The Significance of Economic Growth

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The pace of long-run economic growth is of fundamental importance to living standards. Growth is an irreplaceable mechanism for lifting people out of poverty. In East Asia, the fastest-growing region in the world, the number of people forced to live on less than $2 a day has declined by a quarter of a billion in recent years alone (since 2000); in other words, it has been shrinking by about a million people every week (Gill and Kharas 2007). Around the world, the incomes of the poorest track the rise in average incomes (see, for example, Dollar and Kraay 2001).¹

Higher income levels (a benefit of economic growth) enable people to better satisfy their material needs. Differences in per capita income correspond to consumption (see, for example, Acemoglu 2009, 7). Also, as their incomes rise, people may adopt healthier lifestyles (including a better diet) and gain wider access to health services. Thus, average life expectancy is also closely correlated with the level of income per capita (see, for example, Weil 2005, 156–7).²

Lifting people out of poverty by boosting economic growth does not necessarily imply that the gap between the rich and poor will lessen. In East Asia, such differences actually widened in the previous decade by almost a quarter, mostly because of China (Gill and Kharas 2007). If income inequality increases in tandem with economic growth, this is not because growth pushes a part of society into poverty, but because it does not lift everyone out of poverty at the same moment. At first, only a few people invest in the modern sectors and find employment there. These sectors develop mainly in the cities, because densely populated areas are more conducive to the cooperation that allows people to benefit from both specialization and economies of scale. With time, as more people relocate from villages to cities, where there are more jobs in modern economic sectors, inequalities tend to gradually diminish (see, for example, Kuznets 1955).³ Overall, income discrepancies in individual countries are currently smaller than before the advent of modern economic growth—that is, growth...
enabling a visible improvement in the living standards within the lifespan of one generation (see, for example, Weil 2005, 19).4

Even though when the modernization begins income inequalities initially increase, we should remember that in the longer term it is better to have a smaller stake in a fast-growing income than a large share in a slowly expanding one (or, worse still, one that is contracting). In the Republic of Korea, for example, the poorest one-fifth of the population earns an income almost four times the size of the income of the wealthiest one-fifth before the Korean War and the country’s division. The income of the poorest one-fifth is approximately seven times the income earned by an average citizen in the Democratic People’s Republic of Korea, where accumulating wealth is frowned upon for ideological reasons.

**Long-Term Growth**

A glance at the world’s economic history shows that long-term growth rates, and, in effect, average living standards, have fluctuated widely over time. Until the year 1000, growth wavered around 0 percent. The differences in per capita income between the richest and the poorest regions of the world did not exceed 10 percent. Between 1000 and 1820, global per capita income growth amounted to 0.05 percent a year on average, ranging from 0 percent in the poor regions of Africa to 0.14 percent in the wealthiest regions of Western Europe. On the eve of the Industrial Revolution, per capita income in the world’s wealthiest regions was roughly three times the income in its poorest areas (Galor 2005, 174, 180, based on data from Maddison 2001). Between 1820 and 1870, per capita income growth picked up to 0.5 percent in annual terms. In the period 1870–1950 it was running at 1.1 percent a year, to exceed 2 percent in annualized terms after 1950 (Weil 2005, 16, based on data from Maddison 2001).

Modern economic growth, which we tackle in this book, did not start at the same time everywhere. It was first observed in Great Britain. Some economists date its beginning back to the 18th century. In the 19th century, it engulfed the countries of Western Europe as well as Australia, Canada, New Zealand, and the United States. In Latin America, it started in the early 20th century, and in Asia, around 1950 (with the exception of Japan, where it had begun at the end of the 19th century). In Africa, with a few exceptions, modern economic growth has not yet occurred (Parente and Prescott 2005, 1373). Cross-national differences in the moment when modern economic growth took off are today reflected in the vast per capita income differences across those same countries. In 2006 the income of the world’s 20 wealthiest countries was on average 57 times higher than that of its poorest (IMF 2009).

Also, the pace of modern economic growth was not uniform everywhere. Great Britain initially needed 100 years to double its per capita income. In the 20th century, the countries of Western Europe achieved the same in as little as 35 years; in the second half of the century, this period shrank even further. After 1950 Asian countries (such as Singapore; Hong Kong SAR, China; Taiwan,
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China; and the Republic of Korea) required only 10 years or fewer to double their income per head (Parente and Prescott 2005, 1373). Other examples of equally fast growth—that is, the case of China, India, and Chile in the 1980s and Estonia from the mid-1990s until the outbreak of the recent financial crisis—are analyzed in this book.

All countries that got a later start did not necessarily enjoy higher growth rates than their predecessors, however. Consider, for example, the countries of Central and Eastern Europe and Latin America—cases given ample space in this book. In the former group, per capita income in 1950–90 decreased from nearly a half to approximately a third of the level observed in Western Europe. In the latter, the process of catching up with the richest countries was also interrupted toward the end of the first half of the 20th century. Over the next 50 years, their per capita income in relation to Western European countries sank by almost half, to approximately the same level as that seen at the start of modern economic growth (Maddison 2001).

In recent years, the number of countries which have managed to speed up growth has decreased, while more countries have been able to sustain a high growth rate. Stabilization in the composition of the group of fast-developing countries versus the stagnant ones may be demonstrated by a rising (if still low—see the section on A Brief History of Economic Research) correlation in per capita income growth rates across adjacent decades (Durlauf, Johnson, and Temple 2005, 568–71).

Shocks and Periods of Relatively Stable Growth

Looking at the long-term paths of economic growth in various countries, we see more or less stable dynamics—from, say, a slow decline in gross domestic product (GDP), through stagnation, to fast growth—punctuated by the aberrations of usually brief downturns and occasionally sharp declines. Generally, in most cases the past growth rate (whether of the past 15 or even 50 years) is of little assistance in predicting the future (see, for example, Easterly and others 1993; Easterly and Levine 2001; Easterly 2002; Durlauf, Johnson, and Temple 2005). Often, fast growth in a given period contains the seed of a collapse to occur in ensuing years. Moreover, the volatility of growth paths varies greatly across countries (Easterly and Levine 2001). Some countries expand at a steady rate—although this rate may differ considerably across countries—while others undergo frequent and deep collapses.

A sudden slowdown, even if followed by a quick return to the growth path, may stem a country’s average growth rate in the long term in comparison with more stable growth paths. Recent research shows that in a group of low-income countries that developed fastest in the 1990s, 18 were characterized by small fluctuations in their growth rate (World Bank 2005). In another study, Hnatkovska and Loayza (2003) came to the conclusion, based on an analysis of 79 countries in the period 1960–2000, that “macroeconomic volatility and long-run economic growth are negatively related” and that this negative relationship
is not the effect of small cyclical variations, but of “large drops below the output trend.” Such drops occurred very often in Africa, a fact reflected in the highest standard deviation of GDP growth per employee in 1960–2000 among all world regions. As a result of the collapses, growth on that continent was episodic in nature (Fosu 2007). Also, in all the country pairs discussed in this book, poorer performance was observed in those that had experienced more frequent or deeper downturns (see, for example, the chapters comparing the economic performance of New Zealand and Australia, Switzerland and Austria, Mexico and Spain). Among the examined countries, the worst results were observed in Haiti and República Bolivariana de Venezuela—two countries where the crises were most frequent and deepest. China and India—also with fast growth paths—were, in contrast, characterized by more stable growth.

Differences in the frequency and depth of growth collapses resulted, in part, from differences in the external shocks experienced. But many shocks originate domestically; these are not part of cyclical variations in economic activity but are prompted, after periods of serious disequilibrium, by the inevitable correction of the market mechanism. How such shocks affect long-term growth also depends on countries’ differing ability to address them. Those differences account not only for the depth of collapses but for their very occurrence, once a shock hits. In many countries, collapses have been preceded by positive shocks, that is, shocks leading to faster short-run economic growth to which those countries failed to respond properly (they assumed that the boom would continue to last—see, for example, the chapters on Costa Rica, República Bolivariana de Venezuela, and Mexico). Finally, vulnerability to external shocks—resulting from, for example, an economy’s structure—is an important variable, possibly of a domestic origin (contrast the experiences of Indonesia, Mexico, and República Bolivariana de Venezuela with those of Australia—all described in this book).

