CHAPTER 2

Globalization and Economic Growth

To gauge the impact of globalization on growth, we have first to look at economic theory and then at various empirical studies on the question, including those by the OECD (1998b), the World Bank (1987) and the IMF (1997). The WTO has recently carried out an extensive analysis on this issue, which I intend to review in some detail. I will first explain the effects of trade globalization on growth and then go on to discuss international capital flows, or financial globalization.

Trade globalization and growth

Theoretical models

What does growth theory tell us about international trade? What follows is a quick overview of neoclassical and endogenous growth models. Traditional neoclassical models such as that of Robert Solow (1956 and 1957) and Trevor Swan (1956) consider that capital accumulation, the main growth motor, is financed almost completely by domestic saving. While countries can borrow money abroad, this is provisional. Therefore, the level of savings in an economy plays a decisive role in its growth performance. Countries, that save more, can invest more and, therefore, grow more quickly. These models are based on the assumption that returns on investment tend to diminish as capital accumulates, i.e. as the stock of capital, increases. As a result, returns on investment tend to be lower as

a country gets richer and has a greater stock of capital. This means that, in the long run, there will be a convergence of income per capita between countries, provided they have reached a certain level if income, known as a "steady state."

These models, however, identify two factors that can prevent this convergence of income per capita from taking place. The first is that productivity and income from the factors of production (capital and labor) are different from one country to another. These differences are, basically, a result of differing levels of human and physical capital. Those countries where workers are more and better educated and trained tend to have higher productivity and income than others. Other variables that affect productivity are current public spending, which reduces long-term growth rates, and public spending on education and infrastructure, which boosts long-term growth; the inflation rate which is negatively correlated with growth; the legal status of contracts, positively correlated with growth and the development of the financial sector and foreign trade liberalization, are both positively correlated with growth (Robert Barro, 1998).

The second factor is that per capita income has a direct positive effect on the intensity of physical capital in the economy and, consequently, an indirect effect on the savings rate. The differences between savings rates in different countries are so enormous that they have a clear effect on differences in per capita income. The poorest African countries have internal savings rates of 5 percent of GDP while some southeast Asian economies register up to 40 percent savings rates. While these differences persist, growth and long-run per capita income convergence will not be possible. Only those countries, which improve human capital, defend property rights, have higher-quality institutions and public policy and higher saving rates, will manage to grow faster and converge.

In these models, trade liberalization can indirectly boost economic growth. In fact, any policy that increases economic efficiency by achieving a better allocation of resources will increase growth. Trade liberalization is one of these. It will also, therefore, have a lasting positive effect on savings and investment, as Richard Baldwin (1989) has shown in his analyses of the European single market.

This positive impact of international trade on growth is a dynamic version of Keynes's famous multiplier effect, a mechanism by which state investment can boost output to a greater degree than the initial injection of capital by stimulating the economy and creating jobs, when there is a relatively high level of unemployment. Trade liberalization generates greater economic

efficiency since it reallocates productive resources toward those sectors with a greater comparative advantage. Consequently, it increases productivity and, as a corollary, raises wages and per capita income, as Alan Deardoff (1974) has shown. A good example of this is the opening of the economies of Asia to foreign trade. National savings and foreign investment shifted to those industries that expanded thanks to liberalization, and gave a substantial boost to their growth rates. Once an economy has restructured and is fully integrated into the world trading system, the effect on growth begins to fade, but this generally occurs at a higher level of income. Empirical analysis shows that economies that are more open to foreign trade usually post higher growth rates than closed economies. As Michael Porter (1990) has shown, international competition makes firms more open to innovation and to the assimilation of foreign technology, while closed economies lack the necessary stimuli to innovate and raise their productivity.

Empirical analysis by Edward Denison (1962), based on growth accounting, showed that 50 percent of US growth was attributable to the accumulation of factors of production, capital and labor. The other 50 percent was the product of a residual deriving from technical progress, considered to be exogenous in the neoclassical model. This came to be called the Solow residual, after the US Nobel Prize winner Robert Solow. This residual of technical progress was made up of technological innovation, human capital and the way production is organized. Here too the exposure to foreign trade had a positive effect. All of these factors led to an increase in the productivity of capital and labor above that of simple accumulation, and this analysis created an incentive to develop new models capable of explaining with greater precision the growth process.

