Preface

Growth theory has identified a plethora of determinants that are crucial for successful development. To explain differences in economic performance, economists focused for decades on physical/human capital and technical change as sources of the wealth of nations. Failed transition experiments and financial crises in the 1990s revealed that even the basic prerequisites for development are incapable of delivering desired living standards in the absence of functioning institutions that support and enable economic incentives.

What are the institutions that seem fundamental to economic performance in developing and developed countries alike? A review in the *Handbook of Economic Growth* (Acemoglu, Johnson, and Robinson 2005) points to a distinguished history of the subject, including works by John Locke, Adam Smith, and John Stuart Mill. Nevertheless, economics still lacks a robust, general framework that provides guidelines for why and how institutions influence the surprisingly large and unexplained differences in per capita incomes across countries.

The past ten years have provided an abundance of empirical studies on the influence of institutions. Trailblazers were researchers who based their empirical analyses on subjective indices provided by private country risk assessment companies; these data were first used by Knack and Keefer (1995) and subsequently by Hall and Jones (1999) and Acemoglu, Johnson, and Robinson (2001) to establish the influence of institutions on per capita income. Since then a hunt has begun to uncover ever better measures of institutions, as well as the mechanisms by which institutions influence development.

This volume provides an overview of the current state of the literature regarding the impact of institutions on growth. The book opens with a chapter by Philippe Aghion that highlights some of the key arguments linking institutions and growth. Institutions, Aghion argues, have many facets, each impacting growth and development differently. His approach emphasizes three aspects. First, convergence depends crucially on the quality of financial institutions. It is often argued that countries that are further from the technological frontier benefit from a catching-up process and hence grow faster than those closer to the frontier. Aghion maintains that because technological catch-up requires investment in imitation, the quality of financial institutions becomes an essential element in the catch-up process. As a result, underdeveloped financial markets can totally offset the advantages of technological backwardness and result in slower growth in backward countries than in those closer to the technological frontier. Second, Aghion examines how, contrary to common wisdom, product market competition may not be detrimental to growth. The basic idea is that a fierce competition will force firms to innovate if they want to remain ahead of other producers in the sector and make positive profits. Aghion introduces the concept of "appropriate institutions," by which he means that certain institutional setups will be suitable at some levels of development but not at others. For example, in the early stages of industrialization, when capital accumulation is important, institutions that favor long-term relationships between firms and banks are optimal. However, as an economy moves into the phase in which growth is driven by innovation, more flexible institutional arrangements that foster entrepreneurship and risk taking are preferable. As a result, the institutions that promoted growth at one stage are precisely those that retard it at another stage. Third, Aghion discusses the difference between academic institutions and private firms in promoting innovation.

There is general consensus that financial institutions might be among the most important in development, next to secure property rights. In "Financial Institutional Reform, Growth, and Equality" (chapter 2), Costas Azariadis and David de la Croix explore the consequences of liberalized credit markets for growth and inequality. The key insight in this chapter is that premature liberalization in the least developed countries (low total factor productivity or capital intensity) may redirect economic growth toward a poverty trap. This highlights the importance of understanding the exact contribution of institutions to growth. Reforms for the sake of reforms may actually harm growth if they are not sequenced correctly.

The next two chapters turn to the empirical evidence on the effect of institutions on economics performance. In chapter 3, Theo S. Eicher, Cecilia García-Peñalosa, and Utku Teksoz ask "How Do Institutions

Lead Some Countries to Produce So Much More Output per Worker than Others?" Their purpose is to examine the mechanisms by which institutions might affect economic growth. They first combine the two most influential approaches to explaining differences in per capita income across countries, the growth accounting approach of Mankiw, Romer, and Weil (1991), in which physical and human capital stocks determine output, and the methodology of Hall and Jones (1999), in which institutional quality has a direct influence on GDP. Their analysis hence seeks to understand the degree to which institutions actually enhance the productivity of skilled labor and investment. The surprising result is that while physical capital and institutions are complements in development, human capital and institutions are shown to be substitutes. That is, in countries with weak institutions, human capital is critical to development; in those with high levels of human capital, institutional quality has a much weaker impact on output.

Differences in institutions are clearly a major source of income gaps between developed and developing countries, as highlighted by the first three chapters of the book. However, institutional reform can also be a source of growth in industrial economies. For example, in chapter 1, Aghion argues that the degree of product market competition can influence the amount of innovation taking place in industrial economies. In "Regulation and Economic Performance: Product Market Reforms and Productivity in the OECD" (chapter 4), Giuseppe Nicoletti and Stefano Scarpetta examine the role of institutional reforms in the OECD. The last two decades have witnessed substantial institutional and regulatory reforms in OECD countries. The differences in these reforms across countries have provided a suitable natural experiment to assess the macroeconomic impact of such reforms. Nicoletti and Scarpetta review the literature on the effect of these reforms on investment, productivity, and employment. The evidence suggests that strengthening private governance and increased competition in product and labor markets have had a major positive impact on labor productivity, and can help understand differences across countries and over time.