The occurrence and pace of stable economic growth patterns also vary considerably across countries. The forces behind them are long term or even permanent; thus, they can be termed sustained growth drivers. Chapter 2 deals with their nature and determinants. At this juncture, we will present the approaches to economic growth that prevail in the economic literature. This will enable us to better describe the research methods as well as the conceptual and analytical frameworks used in this book.

A Brief History of Economic Research

The causes of economic growth mark the most important area of economic study since its birth. The father of modern economics, Adam Smith, first published An Inquiry into the Nature and Causes of the Wealth of Nations in 1776. Since then—and even though economists’ interest in the issue has occasionally waned—economic growth has attracted the most space of any topic in the literature (in the past 20 years, more articles than on growth have been written only on inflation—see, for example, Weil 2005).
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Following a 1982 article by Nelson and Plosser, the idea that shocks may have a lasting effect on economic growth has been gaining ground (Fatas 2002); still, the relevant literature shows a strong bias toward sustained growth drivers, with little attention given to shocks. Only a few address the question of why collapses can have a long-lasting effect: why, instead of prompting renaissance, do they so often devastate an economy? This research problem entails other, more detailed questions: Is a collapse with a long-term adverse effect always to be considered destructive, or has it only triggered mechanisms long inherent in the economy? Does the short-run economic growth rate have any limits—even following a deep decline—preventing full recovery of output level after a collapse? Finally, are growth opportunities time dependent, which would mean that a country affected by a collapse may lose some of these opportunities? The literature has not been able to address any of these questions convincingly.

Economic collapses, and financial crises in particular, have been studied within a separate stream in economics. Since John Maynard Keynes, the focus has been on an economy’s capability to restore equilibrium—on its own, and under one institutional system: free-market capitalism. Much effort has been put into both highlighting the serious flaws of the system and debunking the very proposition that such flaws exist. One neglected issue is that of instability in various institutional systems, although there is no major doubt that the worst collapses in modern economic growth have been observed in noncapitalist countries and those where the free market was seriously hampered.

The empirical studies contained in this book attempt to carry out a comprehensive analysis of how both sustained growth drivers and shocks impact long-term economic growth.

Existing research into economic growth, which (as we have already pointed out) focuses on sustained growth drivers, disagrees over which factors are to be considered drivers, and applies varying methods of analysis to the problem. The most influential and extensive research trend in the literature is often dubbed “growth theory.” It strives to account for the differences in the economic growth rate by referring to three factors: labor, capital, and their combined productivity. These are factors of a quantitative nature. In this framework, it is only natural to apply, as is usually done, mathematical and econometric methods.

The foundations of growth theory were laid in the works of Solow (1956) and Swan (1956). These works changed the way quantitatively inclined economists thought about economic growth. Before this change—and based on the work of Harrod (1939, 1948) and Domar (1946, 1947)—the economies of developed countries were expected to see long periods of either rising unemployment or falling utilization of capital inputs. Both phenomena occurred, it was assumed, because a scarce factor of production could not be substituted by one that was abundant. According to the Harrod-Domar model, the inputs of capital and effective labor (that is, taking into account increasing productivity) had to be used in production in a steady (assumed) proportion; when the input of a given production factor exceeds the amount given by that proportion, it became completely useless. Both rising unemployment and falling utilization of capital input
could be prevented by the state—in the first instance by increasing and in the second instance by decreasing the investment rate by so much as to keep the pace of capital input growth strictly in line with growth in the labor input and with labor productivity. The model implied that less-developed countries with high employment in agriculture (characterized by low labor productivity) may quickly catch up with developed countries by launching heavy industrialization initiatives. The possibility of labor flows from agriculture to industry was supposed to allow the labor input to be fully utilized at any level of investment.

The Solow-Swan model challenged the conclusions of the Harrod-Domar model (Solow 1994). First, by admitting the possibility of substitution between the inputs of capital and labor, it gave the capital intensity of production the character of a variable. The relation of output to capital ceased to be a parameter. The capital input growth rate, regardless of the investment rate, adjusted automatically to the growth of the labor input and its productivity, thus eliminating the need for state intervention in mutual adjustment of these growth rates and full utilization of production factors. Second, the model showed that the long-run economic growth rate was not determined by the capital input, which is characterized by decreasing marginal productivity (that is, the increments in output are increasingly smaller as the input rises), but by drivers of factor productivity. It can hence be inferred that the recipe for development includes effective rather than heavy investment and innovation. This was confirmed by the growth accounting proposed by Solow (1957), who used 1909–49 data for the United States and broke down the growth rate into components attributable to—respectively—factor inputs and the increase in their productivity. Solow found that an increase in factor productivity is the key source of economic growth, even ignoring the fact that a large part (and on the balanced growth path—the whole) of any increase in capital input per person employed is driven by an increase in productivity—which in turn raises the return on investment. Growth accounting in itself proved to be a very useful tool in empirical studies of economic growth. We also use it in this book, although only to identify the causes of economic growth, mindful of the tool’s limitations (to be discussed further).

The Swan-Solow model, as well as subsequent generations of neoclassical models, while emphasizing the significance of productivity gains to economic growth, did not indicate the source of those gains. They assumed that technological progress was exogenous. Hence, the forces determining longer-term economic growth were not explained by these models. They attached no material role to economic policy, only inferring that policy makers should strive to ensure a high savings rate and a high level of education in society (see, for example, Mankiw, Romer, and Weil 1992). Most often, however, they did not indicate how these goals were to be achieved. At the same time, it followed from the models that whether these goals were achieved or not had only a passing influence on the economy, and one that materialized slowly. Both the passing character and the slow emergence of the influence were related to the same point: economic policy could only influence the capital input (physical or human), the growth of which, given the prevailing technology, would lead to increasingly
smaller output increments. Capital formation requires time, whereas factor productivity requires growth—and the only thing that could drive economic growth infinitely while undergoing substantial changes in the short run was assumed by proponents of the neoclassical models to be a priori and thus outside the scope of economic policy influence.

The neoclassical models also implied conditional convergence (that is, faster economic growth in countries with low per capita income versus more developed countries) under the assumption that the only difference between both types of countries is per capita income and capital. Controversies around the issue of convergence in developed countries (see, for example, Baumol 1986; Baumol and Wolff 1988; De Long 1988) prompted researchers to compile comparable national accounts data for a large group of countries over a long period. The effort laid down by, among others, Summers and Heston (1991) in the creation of such time series enabled the development of empirical research into economic growth. Updated figures collected by Summers and Heston (1991) are also used in this book.

Proponents of the neoclassical models pointed to a convergence mechanism: the higher marginal productivity of capital in the poorer countries, which they attributed to the smaller amount of capital relative to the number of employees in those countries. Assuming instant adoption of the latest technologies around the world, including the poorer countries, those models excluded from their scope of interest the differences in technology advancement between the richer and poorer countries and—in effect—the significance of reducing these differences through technology transfer. Yet differences in openness to imports of technology and in the capacity to use them are the most important factors explaining the diversity of growth rates in poorer countries (see, for example, Gomułka 2008). In the scenario that identical technologies were applied in all countries, differences in the marginal productivity of capital between countries with a high and low per capita income strayed far from those observed in reality. Differences as large as those indicated in the models should trigger flows of capital (both physical and human) from the richer to the poorer countries, whereas in reality these are limited and tend to run in the opposite direction. The fallacy of the assumption that the same technology is used by all countries has also been confirmed when neoclassical growth models were calibrated to data from many countries. Such approach showed that the differences in per capita income mainly result from differences in the technology applied and not in the inputs of production factors.