The new models of endogenous growth created by Romer (1986), Lucas (1988), Rebelo (1991), Grossman and Helpman (1991a), and Aghion and Howitt (1998) introduced three fundamental innovations to the postulates of the neoclassical models. On the one hand, they consider technical progress to be endogenous and not exogenous, by which they meant that it is dependent on policy initiatives designed to boost investment in education, training, research and development; improved tax conditions for the factors of production; greater openness; and an increase in foreign trade. At the same time, they argue that there may be constant or even increasing, and not diminishing, returns on investment as the capital stock increases, i.e. that increases in the return on physical and human capital are greater than proportional as a result an increase in its stock.

Finally, they introduce the assumption that scientific technical knowledge is a special factor, not only because it creates externalities which benefit the other factors of production but also because it generates greater increasing marginal returns.

The implication of these models is that the per capita income of different countries does not necessarily tend to converge in the long term toward a "steady state" or equilibrium because not all of them have acquired technological knowledge in the same degree or the same fashion. The result is that those countries with worse endowments of physical and human capital at the outset might never converge with the more developed economies, which have a greater capital stock, thanks to the increasing returns to scale of this stock and the positive externalities derived from scientific and technical knowledge for the rest of their factors of production.

What does international trade contribute to growth in these new models? It contributes quite a lot, as a matter of fact, because the endogenous relationship between productivity and technical progress is not only determined by policies to improve the latter, but also by market forces. These, in turn, as we have seen, are determined, to a substantial extent, by exposure to foreign trade, and by the process of "learning by doing." As Kenneth Arrow (1962) showed, international trade plays a determining role too in "learning by doing," (i.e., that people get new ideas by using old ones and that invention is incidental to normal production activity), which is a key determinant of productivity and growth.

In the first place, we can establish a connection between endogenous productivity gains and market forces through the process of "learning by doing." The more a country manufactures a good, the better it becomes, both in quality and cost. The examples of microprocessors, mobile phones, PCs, automobiles or aircraft leave little room for doubt about this. Their quality and capacity has risen, and their price fallen as experience is accumulated.

International trade affects this process in two ways. On the one hand, learning is faster and more thorough in those industries which are in expansion and slower in contracting sectors. The net effect will depend on productivity gains. If these are greater in the expanding sectors than the productivity losses in contracting industries, the net effect is positive. International trade determines, through the process of comparative advantage, which sectors or products are in expansion and which in decline, ensuring that efficiency and productivity are greater in industries in expansion.

On the other hand, international trade promotes the diffusion of technology, enabling countries to learn not only through their own specialized experience in production and the exploitation of their comparative advantage, but also through the diffusion of technology from their trading partners. Those who specialize in high-technology goods and services benefit from international trade by increasing sales and international market share. Those who specialize in traditional mature industries, benefit by importing high-technology goods and services, in which productivity increases rapidly, at much lower prices. This means they reduce their payment for imports of technological goods and the diffusion of these increases. Consequently, everybody benefits in terms of higher growth, specialization and exchange.

In the second place, some endogenous growth models consider investment in research and development, a key part of so-called technical progress, as the motor of growth (Grossman and Helpman, 1991b). Trade and international competition force companies to devote more resources to R&D in new production processes and new products in order to maintain and extend their competitive advantage. These new processes and products are then protected via patents which give exclusive, if temporary, rights to production and commercialization, so that investment in R&D can be recovered, and so that there are incentives to continue research and commit more investment to research. Economic integration and globalization through trade and international investment enhances business interest in R&D and encourages governments to increase investment in education and basic research. Liberalizing trade also increases the size of markets in which a firm competes and therefore the potential profit to be made as a result of developing a new product or process, as well as the benefits from learning and innovation in other countries. Work by Robert Barro and Xavier Sala i Martin (1995) comparing two countries – one developing, the other developed – sheds some light on this area. The developed economy innovates and the developing economy simply copies the innovations of the first. Growth in the developing country will depend on the cost of imitation and on its initial stock of knowledge. Provided the cost of imitation is less than that of innovation, the developing country will grow faster than the developed economy. As Maurice Obstfeld and Kenneth Rogoff (1996) have pointed out, the cost of imitation is closely linked to the degree of openness of the developing economy. The more open the economy, the greater the likelihood of gleaning new ideas which are being developed in the rest of the world and the lower the cost of imitation.