The new growth theories have emphasized the role of innovation and entrepreneurship on growth, and this is the focus of part II. We start with chapter 5 by B. Zorina Khan and Ken Sokoloff, "Institutions and Technological Innovations during Early Economic Growth: Evidence from Great Inventors in the United States, 1790–1930," on the impact of patent legislation on patenting activity in the United States during the period from 1790 to 1930. Their analysis emphasizes that a well-functioning system of intellectual property rights turns patents into tradable assets. The authors highlight the contrast between the U.S. patent system and that prevailing in Europe at the time. The major difference concerned the use of an examination system in the United States. In Europe, the inventor would obtain a patent upon payment of a fee, but this patent could be challenged in court implying that property rights could not be considered to be fully established until the case had been assessed in court. In the United States, a patent application was subject to examination, and only once rightful property rights over the innovation were established would the payment be made. This system established ownership in a way that could not be challenged. Khan and Sokoloff show that the use of the examination system had two important implications. First, it encouraged innovation by individuals of all education levels. Second, it resulted in extensive patent selling and licensing, with double benefits in the form of ensuring that the goods were produced and ensuring that the innovator had access to funds permitting the continuation of innovation.

Chapter 6, "On the Efficacy of Reforms: Policy Tinkering, Institutional Change, and Entrepreneurship" by Murat Iyigun and Dani Rodrik, focuses on the relationship between entrepreneurship and reform. Iyigun and Rodrik examine how policy affects entrepreneurship. Two alternatives are considered, "policy tinkering" and institutional reform. The authors argue that growth is largely due to an increase in the number of available products, and that product diversification requires entrepreneurs who invest and discover new products. The central insight in their model is that low growth is due to an insufficient level of entrepreneurship. Policy tinkering can improve entrepreneurial rewards marginally; and deep institutional reforms can make substantial changes in the reward structure but at a cost to incumbent entrepreneurs. As a result, the efficacy of one policy or the other will depend on the current state of the economy in terms of entrepreneurship. Their empirical evidence supports this hypothesis: major reforms have worked in countries with a low level of entrepreneurial activity, and failed otherwise. The chapter hence captures one of the key messages developed in chapter 1, namely, that some types of institutions are appropriate at certain stages of development but not at others.

Clearly the role, functioning, and quality of institutions is itself endogenous to level of development. The third part of the book examines the implications of this endogeneity in terms of education and the political process. In "The Role of Higher Education Institutions: Recruitment of Elites and Economic Growth" (chapter 7), Elise S. Brezis and François Crouzet examine a specific mechanism by which institutions influence the fortunes of an economy. The authors analyze the evolution of the recruitment of elites over time and highlight how recruitment institutions subsequently impact the economy. The key result is that meritocratic recruitment actually leads to class stratification and auto-recruitment. Auto-recruitment is then shown to lead to a stratification of the economy, which may be the most dramatic impact of meritocratic institutions on economic growth.

In chapter 8, "Growth and Endogenous Political Institutions," Matteo Cervellati, Piergiuseppe Fortunato, and Uwe Sunde study the dynamics of political institutions and the implied differences in public policies. They highlight the circular nature of institutions: political institutions are thought to be influenced by economic development, and economic development in turn influences the political institutions. The chapter highlights that economic development increases the likelihood of transitions from oligarchy to democracy. Moreover, the authors show that democratic regimes tend to provide more efficient public policies, and more redistribution, than oligarchic regimes.

In "The Road from Agriculture" (chapter 9), Thorvaldur Gylfason and Gylfi Zoega seek to explain economic backwardness not in terms of history or mentality but rather in terms of rational agents' maximizing behavior. They show that observed technology adoption in agriculture does not need to coincide with the "frontier" technology at all stages of development. Instead, Gylfason and Zoega show that countries may feature an "optimal technology gap." The size of this gap is shown to depend on factors exogenous to most economic models and seldom subject to change, such as farm size (geography), land productivity, and the ability of farmers to digest and adopt new technologies.

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References

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91, no. 5 (December): 1369–1401.

Acemoglu, Daron, Simon Johnson, and James Robinson. 2005. "Institutions as the Fundamental Cause of Long-run Growth." Forthcoming in *Handbook of Economic Growth*, ed. Philippe Aghion and Steven Durlauf. Amsterdam: North-Holland.

Hall, Robert E., and Charles I. Jones. 1999. "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114: 83–116.

Knack, Stephen, and Philip Keefer. 1995. "Institutions and Economic Performance: Cross-country Tests Using Alternative Institutional Measures." *Economics and Politics* 7, no. 3: 207–227.

Mankiw, N. G., D. Romer, and D. N. Weil. 1992. "A Contribution to the Empirics of Economic Growth." *Quarterly Journal of Economics* 107: 407–437.