Discrepancies between the assumptions and findings of the neoclassical models on the one hand and well-documented facts on the other have contributed to the creation of endogenous growth theory (Romer 1994), in the process reviving economists’ interest in economic growth. Under the theory, an increase in factor productivity—the source of long-run economic growth—is not assumed, but is modeled. The first models of this kind were created in the 1960s and 1970s—see, for example, the studies by Arrow (1962); Frankel (1962); Uzawa (1964, 1965); Nelson and Phelps (1966); Nordhaus (1969); Gomułka (1970);
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and Nelson and Winter (1982). Yet, a strong impulse for their development arrived later. It was provided by the work of Romer (1986, 1987, 1990), Lucas (1988), Grossman and Helpman (1991), as well as Aghion and Howitt (1992).\textsuperscript{15} According to the models explored in these studies, factor productivity growth is either a by-product of productive activity (acquisition of knowledge through practice) and human capital formation, or of profit-oriented, targeted research and development (R&D) activity. This activity can increase the variety of intermediate goods, thus offsetting the impact of the decreasing marginal productivity of a single production factor. It can also result in an expanded range of final goods, raising the utility households derive from their consumption. Finally, it can introduce new, more productive generations of intermediate goods, owing to which final goods can be manufactured at a lower cost than their earlier generations (and squeeze those earlier generations out of the market). Factor productivity growth, contingent on the profitability of, respectively, production activity, human capital formation, or dedicated R&D activity becomes—regardless of the source assumed in the model—susceptible to the influence of economic incentives. This proposition is in line with many earlier empirical studies of technical progress.

The responsiveness of productivity-boosting actions to economic incentives observed in endogenous growth models confers a much greater significance on economic policy than is done under the neoclassical models. Policy can influence not only the level of per capita income in the long run, but also its pace of growth (see, for example, Temple 2003 or Easterly 2005).\textsuperscript{16} A greater number of channels through which economic policy influences growth under the endogenous growth models versus the neoclassical ones justifies extending the analysis of its impact beyond any influence on the saving rate or human capital formation rate (see, for example, Shaw 1992; Sala-i-Martin 2002).\textsuperscript{17} Generally speaking, the scope of possible applications of the new growth theory models is much broader than that of neoclassical models.\textsuperscript{18} For example, introducing externalities to such models potentially explains the direction of capital flows between countries and the differences in remuneration that cause those flows. If new technologies are developed only in selected countries, and in effect only the conditions observed in those countries are taken into account (for example, surrounding capital stock), differences may arise in the effectiveness of applying the same technology in different countries (see, for example, Basu and Weil 1998). Meanwhile, specialization increases in significance (see, for example, Young 1991). Extending the analysis to more than one sector allows us to look into structural changes in the economy, which are driven by the changing structure of demand as per capita income increases (see, for example, Kongsamut, Rebelo, and Xie 2001 or Matsuyama 2002) and by productivity growth differences in individual sectors of the economy (see, for example, Acemoglu and Guerrieri 2008). Assuming the possibility that some types of activity might result in increasing returns to scale helps explain the potentially positive impact of financial sector development on an economy (see, for example, Acemoglu and Zilibotti 1997). But increasing returns of scale in some industries may also result in a poverty trap;
that is, they may become a self-reinforcing mechanism preventing a country from utilizing modern technologies, and, in consequence, plunging it into stagnation at low-income levels (see, for example, Durlauf 1993). Exceeding the assumption of perfect competition, which is the condition for profitable research activity when its result—the knowledge of how to manufacture more efficiently—is of nonrival nature, allows one to analyze the significance of the intensity of competition to the rate of economic growth (see, for example, Aghion and others 2005). It is also a sui generis return to the roots of economics. Economists such as Adam Smith (1776 [2007]) emphasized “market imperfections” interpreted in a modern manner, that is, as any departure from the assumption of perfect competition. They did not claim that all consumers and businesses have access to perfect information or that benefits from a given type of activity are accrued in their entirety to the persons who undertake it, or that there are no differences in the features of the goods created by different entrepreneurs, or that all entrepreneurs are price takers.

Yet, in endogenous growth models—as in neoclassical models—nonzero and nonexplosive long-term growth rates are obtained practically only under the assumption that any increase in a selected variable that determines factor productivity growth in a unit of time depends—in a linear manner—on the level of that variable (see, for example, Jones 2005). This assumption follows from the construction of growth models, both of which require that—at least in the long run—the product be characterized by a 1-for-1 elasticity with respect to this variable, that is, that it should grow at the same pace. If this elasticity were less than 1, growth would gradually disappear; if, on the other hand, it exceeded unity by even a small margin, the rate would accelerate from one period to another. The strictness of this assumption hampered the development of endogenous growth models for a long time, in spite of the fact that the first models of this kind came about—as we have already mentioned—back in the 1960s (see Jones 2005). The development of endogenous models took off only after researchers had stopped attaching so much weight to this assumption.

A vast majority of both neoclassical and endogenous growth models refer exclusively to the shallow causes of growth rate diversification, that is, to differences in employment levels, the rate of formation of various kinds of capital, and the technical progress as well as efficiency of use of factors of production (studies such as those by Parente and Prescott 2000 or Acemoglu, Antras, and Helpman 2007 are an exception rather than the rule). Under both types of models, those shallow causes are most often determined exclusively by the assumed shape of the households’ utility function and the production function(s), along with the value of their parameters, which in themselves require explanation. Even though these models are employed to analyze the consequences of various economic policies, these policies tend to be narrowly defined (as certain types of taxes or public expenditures), without addressing the problem of what determines the shape of a certain policy. Models of both types are in principle totally ahistorical. The elements (for example, market structures) whose changes in reality exert a huge influence upon economic performance are merely assumed
in these models and thus, not depending on anything, remain constant. Finally, it is not quite clear which countries’ growth can be analyzed on this basis. Yet a mere glance at the assumptions tells us that, for example, a centrally planned economy does not conform with them. Consequently, such an economy should not be analyzed with these models. But by the same token we could eliminate subsequent groups of countries. If one wishes to apply these models to examine growth in a large number of countries, it has to be accepted that the basic assumptions of the model are incompatible with the reality observed in those countries. Such a broad application would be tantamount to assuming something rather dubious: that all economies are alike, irrespective of, for example, the socioeconomic system. The significance of the socioeconomic system to economic performance cannot thus be assessed with growth models alone.

A sensitivity analysis would require going beyond the shallow determinants of growth and looking into deeper-lying reasons, in particular institutions (more on the concept of institutions to follow). Attempts to analyze how relevant conditions affect economic growth are made within other research strands. Two contrasting approaches to the issue can be discerned: a free market and a statist one (Balcerowicz 2006).

The free market approach goes back to Adam Smith and classical economics. This book also subscribes to this tradition. Smith (1776 [2007]) emphasized the beneficial effect of market competition—one of the consequences of economic freedom—on development. On the other hand, he was critical of monopolies. He pointed to the “unproductive” nature of the public sector and was skeptical about state regulation of the economy. Smiths’ principal observations can also be traced in the work of his successors, including Mill (1909), according to whom the despotism of the state, including predatory or arbitrary taxation, poses a far greater threat to the growth of nations than almost any degree of lawlessness or other turbulence in the “freedom system.”

In the statist approach, the free market is considered to be a fundamental obstacle to the path to economic growth. As a consequence, anti-market state interventionism is seen as the key to development. Mercantilists, heavily criticized by Adam Smith, subscribed to this line of reasoning, but its best-known and somewhat paradoxical proponent was Karl Marx. Despite appreciating the technical dynamism of capitalism, he augured its decline, pointing to, among other things, the destructive role of “production anarchy”—that is, market competition. Marx’s key recommendation has been embodied in the centrally planned economy. According to North (1998, 100–1) it is a particular irony that Marx, who was the first to point to the need to make changes in the structure of societies in order to utilize the potential of new technology, is responsible for the emergence of economies that failed exactly in this respect. Statist leanings, if not that obvious, can also be seen in Schumpeter’s work. He proposed that certain incentives for entrepreneurship may function under noncapitalist systems, and the capitalistic profit motive can be substituted by other incentives (Schumpeter 1934 [1983]). Later, he went even further, claiming that industry managers in socialism could be instructed to produce in the most economical manner possible.
According to him, in effect, “in the socialist order, every improvement could theoretically be spread by decree and substandard practice could be promptly eliminated” (Schumpeter 1942 [1962], 196).

The influence of the statist approach, both in research and economic practice, increased together with the rising popularity of the view that interwar economic growth in the Soviet Union on the one hand, and the 1930s Great Depression in capitalist countries on the other, proved the superiority of wide-scale state intervention over the free market. Its impact started to weaken as anti-market systems’ spectacular failure to stimulate growth became increasingly apparent, particularly following the crisis, and subsequently the decline of socialism in the Soviet Union and the countries of Central, Eastern, and Southern Europe.