To sum up, trade liberalization can stimulate innovation and growth by stimulating the diffusion of technology and knowledge, learning processes, and investment in R&D. The final result, however, will not always be equitable. Paul Romer (1990) and Gene Grossman and Elhanan Helpman (1995) explain how international trade tends to make smaller economies with an initial handicap in technology, specialize in traditional productive activities that yield slower growth and lower productivity. Larger economies, on the other hand, or those well endowed with scientific and technological resources, are able to extract far greater benefits from international trade and so achieve faster growth rates, this is called the "scale effect."

Empirical evidence

Several empirical studies have tried to apply these models to economic reality. First of all, economists searched for correlations between trade liberalization and economic growth. Most of these studies do indeed find a positive correlation between exports and GDP growth (Michaely, 1977; Krueger, 1978; Feder, 1983; Romer, 1989; DeLong and Summers, 1991; Edwards, 1993; and Rodrik, 1993). There is a problem, however. Trade flows are actually a poor indicator of the openness of an economy. In general, small countries export and import a greater proportion of their GDP than larger economies. This is because their own production is generally less competitive given that there are few economies of scale or because natural resources are scarce. However, studies that compensate for the size of different economies also show positive correlations between trade openness and growth. Shirquin and Chenery (1989) show that the growth premium from trade liberalization varies between 0.2 percentage points per year for big exporters of manufactured goods and 1.4 percentage points per year for smaller producers of primary goods.

Other studies (Balassa, 1985; Leamer, 1984; Edwards, 1992) calculate the degree of openness by comparing the difference between actual exports and potential exports, (determined by applying a model from trade theory) and reach the conclusion that the net difference between the two is positive. The smaller the difference between actual and potential exports, the greater trade openness and the faster economic growth should be.

Another method used by economists (Sachs and Warner, 1995) involves the creation of an index of openness based on several criteria such as the importance to trade of non-tariff barriers, average customs rights, the

difference between the official and black market exchange rates and the importance of state-owned trade companies. They conclude that open economies grow between 2 and 2.5 percentage points faster than closed economies.

Other economists have used the difference between domestic and international process to gauge the impact of trade openness on growth (Barro, 1991; Dollar, 1992; Easterly, 1993; Lee, 1993). They reach the obvious conclusion that those countries where the difference between internal and external price differences is narrower, grow more rapidly because they benefit from lower costs and prices, which makes them more competitive. The narrower the difference, the greater the countries trade openness since international trade tends to bring the prices of traded goods and services into line, provided they are homogenous. Besides, as Harrison (1995) points out, there appears to be a virtuous circle between trade liberalization and growth. Periods of fast growth encourage trade liberalization and liberalization lifts the growth rate.

Some studies show that positive correlations are greater in those countries with average or high-income levels than in those with low incomes (Michaely, 1977; Ram, 1985). However, these studies are now rather dated and what they actually appear to show is that economic policy in middle and high-income countries is more coherent and sustained. Later studies (Matin, 1992) show that the correlation is not hugely different between developed countries and sub-Saharan Africa. Why do open economies grow faster? For some economists (Levine and Renelt, 1992) the answer is that trade liberalization increases the rate of investment as businesses bid to become more competitive. Others (Balasubramanian, Salisu and Sapsford 1996) argue that openness raises the quality and the productivity of investment in dynamic sectors because liberalization allows a country to attract greater levels of foreign investment and this has a greater impact on growth. Other studies highlight the propensity of foreign trade to induce technology transfer. Many imports appear to be instrumental in the diffusion of technologies, as David Coe and Elhanan Helpman (1995) have shown, discovering that domestic factor productivity is positively influenced by the R&D spending of trading partners, weighted by imports. Finally, for Keller (1997) the externalities deriving from foreign spending on R&D are substantial. This comes from the fact that it is invested in a specific branch of production and tends to improve national productivity, not only in this branch but also in other related sectors either upstream or downstream in the chain of production. As we have seen earlier, the effects

of technology diffusion are enormously important in endogenous growth models.

Some research emphasizes the role of imports, Wacziarg (2001) and Lee (1995) because, contrary to popular intuition, theory suggests that imports can be as important as exports in stimulating long-term growth.

