tigers*                   | 1,5                          | 3,8         | 6,7         | 6,0  | 13,3        | 33,9        |
| Southeast AsianNIEs**          | 1,5                          | 2,2         | 2,4         | 6,2  | 7,8         | 12,4        |
| Hape subtotal                  | 7,9                          | 13,1        | 18,2        | 12,2                                       | 21,1        | 56,3        |
| All developing economies       | 24,2                         | 28,7        | 19,9        | 100,0                                      | 100,0       | 100,0       |
| World                          | 100,0                        | 100,0       | 100,0       | N.A.                                       | N.A.        | N.A.        |
| <i>Exports of manufactures</i> |                              |             |             |  |             |             |
| Japan                          | 7,8                          | 11,6        | 11,8        | /  | /           | /           |
| Four Tigers*                   | 1,5                          | 5,3         | 7,9         | 13,2                                       | 44,9        | 61,5        |
| Southeast AsianNIEs**          | 0,1                          | 0,4         | 1,5         | 1,1  | 3,8         | 12,0        |
| Hape subtotal                  | 9,4                          | 17,3        | 21,3        | 14,2                                       | 48,6        | 73,5        |
| All developing economies       | 11,1                         | 11,8        | 12,9        | 100,0                                      | 100,0       | 100,0       |
| World                          | 100,0                        | 100,0       | 100,0       | N.A.                                       | N.A.        | N.A.        |

/ Not available.

N.A. Not applicable.

\* Republic of Korea, Hong Kong, Singapore, and Taiwan, China.

\*\* Indonesia, Malaysia, and Thailand.

Source: East Asia Report, World Bank (1993:38).

Table 2: Educational indicators, Korea and Taiwan

|        | Primary enrolment ratio |        | Secondary enrolment ratio |        | Literacy rate |        |
|--------|-------------------------|--------|---------------------------|--------|---------------|--------|
|        | Predicted               | Actual | Predicted                 | Actual | Predicted     | Actual |
| Korea  | 0.57                    | 0.94   | 0.10                      | 0.27   | 0.31          | 0.71   |
| Taiwan | 0.62                    | 0.96   | 0.12                      | 0.28   | 0.36          | 0.54   |

Source: Rodrik (1995a:76).

Table 3: Industrial Policy/ South Korea

| Period       | Priority activities   | Main instruments   |
|--------------|---|--|
| 1960-73      | Exports in general- key sectors labor-intensive manufactures  | Import protection, export subsidies including duty drawbacks, subsidized credit allocations, export targeting.   |
| 1973-1980    | Heavy and Chemical Industries – priority sectors steel, petrochemicals. nonferrous metals, shipbuilding, electronics and machinery; priority firms selected large enterprises | Import protection, export subsidies including duty drawbacks, subsidized credit allocations, export targeting. Widespread use of policy loans to channel funds to priority firms and sectors. Investment incentives through tax credits. |
| 1980-90      | Manufactured Exports, firms needed restructuring, small and medium enterprises. High technology activities now priority.  | Phased import liberalization, ending of policy loans. Still government influence over allocation of credit. Investment incentives for R and D. Easing of restrictions on FDI.  |
| 1990 onwards | Private sector-led development; restructuring of chaebol after 1997 Crisis  | Financial sector liberalization; open capital account;   |

Source: adapted from Leipziger (1997: 7)

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