Natural experiments involving the introduction of diametrically different institutional systems in countries such as the Federal Republic of Germany and the German Democratic Republic or North and South Korea showed that institutions are of key significance to growth. The shift toward analyzing institutional variables occurred on the grounds of such research trends as the analysis of property rights (Furubotn and Pejovich 1972; Alchian 1977), the public choice theory (Niskanen 1971; Buchanan 1989; Tullock 1998), constitutional economics (Hayek 1960; Buchanan 1989), the pressure group theory (Olson 1965; Becker 1985), and economic history (North 1998).

Growth models have started to be used to analyze effects of some institutions on growth. Those institutions include, among others, regulations undermining competition by restricting the ways in which a given technology can be applied on the one hand, and the very choice of this technology on the other (Parente and Prescott 2000); another area examined is contract viability (Acemoglu, Antras, and Helpman 2007). Such studies can be seen as an important step toward analyzing economic growth. In practice, however, their analysis boils down to examining, within the framework of growth models, the impact of taxation that reduces investment profitability (or other productive activity). The assessment of that impact depends—as we have already mentioned—on whether neoclassical or endogenous growth models have been applied and how the parameters have been calibrated. There is no agreement among economists on which of the two groups of models offers a better fit with reality, or what values should be ascribed to the parameters of fundamental importance to the outcome. Arbitrary decisions are practically inevitable, especially with respect to the parameters describing institutions. Thus, even under one and the same model there is no convincing manner in which to rank institutions by their importance to growth. Studies of the topic, while taking advantage of quantitative methods, are far from being capable of quantitatively determining the role of a particular institution. They can, however, be helpful in interpreting the findings obtained through other methods (for example, they may help prove that the sign of the correlation need not correspond with the direction of the relationship between the variables). They should also be used more widely in constructing econometric models (further examined in this section).
In the early empirical research on the impact of institutions on economic growth, econometrics was applied on a restricted scale. In the first estimated equations, looking at a large number of potential sources of economic growth, it is hard to find any—narrowly understood—institutional variables (see, for example, Kormendi and Meguire 1985; Barro 1989, 1991; Levine and Renelt 1992; Barro and Lee 1993). They did, however, take account of variables related to institutions (such as the fiscal deficit, various public expenditure items, economic openness indices, the difference between the black market and official currency exchange rate, lending growth, political instability, and wars).

Institutional variables were first introduced into estimated equations in the mid-1990s (see, for example, Knack and Keefer 1995; Mauro 1995; Barro 1996; Keefer and Knack 1997; Ayal and Karras 1998; Hall and Jones 1999; Chong and Calderón 2000; Acemoglu, Johnson, and Robinson 2001; McArthur and Sachs 2001; Acemoglu and Johnson 2005). This progress in research, involving a look at the deeper-lying determinants of growth, was related to the creation of measures of institutional variables and databases on this subject. Initially, this research drew on the data published by the Political Risk Service, a private firm providing assessment of investment expropriation risk in various countries. Subsequently, other measures were created, among them those constructed by the Fraser Institute (Economic Freedom of the World Index—published since 1996), the Heritage Foundation (Index of Economic Freedom—calculated since 1995), the European Bank for Reconstruction and Development (the EBRD Transition Indicators—presented for the first time in 1994), and the World Bank (the Governance Matters and Doing Business measures—published since 1999 and 2003, respectively). Overall, there are over 30 organizations busy gauging differences between institutions around the world (Kaufmann, Kraay, and Mastruzzi 2008). The indices they have developed, despite many shortcomings (discussed below), have enabled considerable progress on the path to identifying and determining the impact of the deeper-lying determinants of growth. They are also employed in this book.

The weaknesses of these measures involve, in the first place, the fact that what is taken into account in their construction is often not the shape of a given type of institution itself—since this is difficult to quantify—but its easily quantifiable effects. This may render biased findings when applied in empirical research, reflecting the subjective judgment of the constructors of the various institutional indices rather than actual impact of institutions on growth. Second, these measures offer little analysis of institutional changes over time. Their time series are generally short, whereas institutional changes in most countries occur rarely and over an extended period of time. Even where measures date back to periods preceding the start of the indices’ publication, the comparability of data is limited—among other reasons, on account of the differences between the sets of variables used to determine the index readings in a given year (see the sub-indexes of the Fraser Institute). Some indices are changed only in one direction, which, given their upper limits, results in increasingly smaller increments (for example, the EBRD indices). In studies taking account of the time dimension
this property may result in a spurious regression (Rzońca and Ciżkowicz 2003). Some indices, owing to their annual standardization (for example, Governance Matters) exclusively allow an assessment of the relative changes in the quality of the institutions versus the sample mean. Third, cross-country comparisons are complicated by the arbitrariness of the scales applied in measuring institutional quality. By making such comparisons, we can ascertain whether the quality of a particular institution differs significantly across individual countries; what we cannot determine precisely is the extent of the differences. As a result, the indices may help resolve whether certain institutions increase differences in economic performance across countries, but they do not clarify the specific institutional changes needed to improve a country’s performance. Fourth, the complexity of most indices makes it difficult to determine what they actually measure. As a consequence, if empirical research distinguishes various kinds of institutions at all, the distinction tends to be very general. Such broadly defined indexes allow to show that institutions affect growth, but are too general to analyze effects of particular institutions. On the other hand, some indices identify the measured area precisely (for example, those comprised by Doing Business). In this case however, the problem lies in the too narrowly delineated area to be measured, which does not necessarily reflect the quality of the institutions in a country.

The weaknesses of institutional variable measures should be seen in perspective. Measurement difficulties are not restricted to these variables alone. To a similar degree they apply to the measures of shallow economic growth determinants. In most countries, the stock of physical capital—not services rendered—is estimated. In addition, the estimation is done in a mechanical manner using two simple formulae and data on the share of investment in GDP and GDP itself. Thus, not only are intertemporal differences in the quality of capital goods ignored, but so are differences in how investment projects are implemented (economical, or, on the contrary, wasteful); an arbitrary assumption is adopted for the capital depreciation rate—that is, the portion used up in a unit of time (assumed to not vary either across periods or countries)—and for the initial stock of capital.22 Finally, the very data on the share of investment in GDP and GDP itself used in the estimates are, for most countries, affected by measurement bias, as evidenced by disparities between databases sponsored by various agencies, as well as subsequent versions of the same databases (see, for example, the chapter on Estonia and Slovenia). In the case of human capital, there is no consensus on how it should be approximated (data typically used involve the percentage of the population of productive age who have completed secondary education, the average number of years of formal education completed by persons of 25 years of age or more, life expectancy, average daily intake of calories, and so on). The following differences are usually not taken into account: the quality of formal education between countries23 and over time; the level of education, lifestyle, and access to health care of both the employed and unemployed; the intensity and quality of extracurricular education; the age structure of the productive-age population, and so on. These weaknesses show that research focused on shallow drivers of growth has not yet exhausted its potential. Yet progress—both in the
intellectual and practical sense—should be sought, above all, in the analysis of growth’s deeper-lying determinants.

The sign that precedes the institutional variables (and those variables related to institutions)—reflecting the direction of their influence and their statistical significance—has usually been as expected. But in cases where these variables were tested for robustness to changes in the specification of the estimated equation (see, for example, Levine and Renelt 1992; Sala-i-Martin 1997; Doppelhofer, Miller, and Sala-i-Martin 2000; Kalaitzidakis, Mamuneas, and Stengos 2000), they failed to be robust, whether wholly or in part (depending on the particular study).24

Poor robustness of the estimates of effects of institutions on growth indicates, on the one hand, the need for a wider application of the theories and findings of other studies while specifying the estimated equations, and on the other, the shortcomings of theory. Theory suggests which mechanisms are potentially responsible for economic growth, but this is not sufficient to build structural models whose choice of explanatory variables reflect the deeper-lying conditions for that growth. There is no agreement among economists on the variables’ channels of influence—or even on the list of variables themselves. As a consequence, both shallow determinants of growth and variables approximating deeper-lying causes are introduced into the model.25 Even if those deep causes were fully independent of one another, and economists had perfect tools for measuring them—as each influences growth through shallow determinants but not necessarily the same ones, and practically never with the same impact as others—the outcomes might not be robust to changes in the specification of estimated equations. If, on the other hand, we take into account only the variables meant to reflect the deeper-lying growth drivers in the estimated equations, we run the risk of replacing the variables that have a better-documented impact on growth26 and a longer measurement history with variables only spuriously related to growth or subject to greater measurement bias. Moreover, even if the variables used in the estimation of the model accurately reflected some of the deep-growth drivers and were, additionally, free from significant measurement bias, they would not necessarily fully capture the significance to growth of at least some of its shallow determinants. Thus, their inclusion in the estimated equation may not provide ground for exclusion of the shallow determinants.