Therefore, most of the evidence is based on case studies or on regression analysis. The problem with case studies is that they are difficult to replicate and are affected heavily by country idiosyncrasies and with regressions; the main problem is endogeneity among the variables used. Most measures considered as the best for accounting for the degree of openness, such as the ratio of the sum of imports plus exports to GDP, are, unfortunately, closely linked to the level of income, because the numerator and the denominator are linked to the GDP growth.

Thus, Rodríguez and Rodrik (1999) have analyzed many of these empirical studies in a recent article and identified serious weaknesses and technical deficiencies. They conclude that evidence of a relationship between trade liberalization and growth is still vague and ambiguous. They also ask why there is a need for such a huge amount of empirical work to prove that openness favors growth. The likely answer, they say, is that no one has proved able to give clear, convincing proof that such a relationship exists. They cite a series of microeconomic studies, however, which show conclusively that the causal relationship between trade openness and growth is, in fact, the other way round. The most efficient firms are those that choose to export and causality seems to progress from greater productivity to a greater export volume. They also argue that faster economic growth does not necessarily mean greater welfare, nor vice versa. Some trade policies can boost growth but undermine welfare, others act as a brake on economic growth but not on welfare.

It is true that simultaneity and endogeneity are a concern. Bradford and Chakwin (1993) argue that causality runs from investment to growth and exports, but a correlation may emerge simply because exports are a component of GDP, rather than because of any extra contribution that trade makes to growth. The best way to deal with it is through trade shares as predicted by the "gravity model" due to Leamer and Levinson (1995), which have used Newton's physics on the gravitational attraction between two masses, which establishes that the gravity between two objects is proportional to their mass and inversely proportional to their distance. Therefore, bilateral trade between two countries is proportional to their respective GDP and inversely proportional to the distance between them.

Frankel and Romer (1999) by using such a model, show that, looking at the ratio of imports plus exports as a share of GDP in a cross-section of 100 countries from 1960 to 1998, the effect of openness on growth is even stronger when it is corrected by simultaneity. The impact of openness on income per capita is of the order of 0.3 over a span of twenty years, that is, when trade increases by one percentage point of GDP, income increases by one-third of a percent over twenty years. Nevertheless, Lee, Ricci and Rigobon (2004) using similar data but a different procedure to solve for the problem of endogeneity: "heteroskedasticity," which uses instrumental variables that move the variances instead of the means, find that most measures of openness have a positive effect on growth, even when controlling for the effect of growth on openness, but that the effect is small, once it has been corrected by reverse causality and the effect of other economic and policy distortions that are correlated with openness, such as the black market premium used by Rodríguez and Rodrik (2001).

More recent work by Wacziarg and Horn-Welch (2003) criticizes also the previous conclusions achieved by Rodríguez and Rodrik, showing that, by updating the Sachs and Warner methodology and using the new PPP data on income levels by Heston, Summers, and Aten (2002) during the period 1950–98 the results are very positive: countries that have liberalized their trade regimes have experienced, on average, increases in their annual rates of growth of the order of 1.5 percentage points compared with pre-liberalization times, and the post-liberalization increase in investment rates was between 1.5 and 2 percentage points, confirming past findings that liberalization works to foster growth in part through its effects on physical accumulation.

Despite the relative validity of some sceptical empirical research, it is widely recognized today that none of the most reputed economists defends the opposite thesis: that trade protection is good for growth. Some are more convinced of the openness–growth correlation, while others are more skeptical about it, although mainly about the size of the positive causal effect, but the majority stand by the positive, causal relationship, including extremely reputable economists such as Joseph Stiglitz (1998), Anne Krueger (1998), Robert Barro (1998), Jeffrey Sachs and Andrew Warner (1995), Paul Krugman and Maurice Obstfeld (1991), Maurice Obstfeld and Kenneth Rogoff (1996), and Jeffrey Frankel (2004), to name only but a few.

The clearest conclusion, perhaps, is that of T. N. Srinivasan (1999) who criticizes the methodology used in many of the empirical studies, but who adds, nevertheless: "The fact, that a large number of studies, using

different data and methodology, reach the same conclusion about the relationship between trade openness and growth, which are, at the same time, consistent with their previous reasoning, suggests that they deserve serious consideration whatever the doubts about their conceptual and statistical defects."

There are a number of studies of static microeconomic costs of protection by tariffs, quotas, and other trade barriers. Patrick Messerlin (1999) has estimated that the European Union trade distortions impose a cost as high as 7 percent of EU GDP. The WTO uses a simple evaluation of protection vis-a-vis international trade, in terms of the cost to the consumers. It considers that every trade barrier raises import prices and national costs of production, restricts consumer choice, and lowers quality. These barriers act as a tax, says the WTO, so their elimination is the equivalent of a tax cut. The Uruguay Round of the GATT is considered to be the equivalent of a $214 billion yearly tax cut, which is almost 1 percent of world GDP. The WTO forecasts that the new Millennium Round will imply a further tax cut, or a further increase in disposable income for consumers, of $400 billion. It is perhaps worth stressing that a percentage point increases in world GDP growth is of tremendous importance. An increase from 3 to 4 percent, for example, would double world income every 17.5 years instead of every 23.3 years, a decisive difference for the world economy. One study made jointly by the IMF and the World Bank (2002) shows that a total liberalization of world trade will reduce the losses of disposable income, through lower costs of imports, and of export revenue by $ 700 billion annually.

Financial globalization and growth

The next question that we need to consider is the relationship between finance and economic growth, and between financial liberalization or openness and growth. As we will see later in the chapter, Wendy Dobson and Pierre Jacquet (1998) have studied these relationships and have tried to quantify them empirically.

Theory

In principle, the global integration of capital markets offers several potential benefits: Countries can share risks via international portfolio

diversification; capital is allocated to the most productive locations and consumption can be smoothed across time periods in response to shifts in macroeconomic fundamentals. Unfortunately, world financial integration is still very small, although is has been increasing very fast since the 1980s. According to Aizeman, Pinto, and Radziwill (2004) on average, 90 percent of the stock of capital in developing countries is self-financed, and this fraction was surprisingly stable throughout the 1990s, confirming the pioneer work by Feldstein and Horioka (1980).

In general, economists have also tended to disagree about the role of finance on economic growth. For instance, on the one side, Robert Lucas (1988) dismissed finance as an "over-stressed" determinant of economic growth while Joan Robinson (1952) argued that "where enterprise leads, finance follows." Their views were that finance does not cause growth, it only responds to demands from the real sector. But, on the other side, Merton Miller (1988) argued that "the idea that financial markets do not contribute to economic growth is a proposition too obvious for serious discussion."

Nevertheless, a more recent survey made by Ross Levine (2004) shows that the large majority of the theoretical and empirical analyses available demonstrate a strong, positive correlation of the financial system and long-run economic growth. The reason is that there has been, since the 1990s a new and large body of theoretical and empirical research which has added further dimensions to that relationship, such as the effects of finance on reducing information and transaction costs; its positive effects on saving rates, investment decisions; and technological innovations; its important connections with political, legal, regulatory, and institutional frameworks; and its beneficial effects on incentives, income distribution, and poverty alleviation. Levine does not address, unfortunately, the same issues in relation to growth and international finance, such as cross-border capital flows and the importation of financial services.

The literature on the positive relationship between finance and growth goes back to Joseph Schumpeter (1911) who assigns a key role to credit as a motor of innovation and entrepreneurship. Without financial intermediaries, economic actors are restricted to a situation of self-financing, which is sub-optimal, since they have no capacity to borrow when investment opportunities offer greater returns than the cost of credit or when they are subject to temporal shocks.

Subsequent literature has been divided into two tendencies. The first (Stern, 1989) focuses exclusively on real factors affecting growth and gives no direct role to finance. The second tendency, established by Gurley and

Shaw (1955) concentrates on the financial system. Since the 1980s, a period marked by banking and financial crisis, the second interpretation has become more relevant.

Adherents of each tendency have contrasting viewpoints on the relationship between finance and growth. For Nicholas Stern and his followers, faster growth makes for a more efficient financial system, an inverse relationship. For the other school, the financial system plays a fundamental role in economic development, a direct causal relationship. Logically, as Raymond Goldsmith (1969) has argued, causality between finance and growth runs in both directions. There is a dynamic interaction between the two. Some countries have slow growth and repressed financial systems; others have developed financial systems and experience high growth. Between the two, there is a range of mixes of the two.