Using econometrics to study the factors of economic growth—whether shallow or deep—also entails other problems: the dependence of the explanatory variables not only on one another but also on the explained variable, changes in both the explained variable and the explanatory variables resulting from a third variable not included in the model, nonincidental gaps in the data (because of, for example, the fact that governments may be loath to publish data that could show them in a bad light), potentially nonlinear dependencies between the explained variable and the explanatory variables, the instability of these relationships over time, their diversification across countries, and so on.22 The constant progress in econometrics mitigates the impact of these problems but is unable to eliminate
them entirely—even as it proceeds to expose subsequent problems. As a result, the list of problems is becoming longer rather than shorter.28

Even if this list were becoming progressively shorter, the (traditionally understood) historical studies would continue to play a major role in the analysis of forces driving economic growth. Historical studies provide a large part of the information for further analysis with other tools.29 They also provide many hypothesis to be later verified with the use of quantitative methods.

Empirical research into economic growth may also be categorized by the number of countries covered. Most studies of the issue provide either (a) an analysis of a broad range of countries, or (b) case studies focused on single countries.

The first approach enables us, thanks to the (relatively) large number of observations included, to apply quantitative analysis, and thus determine the importance (statistical significance and, at least, the direction of impact) of the selected determinants of economic growth. Those determinants may include institutional variables. Although measured only recently, the large number of countries, given differences in institutions across them, provide a sufficient range of observations. This approach can do much to further understanding causes of economic growth. However, it will necessarily be characterized by numerous weaknesses. In spite of the quantitative methods used, its ability to compare the relevance of various variables for growth is limited. Looking at the bulk of research done in this area, we see that a myriad variables of different natures have been included (for instance, Durlauf, Johnson, and Temple [2005] describe the findings of studies of a total of 145 variables, that is, a larger number of variables than countries covered by most studies—see Durlauf and Quah 1999). Yet, because of the limited availability of comparable data for the same groups of countries, and also because different variables are used—at least in part—to measure the same phenomena, only a small number of potential sources of growth are taken into account in a single study. Many such studies ignore the direction of causality. Those that include the time dimension or instrumental variables in their analysis estimate this direction but in a highly imperfect manner because of the reduced form of the estimated equations (and difficulties in finding the appropriate instrumental variable). Equally, this approach does not allow us to fully factor in the conditions specific to a given country (and in the case of cross-sectional studies it does not account for such conditions at all). Finally, research based on this approach is usually ahistorical in character. The passing of time, if it changes anything at all, changes only single parameters (meanwhile, it is assumed that a change in a given parameter occurred at the same moment in all the countries studied).

The second approach—case studies of specific countries—allows room for specific, historical knowledge on the sources of economic development and thus raises important questions for studies within the first approach. But given that the measures of potential growth determinants are usually limited—both in time and scope—case studies tend to take on a descriptive character that makes it difficult to determine the significance of any one factor. If, on the other hand, analysis based on this approach is quantitative, it is restricted to only a few potential determinants of growth over a short time period. Thus, it only
provides a fragmentary picture of the sources of economic growth. Institutional arrangements tend to be overlooked in this context, because (a) attempts to measure the quality of institutions are recent (b) changes are often imperceptible over the short periods for which data are available. These problems can be circumvented by underpinning research with sector- and firm-level data. But this solution entails the many challenges of data aggregation (for example, the conclusions obtained may not necessarily lend themselves to generalizations at the all-economy level), as well as those typical of the first approach.

In the present study, we apply a third method: a comparative study of specially selected pairs of countries. Owing to this we will be able, as we explain in the next section, to avoid some of the shortcomings listed earlier.

**Research Methods Applied in This Volume**

The research basis of this book has three features that set it apart from the vast majority of empirical studies of economic growth. It is our conviction that these distinguishing features allow a better determination of the deeper-lying determinants of growth.

First, as has already been mentioned, the studies presented in this book consider, among potential determinants of growth, both shocks and sustained growth drivers. They also attempt to determine the relative significance of growth collapses to long-term growth.

Second, sustained growth drivers are analyzed at two levels. First, wherever it is reasonable, growth accounting is conducted to determine the relative significance of labor and capital inputs and the change in factor productivity. Next, an attempt is made to explain the levels of these magnitudes by referring to the deeper-lying forces—in particular, institutions.

Third—and this in particular makes the present book different from the vast majority of work devoted to economic growth—the studies herein compare specially selected pairs of countries. In each pair, income per capita was equal or very similar at a certain point in time, to subsequently diverge in a very visible manner. Our study examines the periods during which the differences in the growth rate—and, in effect, in the per capita income—emerged in: Australia and New Zealand, Austria and Switzerland, Estonia and Slovenia, Mexico and Spain, Chile and República Bolivariana de Venezuela, Haiti and the Dominican Republic, Puerto Rico and Costa Rica, China and India, and Indonesia and Pakistan. A comparative analysis of countries paired in this manner has allowed us to eliminate many factors that may appear to be significant determinants of growth when only a single country is analyzed, but in fact are not. The majority of paired countries had—at least at the starting point—possibly a lot of similarities, especially in terms of factors that are difficult to measure, such as culture. At the same time, the whole sample is sufficiently diverse to afford certain generalizations regarding the key determinants of long-run per capita income growth. The study countries are: large and small, insular and landlocked, rich in natural resources and deprived of them, inhabited by followers of all...
major religions, situated on all continents but Africa, with aging as well as young populations who are highly educated and not, characterized by low and high income per capita.

Each chapter has three parts. In the first, the long-run growth path of per capita income is analyzed and two questions asked:

- Whether the countries under review have experienced periods of collapses in their economic growth.
- To what extent these potential downturns account for the differences in the per capita income of both countries.

Next, for the periods during which no deeper downturns occurred, a typical growth accounting calculation is conducted. In contrast to past practice, we have deemed it pointless to conduct it for economic downturns as this procedure implicitly refers to sustained growth drivers. During economic collapses, on the other hand, there are other forces at play—such as those linked to a sharp slump in the terms of trade, a considerable fall in external demand, a collapse in domestic demand, and so on. Besides, the outcomes of growth accounting—applied to periods of economic downturn—can be easily predicted; inputs of labor and capital are naturally characterized by low variability, so the collapse must be reflected mainly in sinking levels of factor productivity. Yet, this obvious fact does not add to our knowledge of the deeper causes of the collapse, or—even worse—it may erroneously suggest the need to seek the causes among the sustained growth drivers, not the shocks.

In some chapters, growth accounting has been supplemented by two kinds of analysis:

- In cases where growth accounting indicated that employment changes had a material impact on the pace of economic growth, it was attempted—depending on the availability of suitable data—to break these changes down into components resulting from changes in (a) the portion of the total population that is of productive age and (b) the ratio of working persons to the productive-age population. It was assumed that the first change results from demographic factors (which the state can directly influence almost exclusively through changes in the retirement age); the second, from other factors (analyzed in the second part of each chapter).

- To identify the sources of (and barriers to) productivity growth, labor productivity and its changes in various sectors of the economy have been compared, as well as changes in the shares of these sectors in total employment. Such analysis helped, firstly, identify those sectors with a positive (or impeding) effect on the economy and secondly, determine mobility of production factors in sectors characterized by different efficiency of their use.

The latter part of each chapter describes deeper causes of the different levels of per capita income in the respective pairs of countries, including the
institutional solutions in place and the related manner in which economic policy is conducted.