Ronald MacKinnon (1973) and Gurley Shaw (1973) studied the so-called problems of financial repression in developing countries. In many of these countries, capital accumulation, the mainstay of economic growth, is low, and returns on real and financial assets are often negative. For this reason it is a mistake to consider growth in relation to the accumulation of homogeneous capital because returns are diverse. Rather than allowing the financial markets to decide which investment is efficient and what the price of capital should be, the state intervenes directly to establish interest rate controls, determining how credit is allocated and preventing financial markets from mobilizing resources and allocating them in the most efficient fashion. This is financial repression. As a result, the level of national savings is low and its allocation to investment projects is inefficient. All this hinders growth.

Marco Pagano (1993) points out three transmission channels through which financial development can positively affect long-term growth. The first is through an increase in the proportion of savings directed into investment. Greater competition in the financial sector reduces transaction costs charged by financial intermediaries. This reduces the volume of savings that are lost in intermediation. Development of the banking system and capital market, then, is absolutely crucial for growth. The second channel is via an increase in the marginal social productivity of capital. A developed financial market is able to effectively gather information on debtors and investment projects. More and better information lowers transaction costs but it also ensures that savings are channeled into the right investment project. Furthermore, as financial intermediaries are able to diversify their investment portfolios they will be more prepared to invest in

higher-risk projects that offer greater returns, previously starved of capital. At the same time, developed financial systems allow investors to diversify and share risk with intermediaries, be they banks, insurance companies, or capital markets. This makes higher-risk investment possible in new technology, which raises productivity and growth. Finally, greater access to information reduces savers' liquidity risk since banks can group the liquidity risk of depositors, lessen their need to invest in liquid assets and raise their participation in productive investment projects.

Pagano's third channel between financial development and long-term growth is the increase in the private savings rate. This transmission route is ambiguous since a developed financial system can also reduce the level of savings. On the one hand, it may reduce liquidity restrictions for private savers enabling them to save less (unless, of course, they borrow to save rather than consume). On the other, families with insured investments in financial markets may decide to save less. In other words, both personal insurance and credit can reduce savings rates and, in turn, slow long-term growth just as business credit and stock markets can raise investment and growth. There is no ambiguity at the other end of the scale. Repressed, underdeveloped financial systems do tend to reduce the level of savings and long-term growth rates.

The relationship between international finance and growth has also been the object of a growing number of studies. Paul Krugman (1992) made a review of most of this work: Neoclassical growth models suggest that international capital market integration plays no important role in growth. The abundance of external capital flows is irrelevant when explaining differences between growth rates, according to these models. Not even substantial levels of capital inflows make much difference to growth rates, since they are based on the assumption that returns on capital are diminishing. If poor countries have less efficient production functions and lower capital returns, then the neoclassical method of quantifying growth inevitably reduces the role of capital flows since, as we have seen, the Solow residual explains half of growth while the other half is attributable to the accumulation of capital and labor, and the relationship between both factors of production.

In the 1960s, Hollis Chenery and Michael Bruno (1962) and Ronald McKinnon (1964) developed the so-called "two-gap" theory, which showed that developing countries' growth rates are subject to two constraints. The first is the country's capacity to save and invest. The second is its ability to earn foreign exchange to finance the imports necessary for higher

growth. Capital inflows help overcome both constraints since they complement internal savings with foreign savings and also provide scarce foreign exchange. But a necessary condition for this to occur is disequilibrium in the developing country's markets. If there is excess supply in labor markets a capital inflow will boost investment and labor demand and reduce unemployment. If there is excess demand in foreign exchange markets, it will be more difficult to obtain important currencies. In that case, capital inflows can clear the market and reduce the constraint on the import of goods necessary for growth.

Paul Romer (1986) and Robert Lucas (1988) took the next step by developing the idea of endogenous technical progress and increasing returns to the accumulation of physical and human capital, which meant that long-term growth could be explained almost entirely as a result of capital accumulation, eliminating the need for the Solow residual. This accumulation generates external economies in such a way that the elasticity of output to capital increases its share of GDP. Because of this, the social return on capital is greater than the private return, since there is a spillover effect into the rest of the economy, not just into the profitability of an investment. In such a case, any capital inflow to a developing country will raise the growth rate to a far greater extent than the pessimistic estimates of the neoclassical models.

As Krugman (1992) points out, if capital accumulation is subject to external economies and increasing returns, as Romer and Lucas argue, those countries with greater capital endowments will enjoy comparative advantage in those sectors which are intensive in capital and highly productive. This implies that the profitability of capital will be greater in countries with greater capital stock than those that have accumulated less. The corollary of this is striking: capital will tend flow from poor countries to rich, not the other way around as the neoclassical model would lead us to believe. This means, of course, that greater freedom of capital flows would not enhance the convergence of income levels between countries but, in fact, cause divergence.

Luiz de Mello (1997) criticizes these analyses and notes the impact of foreign direct investment (FDI) on growth in the context of endogenous growth models. De Mello understands FDI as a mixture of stocks of capital, knowledge and technology and describes several ways in which it can positively affect growth. In the first place, FDI is an important source of human capital and of technological change for developing countries since it facilitates the use of more advanced technologies by national firms and

gives them access to knowledge and skills that raise the productivity of workers. In the second place, FDI boosts growth rates by promoting the incorporation of new technologies and new inputs in the production function of the developing economy. Not only in firms directly affected by the investment but also in other businesses through the spillover effect and its externalities. These transfers of knowledge and technology generated by FDI lead to innovation in processes and so allow firms to apply the knowledge transferred via FDI in the production of the same goods. This boosts productivity and growth. The same thing happens in so-called quasi-FDI, such as leasing contracts, licences, franchises, management contracts and even joint ventures. Coe and Helpman (1995) reach an identical conclusion when they show that capital goods imports are also a vehicle for technological change in the importing country. Finally, FDI heightens competition in an economy, forcing less efficient firms into bankruptcy and encouraging more efficient firms to invest in physical and human capital in order to remain competitive.

In all these models, FDI has positive effects wherever there are externalities that allow the rate of social returns to be higher than private returns, even where returns to capital are not increasing.

However, the positive effects of FDI will only be significant if the country in question has crossed a so-called "development-threshold," as Blomstrom et al. (1993) and Borensztein et al. (1995) have shown. These economists argue that a receiving country must have a high enough level of human capital in terms of education and training and good enough physical, institutional, and legal infrastructures, to make the investment worthwhile. If this is not the case, the effects will barely be appreciated, since the country will not offer a high enough return on the investment nor will it be able to absorb the transfer of knowledge and technology. This raises the obvious question of causality in empirical work on the relationship between FDI and growth. Is it FDI that determines growth, or growth that determines higher or lower levels of FDI? The answer depends to a large extent on the factors that determine FDI. If these are closely associated with growth in the receiving country, we can say that the growth precedes FDI. Experience shows that in large economies, such as China, Mexico, Brazil, or Argentina, with extensive consumer markets, a good geographical situation, adequate human capital, and adequate infrastructure, growth conditions FDI. In economies such as Chile, however, where markets are smaller and more open, FDI plays a determining role in the growth of output and productivity and precedes long-term growth.

Finally, southeast Asia is a clear example of the role played by capital inflows in conditioning growth. As Barry Bosworth et al. (1995) and Alwyn Young (1994) have shown, most of the growth in these countries is attributable to capital accumulation rather than improvements in factor productivity. This finding challenges neoclassical pessimism vis-a-vis the poor contribution of capital to growth (because of diminishing marginal returns to the capital stock). It also shows that foreign savings in the form of capital inflows have been crucial to Asian growth although an excess of capital inflows was the cause of the 1997–8 crisis in that region's fixed exchange rate systems and the inefficient allocation of this capital. As a general principle in economics, all that is abundant tends to be wasted or, at least, not employed efficiently. Paul Krugman (1994) and Alwyn Young (1994) were the first to warn that southeast Asia could not continue to grow eternally by a simple accumulation of factors of production, labor, and capital, unless productivity was increased, since this would trigger a crisis similar to that which occurred in Russia and the countries of Central and Eastern Europe.

Empiricial evidence

Most empirical studies show a positive relation between capital inflows, the liberalization of world financial markets, and growth. Levine and Renelt (1992) discover a very robust correlation between investment and growth. The same conclusion is achieved by Dani Rodrik (1999), who sees the source of growth as a self-reinforcing process, between expanding productive capacity, and the private profitability of investment. Financial liberalization is a vital precondition for this process to be set in motion.