In cases where differences in income were found to result from variation in the depth or frequency of collapses in economic growth, attempts were made to identify the sources of those collapses and the causes of their depth in one of the countries, as well as to determine why the other country was capable of avoiding such (deep) collapses. To this end, the following was assessed for each country:

- Shocks independent of the economic policy adopted—such as, on the one hand, a sharp drop in terms of trade, a dramatic decline in external demand for goods produced, a sudden and large increase in interest rates in international financial markets, or in risk aversion among investors, and, on the other hand, natural disasters and political coups.
- Shocks caused by economic policy, including, in particular, fiscal and monetary policy implemented in the country.

Furthermore, the following was examined:

- How the country was prepared for the occurrence of a given shock.
- How, in response to the shock, it adjusted its economic policy—that is, how it went about managing the crisis, and what sort of conditions for growth it created following the crisis.

To the extent in which the differences in the growth rate for the entire period examined were not determined by the crisis years, but by growth rate differences in the periods that were relatively stable in both countries, growth accounting is carried out and the latter part of the respective chapters is devoted to seeking factors underlying growth accounting results. Depending on those outcomes, the authors depend on barriers to both employment and investment growth and the effective use of production factors as well as technical progress.

Each chapter concludes with key findings of the analysis. The most important of these are also presented in the last chapter of the book.

**Conceptual and Analytical Framework**

As presented in this book, the study of economic growth, its breakdowns, and periods of relative stability is based on a clear conceptual and analytical framework (Balcerowicz 2006, 2008), the key elements of which are depicted in figure 1.1.

In economic literature, the terms *institutions* and *economic policy* crop up frequently, yet their definitions vary depending on the author. In the present study, they are of central importance and, considering the diverse definitions adopted in the literature, need to be specified.

Institutions are understood to be any intangible and relatively lasting factors external to a person and capable of influencing behavior (Balcerowicz 1995);
a similar definition can be found in Greif (2006). Institutions shape people’s actions, and in particular their interactions (transactions); sufficiently large differences or changes in institutions cause large differences in those activities and interactions, and in effect, in economic performance.34

Institutions are usually divided into formal ones, that is, those connected with the existence of the state and considered “official,” and informal ones, that is, those existing independent of the state. The latter are various social norms as well as groups and networks of links between people (for example, the caste system in India). Informal institutions are roughly identical to culture, narrowly defined. In this book, we focus on formal institutions in the analyzed countries and their effects on people’s behavior.35

By international policy we mean all activities—undertaken by individuals vested with political power—that have an impact on the economy, including its stability and growth. In contrast to many earlier studies,36 we do not include

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**Figure 1.1 Determinants of Short-Term Growth**

Source: Based on the argument presented in Balcerowicz (2008).
variables such as the exchange rate regime or the degree of domestic market protection. According to our definition, these and similar factors fall under a country’s institutional system. They are, beyond doubt, intangible factors—defined by the rules of play in a given area of economic life.

Within economic policy, we focus on reform activity: that is, any activity undertaken by persons with political power that changes—for better or worse—any parts or aspects of the national institutional system. Key examples involve (a) liberalization, or the removal of legal and administrative constraints to economic freedom, and (b) privatization, or a change in the ownership structure of businesses such that persons and organizations directly benefiting from political power are replaced by persons not directly benefiting from this power. Yet, reforms also comprise changes in the opposite direction—toward regulation and nationalization.

Reforms may—depending on their direction, extent, and temporal structure—trigger two kinds of growth mechanisms (Balcerowicz 2008).

The first one is the special mechanisms of growth, whose availability depends on the starting conditions, and which expire after a period of time—sometimes a long one. Examples are accelerated growth in the post-socialist countries resulting partly from the removal of all-pervading wastefulness typical of central planning or from the expansion of sectors whose development was previously blocked. Owing to these particular mechanisms, economic growth can accelerate even at the early stage of reform, that is, before the institutional system has attained its final shape.37

The other mechanism is innovation-based growth (including technology transfers from abroad). In contrast to others, this is a potentially universal and lasting mechanism. But in order for it to function, reform activity must give the institutional system a proper shape (arrow 3), that is, remove any barriers to growth driven by innovation or other factors. Meanwhile, reforms that remove institutional barriers to innovation-based growth also trigger some special growth mechanisms. These two can add up to exceptionally quick growth in the early stages.

We give both mechanisms and barriers to growth a much more detailed treatment in chapter 2.

The remaining elements of economic policy are mainly macroeconomic in nature—fiscal, monetary, and, under a managed system, the exchange rate policy—as well as financial supervision. These elements determine the extent of economic imbalance and its changes, which may have a bearing on long-term growth (arrow 5). Under systems characterized by state intervention, policy may include direct decisions by the country’s authorities allotting investment funds (and, sometimes, funds intended to finance current needs of the economy) to specific areas and applications. Direct intervention naturally also influences fiscal policy and, more broadly, macroeconomic policy.

It is obvious that the relative significance of both reform activity and economic policy in general depends greatly on the institutional system. Under a stable system with extensive economic freedom (as that under the metal-based monetary
regime prevailing in the latter half of the 19th century in, among others, Great Britain), economic policy was chiefly reduced to fiscal policy, which, in turn, was subject to the informal but very deeply ingrained doctrine of the balanced budget. The role of top-down reforms was limited (arrow 2 in figure 1.1). On the other hand, extensive economic freedom created ample space for bottom-up institutional innovations: the new organizational structures of enterprises and new forms of contracts (see arrow 1). The limited scope of economic policy and the capability to generate bottom-up institutional innovation is a property of systems characterized by individual freedom. Under a centrally planned economy, the emphasis was, not surprisingly, on direct intervention in the command form, amid a lack of reforms. Macroeconomic policy, exposed to direct allocation decisions by the state could, as experience shows, vary widely: from utter chaos (as in Poland in the 1970s) to relative macroeconomic stability (as in the former Czechoslovakia). Finally, economic policy in the post-socialist countries contained a very large reform component (which comprised the dismantling of direct intervention) and stabilizing macroeconomic policy.

While attempting to account for economic growth, its collapses, and periods of relative stability, this book distinguishes two types of national institutional systems (Balcerowicz 2008):

- Those that largely determine the economy’s susceptibility and resilience to shocks (institutions responsible for the stability of the economy).
- Those that mainly influence the intensity of sustained growth drivers (propelling institutions).

The institutions responsible for the stability of the economy influence the shape of macroeconomic policy (arrow 4, which, in combination with direct state intervention exacerbates or mitigates [arrow 5] the effects of external shocks on long-term growth [arrow 8]). The destabilizing or stabilizing character of this policy depends on the interaction between the force of the institutions responsible for growth and other factors, including the personality and skills of the people in power, as well as the economic doctrines accepted in scientific circles and the practice of economic policy. Well-developed institutions responsible for stability are not always capable of preventing economic shocks, as the recent financial crisis in developed countries has shown.

The institutions responsible for the stability of the economy can be divided into shallow and deep ones. The shallow ones include:

- The financial and foreign exchange system, determining the stability of the currency as well as the exchange rate risk.
- Constraints on government expenditure and the public debt related to the risk of a financial crisis.
- Financial supervision and the admissible scope of self-discipline among financial markets, which influences financial institutions and the risk of a financial crisis.
Some variables may be considered related to both the institutions in charge of the stability of the economy and those that propel it. Bank ownership affects both risk and efficiency. State-owned banks are saddled with more bad debts (see, for example, World Bank 2001), since while granting loans they are more exposed to political pressures of all sorts (see, for example, the studies of Mexico, Indonesia, China, or India). Institutional rigidities in the labor market have an impact on both the adjustment of the economy to shocks and long-term unemployment and the speed with which innovations are introduced in the economy. Fiscal institutions impact the fiscal position of a country, which determines the risk of fiscal crises (see, for example, Mexico, Costa Rica, República Bolivariana de Venezuela, Pakistan, and India, which all experienced a fiscal crisis), but it also plays an important role among sustained growth drivers. The monetary and currency system helps decide the risk of galloping inflation, but may also induce a less spectacular price growth, which does not entail a crisis but undermines sustained growth drivers (see, for example, Fischer 1993 or Li and Zou 2002).