Daniel Cohen (1993) bases his empirical analysis on a set of assumptions. External financing can be of help to a poor country but this depends on why the country is poor. If that is because the initial conditions are poor, foreign financing can be very useful to boost growth. If the problem is a low level of human capital, external finance can raise it. If it is because productivity is intrinsically low, external financing can also be of use, but only if the marginal productivity of capital is high enough. Assaf Razin and Chi-Wa Yuen (1993) argue that taxes on income from capital, together with the principle of residence, can explain variations in per capita income growth rates between different countries. The higher the tax, the lower growth.

The surveys made by Ross Levine (1997 and 2004) and his book with Demirgüç-Kunt (2001) compile the most substantial body of evidence to the effect that financial development is an important determinant of a country's short-run growth rate and long term convergence in growth rates. Phillipe Aghion, Peter Howitt, and David Mayer-Foulkes (2004), using the Schumpeterian growth theory, extend the previous work allowing the possibility of different long-run growth rates, in a cross-section of 71 countries over the period 1960–95, and find out that financial constraints inhibit technological transfers and that financial development, both in the domestic market and attracting FDI, helps growth and convergence through technological tranfers and productivity growth more than through capital accumulation, confirming most studies about the importance of productivity growth and technical progress in long-term convergence.

Finally, Bekaert, Harvey, and Lundblad (2004) find out that financial liberalization alone, that is, moving from segmented to financially open countries, contributes to 30 percent of the total increase in growth after liberalization of a sample of 95 countries in the 1980s and 1990s, after controlling for other elements which also have had a positive impact on growth. For them it is not just that the existence of capital markets is important for growth prospects, but it is also crucial that these capital markets be liberalized to allow foreign investors to participate and diversify their risk but also to permit local investors to diversify their portfolios across borders.

Dobson and Jacquet (1998) go a step further and try quantitative estimations of the benefits of financial liberalization. They estimate that global liberalization of financial services over a 10-year period under the Millennium Round of the WTO would mean gains of $1.3 trillion for business, households, and governments in the shape of lower capital costs, better services and a wider choice. Francois and Shuknecht (1999) conclude from a longitudinal analysis of a wide sample of countries that the transition from a closed financial system to an open one can imply increases in economic growth rates of between 1.3 and 1.6 percentage points per annum.

A study by John Williamson and Molly Mahar (1998) establishes a clear difference between simple capital account opening and the wider process of financial liberalization. The latter includes not only the removal of capital controls but also the establishment of competitive interest rates, the creation of banks and other financial institutions, and the privatization and independence of these. The benefits of a thorough financial liberalization

are much greater than a mere opening to capital flows since they mitigate the destabilizing impact that these flows have. However, recent experience makes it abundantly clear that the liberalization and globalization of capital markets is not by any means devoid of problems. Financial crises are more frequent. Intense capital inflows often give rise to financial bubbles and the sudden withdrawal of capital causes crisis and contagion in other countries. Moreover, many countries are excluded from external financing because they have not reached the development threshold. These are questions that will be discussed in chapter 9.

Historical experience shows that periods of globalization have yielded faster per capita GDP growth rates than periods of protectionism. From 1820 to 1870 average annual per capita GDP growth in developed countries was 0.9 percent. Between 1870 and 1913, the first wave of globalization pushed the average up to 1.4 percent. Between 1914 and 1950 the rate fell to 1.2 percent and between 1950 and 2000 it has risen to 3 percent.

By way of conclusion let me quote two extracts from outstanding economists on trade liberalization and capital:

First, David Greenaway (1998) who writes: "A highly protectionist and distorted trade regime is a necessary and sufficient condition for slow economic growth. A liberal and open trade regime is a necessary but not sufficient condition for fast growth. Trade liberalization in itself will not take an economy onto a new growth path. It can help substantially but must be compatible with other reforms in economic policy and needs to be sustained and sustainable."

Second, Jeffrey Sachs (1997) has written: "Global capitalism is surely the most promising institutional arrangement for worldwide prosperity that history has ever seen. Long-cherished hopes for convergence between rich and poor regions of the world may at last be about to be realised. But the world will need wisdom and stamina to reap the potentially vast benefits. The world must be prepared to deal honestly and boldly with the laggard regions, paying special attention to the acute and unresolved problems of tropical development. And the world must learn how to manage an open, rule-based system, on the basis of shared principles that cover nearly the whole earth."