Besides, there are significant interdependencies among the variables linked to the institutions responsible for economic stability. For example, the development of the financial sector curbs the negative impact of procyclical macroeconomic policy (Aghion and others 2004), but is not possible in itself amid a policy conducive to macroeconomic imbalances such as inflation (see, for example, Fischer 1993 or Li and Zou 2002).

The shape and force of shallow institutions responsible for stability depends on key characteristics of the political system: whether it imposes constraints upon political power, and the nature of those constraints. When political authorities are not constrained in any way, these institutions must be very weak. Prudence—or, conversely—recklessness in economic policy is then a function of the personality traits of the rulers, and not impersonal institutional limitations (arrow 7; see, for example, the chapter on Pakistan and Indonesia in the section comparing macroeconomic policy of the two countries until the 1960s). Only if political power is limited is there space for institutions responsible for economic stability (see, for example, the segment on Indonesia concerning the balanced budget rule established by President Suharto). The degree to which this space is used for institutionalizing limitations on macroeconomic policy, or—to put it differently—their depolitization, depends on the history of a given country.39

The political system influences macroeconomic stability and, in effect, growth, not only by affecting the institutions in charge of economic stability, but also through other channels. Unrestrained political power attracts ambitious people, yet ones not necessarily equipped with high ethical standards (arrow 9). It may result in frequent shocks within the ruling bodies and ensuing economic turbulence (see the chapter on Haiti). Or, conversely, power may end up, for extended periods of time, in the hands of people conducting disastrous economic policy. Lenin and Stalin in the USSR, Hitler in Germany, Mao in China, Kim Ir Ŝen in the Democratic People's Republic of Korea, and Mugabe in Zimbabwe are shocking but scarcely isolated examples of this threat.
The division of political systems into those with limited versus unlimited political power is not identical with the division into democratic and undemocratic countries. Democracies with soft constitutional constraints may also be susceptible to irresponsible economic policies (for example, Chile under Allende; see also the studies of Costa Rica and República Bolivariana de Venezuela). But it must be added that economic shocks brought about by dictators have been far more damaging.

Institutional constraints on political power are thus a fundamental security feature protecting the public against reckless economic policy—by, on the one hand, reducing the risk of economic madness and, on the other, enabling the construction of specialized institutions responsible for the stability of the economy. Such institutions are difficult to establish and yet more difficult to keep alive, even in countries with stable constitutional democracies.

Let us now proceed to discuss the propelling institutions, that is, those elements of a country’s institutional system that determine the level of sustained growth drivers. In other words, these are institutions responsible for whether—disregarding periods of shocks—the economy is stagnant or expanding; and if it is expanding, at what pace (arrow 3). What kind of institutions are covered by this definition is a fundamental empirical question that will be dealt with in more detail in chapter 2 of this book. While referring readers to that chapter, we want to take this early opportunity to list the most important of those institutions:

- The structure of property rights—that is, whether private enterprise is allowed by law and the extent of regulatory and tax-related limitations to economic freedom.
- The level of property rights protection: whether state authorities guard or threaten property rights (as well as the life/health of citizens).
- The degree of competition between manufacturers, dependent in part on the structure and level of property rights protection and the extent of protectionist policies.
- The fiscal position of the state in the economy, defined as the relation of government expenditure and—in effect—taxes as well as the fiscal deficit to GDP.

The absence of sustained growth can be explained by the operation of systems in specific countries and periods, described in chapter 2, that have impeded innovation-driven growth. Naturally this in itself does not explain why such systems operated widely in Western Europe until modern times and why they have subsequently been so common in other regions of the world.

On the other hand, triggering growth based on innovation (and usually also on special mechanisms of growth) has in most cases required specific reforms. Almost every country has been affected, for longer or shorter period of time, by a system hostile to growth. Where the absence of sustained growth is the result of the stable operation of anti-development systems, releasing such growth involves their destabilization. That is, reforms remove institutional barriers to growth and replace them with key institutional factors that open the door to...
constant innovation. Arrow 7 in figure 1.1 signals the dependence of those reforms being implemented (or not) on various forces, an issue handled by political economics of reforms and—more broadly—the study of institutional dynamics. We will revisit this issue in chapter 2.

In examining the relationships between propelling institutions and the pace of economic growth one must focus on variability in those institutions—and its consequences, including the implementation of specific reform packages. This is a more important focus than the static states of those institutions (that is, some kind of average of the institutions' initial or final state during the analyzed period). The subsequent chapters show that institutional variability was of major consequence to economic dynamics in the examined economies.

Notes

1. Moreover, by breaking up the extant structures, economic growth may lift persons out of low-income categories to higher ones in subsequent periods. This may also apply to their children. The scale of this upward movement depends on social mobility, which in turn fuels economic growth (see chapter 2).

2. Some economists observe that the weaker health statistics of poorer societies versus more affluent ones are a consequence rather than a cause of their poverty (see, for example, McArthur and Sachs 2001).

3. An argument against this proposition involves rising income inequality in the most developed countries, observed since the 1970s (see, for example, Bourguignon and Morrison 1992, as cited in Aghion and Howitt 1997). Yet this growing inequality can be explained with a similar logic, that is, by reference to productivity growth, which initially occurs in a small number of sectors and subsequently extends to other sectors.

4. It needs to be remembered, though, that a certain degree of inequality in incomes is necessary, because without it, fast economic growth would be impossible, leading to poverty shared by all. If all people earned the same income regardless of their contribution to aggregate output, there would be no incentive for effort. The size of the aggregate output in an economy depends on the effort each person contributes to its creation. Yet, the effort itself has a nonobservable magnitude, and hence one difficult to monitor directly (see, for example, Mirrlees 1971).

5. For example, practically only one chapter out of the 28 in a study edited by Aghion and Durlauf (2005), which presents an overview of the key trends in economic growth research, deals with the influence of shocks on growth.

6. In some models, capital is given a narrow meaning—machinery, the factory floor, that is, human-produced goods utilized in manufacturing other goods. In other models, the concept is defined more broadly and includes, besides physical capital, also human capital (that is, the knowledge and skills employees apply in the generation of goods) as well as employees’ health, attitude, and so on (that is, anything that is not material but helps boost labor productivity).

7. The decreasing marginal productivity of capital can be explained in the following manner. If, for example, we equip someone with a spade, the length of the ditch he or she is able to dig will increase dramatically over what is possible using only bare hands. If we add another spade, the possible ditch length will increase again, because the digger can use the second spade when the first has gone blunt. Yet the increment
of increase will be far smaller. If the digger is given a tenth or a hundredth spade, the
distance dug will no longer increase (it might actually decrease, as the digger will now
be saddled with the obligation of looking after and maintaining the spades).

8. According to Solow, factor productivity growth accounted for 87.5 percent of the
increase in output growth per unit of labor in the United States in 1909–49, while
the increase in the capital input per unit of labor, accounted for 12.5 percent of this
growth. Improvement in the methods of measuring the input of production factors
considerably reduced the significance of increases in their productivity as the source
of economic growth—a role ascribed by growth accounting—yet only to the extent
that the productivity increase was independent of the size of the factor inputs (see, for
example, Jorgenson and Griliches 1967, according to whom productivity accounted
for as little as 3.3 percent of output growth in the United States in 1945–65). When
considered as a whole, the proposition that factor productivity growth—without
distinguishing whether it was independent of factor inputs or whether such inputs
were required—is of crucial significance to economic growth remains valid. It is
worth pointing out at this stage that the very same Solow (1957, 316) admitted that
"obviously much, perhaps nearly all, innovation must be embodied in new plant and
equipment to be realized at all."

9. For example, the part of the study by Aghion and Durlauf (2005) dealing with
empirical studies of economic growth devotes more space to growth accounting than
to econometric studies, in spite of the latter including more variables explanatory of
economic growth, with the qualifying parameters not assumed but resulting from cal-
culations aimed at achieving a smallest possible difference between the model results
and the real data on growth. At least to some extent, this results from the fact that the
theory of growth, to which the study edited by Aghion and Durlauf (2005) is devoted,
focuses on shallow determinants of economic growth rather than root causes (to be
discussed further in this chapter).

10. Besides, the treatment of economic policy under these models is extremely simplified.
Most frequently it is stripped down to a selected type of tax or public spending on a
specific purpose.

11. The savings rate should not, however, be too high—that is, at a level triggering invest-
ment so large that its marginal productivity should fall short of the rental cost of
capital and its depreciation. In such conditions, raising income through investment
would reduce the level of consumption. Neoclassical growth models, however, differ
in their assessment of whether this so-called dynamic inefficiency is at all possible in a
free market economy (see, on the one hand, the Diamond model [1965], which finds
it possible, and on the other hand, the Ramsey [1928]-Cass [1965]-Koopmans [1965]
model, which excludes such a possibility). Empirical research indicates that savings in
a free market economy at a level causing dynamic inefficiency are a theoretical curios-
ity (see, for example, Abel and others [1989] or Romer [2000, 106], who summarizes
the effects of the first work).

12. It follows from the Solow model that with the share of capital remuner
ation in output
at 40 percent, the marginal product of capital in India—where per capita income is
15 times lower than in the United States—should be 58 times the level of the United
States (Lucas 1990). Estimates of the real scale of differences in capital productivity
across countries can be found, among others, in Caselli and Feyrer (2007).

13. Neoclassical models verified their observations of relationships in the economy mainly
on the basis of U.S. data, reinforcing the inclination to focus on sustained drivers while
ignoring the significance of shocks to growth. The United States is characterized by
The Significance of Economic Growth

1. The term endogenous growth is meant to emphasize that growth is being explained within the model, thus highlighting the difference from the neoclassical models, where growth is the result of the operation of forces outside and not addressed by the model. In reality, in both categories of models, nonzero growth in the long run is the exclusive result of one and, in terms of mathematical notation, the same assumption (see further in this section).

2. It should noted, however, that many findings of such models also find no corroboration in empirical studies.

3. For this reason, and considering a far higher diversification in the poorer than well-developed countries (see, for example, Gomulka 2008), endogenous growth models seem potentially more useful in examining growth in the first group of countries, and neoclassical models in the other. In reality both endogenous growth models and neoclassical models are used more frequently to examine growth in the developed rather than the poorer countries.

4. But endogenous growth models do not differ much from the neoclassical ones in the way economic policy is modeled. Most often economic policy continues to be equated with a selected type of tax or specific public expenditure. The major difference between how it is portrayed in the two types of models is the greater number of potential forms of taxation and ways of spending public funds. Moreover, even though the conclusions are less trivial than in the neoclassical models (for example, spending more on activities which have a bearing on economic growth is not necessarily the best policy—see for example, Sala-i-Martin 2002), they are at the same time less consistent—they may vary considerably depending on the type of endogenous growth model, both justifying extensive state intervention and the lack thereof.

5. The term new growth theory has been used synonymously with the theory of endogenous growth. We have used it here, since in the works quoted factor productivity growth is not always (and need not be) endogenous by nature. In all of them, however, at least one assumption characteristic of the neoclassical growth theory has been waived (that of the absence of differences in the efficiency of technology use, constant returns to scale, perfect competition, and so on).

6. Yet, it continues to be far from perfect—see chapter 2.

7. Endogenous growth models, in which—let us say it again—changes in factor productivity are not assumed but modeled, have enabled us to gain more insight into the relationship between long-term growth and shocks than was possible using neoclassical models (see, for example, Kydland and Prescott 1982). According to the growth models, any shock ultimately affecting factor productivity has a lasting influence on output level. But without any additional interference, and amid the regularly recurring shocks characteristic of real-life economies, these models may render a negative relation between growth and shocks only when negative shocks are on average larger than positive. Yet, empirical studies show that such a negative relationship occurs also when this asymmetry is missing, and that asymmetry enhances this relationship only to a limited degree, if at all. In sum, although growth models, including endogenous growth models, do not allow us—without introducing additional assumptions—to accurately reflect the empirically significant dependence of long-term growth on shocks, this has failed to add significance to the research into this relationship so
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21. This does not mean that we do not see the progress that has been made in growth theory in this respect—for example, models have been constructed enabling the illustration of the fact that throughout most of the history of mankind, per capita income remained stable, to subsequently—in some countries—take off at a steep angle (for example, Galor and Weil 1999; Galor and Moav 2002; and Hansen and Prescott 2002; see also Galor 2005).

22. To be more precise—the arbitrary assumptions are about the long-term growth rate of income per unit of labor, the share of investment in output and the depreciation rate, that is, the parameters determining the steady-state capital-output ratio (see, for example, King and Levine 1994).

23. In this respect, labor poses an exception; see Hanushek and Kimko (2000). The measure adopted for the quality of human capital is students’ scores in standardized international tests. Such a measure can be helpful in evaluating the quality of formal education in a given period, but it need not be directly linked to the quality of formal education in the past, and, in effect, the quality of formal education of the majority of the productive-age population.

24. It has to be noted, though, that these tests are so strict that they may exclude the true determinants of growth from the set of its explanatory variables (Hoover and Perez 2004; see also Durlauf, Johnson, and Temple 2005, 611–612).

25. Such construction of the equation was popularized by Barro (1989); hence it is often called the Barro equation (Durlauf, Johnson, and Temple 2005, 580–581).

26. This strong relationship can, however, reflect the problem of the endogenous character of shallow determinants of economic growth (if not necessarily in terms of statistics, then in terms of economics; see next paragraph).

27. Most of these problems are analyzed in, among others, Durlauf, Johnson, and Temple (2005).

28. This does not mean that econometrics has more weaknesses today than in the past. Owing to progress in this discipline, the situation is quite the contrary. Yet progress in econometrics has also consisted in discovering its subsequent limitations. In other words, all the current limitations to econometrics have existed before, yet not all of them were realized.

29. The study by Acemoglu, Johnson, and Robinson (2001), notwithstanding all the reservations voiced about it, may serve as an example of such a positive influence of historical research on econometrics-based research. These authors took the death rate observed among the first European settlers in the former European colonies as the instrumental variable to represent today’s institutions in these areas.

30. In some cases the difference in the per capita income between the countries in the selected pair diminished notably in the period under review.

31. See, for example, Bergoeing and others (2002). While comparing Chile and Mexico, the authors challenge the explanations for Chile’s sound economic performance and Mexico’s poor performance prevailing in the literature.

32. The fact that African countries are not covered by the analysis does not mean that the principles of economics do not extend to the continent. Fast economic growth is also possible in Africa, which can be exemplified by Botswana—a country that in 1960
belonged among the poorest in the world, yet today boasts a per capita income on par with Poland.

33. Limited variability of labor and capital inputs is indicated by, among others, Kehoe and Prescott (2002). Yet—strangely—these authors find it surprising that during downturns it is mainly the statistical measure of factor productivity that breaks down.

34. According to another definition, institutions are “limitations generated by man which shape the interactions between people and influence stimuli of economic, political, or social character” (North 1998, 95). The set of factors that are isolated as “institutions” based on the first definition is similar to that distinguished by the other definition.

35. The institutional systems of various countries may have similar components, that is similar laws. This concerns, for example, the countries of the European Union. What can generally be considered as the common part of various countries’ institutional systems is any international law that is reflected in a given country’s law or directly binds its citizens or institutions.

36. A broad understanding of economic policy and a corresponding narrowing down of the scope of institutions may of course lead to an increase in the significance of the first variable to economic performance and a decrease in the significance of the other (see Glaeser and others 2004).

37. Another factor which may speed up growth at the early reform stages is the expectations of enterprises of a further improvement in the business environment. Therefore, it is crucially important for the pace of economic growth to maintain a clear direction of reform while these are being implemented.

38. So, for example, how Keynesian doctrine contributed to the 1970s stagflation in Western Europe. The doctrine—attributed to Greenspan—of nonintervention in the face of a growing speculative bubble in the asset market and focusing macroeconomic policy on offsetting the aftermath of its bursting could—as is currently believed—have played a part in exacerbating the financial crisis that broke out in 2007 in the United States.

39. For example, in West Germany the independence of the central bank was guaranteed as early as in 1950, whereas in the United Kingdom this did not happen until the 1980s (see also the chapter on New Zealand).

40. Such limitations are also necessary for the existence of strong propelling institutions.

**Bibliography**


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