INTRODUCTION

The Enlightened Economist

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Few economic historians have generated new knowledge of such breadth, depth, and volume as Joel Mokyr—and he continues to do so. His contributions to economic history range far and wide, from industrialization itself (with the technological advances and institutional changes that underpin it) to its demographic consequences and the networks of natural philosophers and tinkerers who facilitated the creation of useful knowledge that undergird these processes. Joel has developed new ideas and new techniques for analyzing and interpreting historical data and has delved into areas formerly thought beyond the scope of economic history per se. His writings on innovation and the Industrial Revolution, particularly his magisterial books *The Lever of Riches* and *The Enlightened Economy*, have become touchstones for all those interested in understanding the critical issues surrounding the rise of Britain as the first industrial economy and understanding how technology came to play such an overwhelming role in the modern world.

Now that economists and other social scientists are coming to appreciate the importance of history as a laboratory for testing ideas about economic development and growth, it is worth paying tribute to a scholar who has been extraordinarily successful in keeping economic thinking about modern growth in the mainstream of economics and history. At a time when many lament the current era as one of stagnation and stasis, it has become all the more pressing to look back and see which factors have played a large role in promoting or suppressing growth and innovation.

The chapters in this volume reflect the breadth and depth of Joel's insights and influence in the original research that his work has inspired. In 2011 we organized a conference to celebrate Joel's sixty-fifth birthday and invited both Joel's current and former graduate students and his collaborators to participate. With two exceptions, the chapters collected here were presented at that conference and generated lively conversation and debate.

One exception is the chapter by Cormac Ó Gráda, who unfortunately could not attend the conference. His chapter highlights the rich demographic research on which he and Joel have collaborated to generate a deeper understanding of the health effects of industrialization. The other exception is the work by Joel himself; he has contributed an original work on the cultural underpinnings of technological progress and the intellectual and communication networks for the creation and transmission of useful knowledge in the seventeenth and eighteenth centuries.

The other chapters in the volume do not merely reflect the many topics and issues on which Joel has worked; they reflect the many ways Joel's influence has extended well beyond his scholarship. He has mentored numerous students and trained many young scholars. The bulk of the contributions in this volume are by those (such as the three editors of this volume) who had the privilege and pleasure of having Joel supervise their doctoral dissertations. Joel Mokyr is in many ways an ideal advisor—engaging and demanding, yet never seeking to impose a particular vision on his students' work. He encourages them to develop and follow through on their own ideas while providing constructive criticism or serving as a helpful sounding board for the concerns and struggles they face as they venture into scholarly research. For many years, Joel and his colleagues at Northwestern have been some of the most productive, if not the most productive, sources of full-time economic historians in the world—and Northwestern is still going strong.

A single volume can accommodate works by only some, but by no means all, of Joel's students, and the contributions are organized around three core themes associated with Joel's work: institutions, innovation, and industrialization.

INSTITUTIONS

Part I examines the institutional foundations of well-being and their historical evolution. The chapter by Avner Greif, "Coercion and Exchange: How Did Markets Evolve?" is motivated by the observation that the modern market economy, characterized by impersonal exchange, first emerged in the West. The chapter presents a theory of market development and evaluates it based on the histories of England, China, and Japan. The analysis focuses on how distinct *coercion-constraining institutions* that secure property rights differentially interact with *contract-enforcing institutions*. Although different combinations of such institutions can support markets, only some coercion-constraining and contract-enforcing institutions (ones that enforce impersonal exchange) can be at equilibrium. In particular, the analysis highlights the relations between the internal organization of the state and legal development, and the logic behind the observation that impersonal exchange and political representation historically co-emerged.

Gergely Baics, in the chapter on "Meat Consumption in Nineteenth-Century New York: Quantity, Distribution, and Quality, or Notes on the 'Antebellum Puzzle,'" examines the regulatory function of the state and the welfare implications of the resulting combination of product offerings, their quality and quantity. The setting is the observation that welfare, as measured by the biological standard of living, deteriorated in the antebellum United States, despite rapid economic growth and increasing per capita income. The chapter substantiates that, as far as meat consumption in New York City is concerned, the decline in welfare was due to three factors: a smaller quantity of meat consumed, a lower quality of meat consumed, and increasingly unequal access to meat products due to rising social disparities. The ultimate cause of these changes is the shift in food chains from regional to national sources, and the gradual informalization and, eventually, deregulation of retail meat markets; by 1834 the city had lost control over the quality of meat, thereby hurting the poor in particular.

Mauricio Drelichman and Hans-Joachim Voth go beyond markets and states and focus on empire building. In the chapter on "Funding Empire: Risk, Diversification, and the Underwriting of Early Modern Sovereign Loans," they consider the financial underpinning of the empire of Philip II of Spain. Specifically, the issue is not who loaned to the emperor, but the sources of the funds of the Genoese banking families who gave the loans to the emperor and the risk they assumed. In particular, they examine two account books from Genoese merchant families preserved in the Doria Archive in Genoa and focused on loans related to Philip's fourth bankruptcy in 1596. The analysis establishes that the Genoese system for financing and arranging short-term loans effectively spread the risk from lending to capricious monarchs. Complete ruin due to a sovereign debt crisis was unlikely as a result of diversification of risk at the level of the final investors.

Noel D. Johnson, Mark Koyama, and John V. C. Nye examine the relations between beliefs in the supernatural and legal order. Their chapter, "Establishing a New Order: The Growth of the State and the Decline of Witch Trials in France," innovatively uses data on witch trials and taxation in twenty-one French regions between 1550 and 1700 to substantiate that the growth of the French state in the seventeenth century led to a more regular, even liberal legal order. Regions where higher taxes were collected were less likely to see witch trials. Thus, fiscal consolidation promoted a more rational law and legal standardization that extended the rule of law.

INNOVATION

Part II focuses on innovation and the different ways that innovation contributes to economic growth. Innovation can take the form of organizational innovation, one of the hallmark features of the merger wave in British banking in the late nineteenth and early twentieth centuries. Fabio Braggion, Narly R. D. Dwarkasing, and Lyndon Moore analyze the mergers and acquisitions that took place, and how the structure of the banking industry changed over a forty-year period. Their creation and analysis of a new set of data suggest that the merger wave did not result in as much concentration as previously thought, with banking remaining more regional and less national even after consolidation. Nationally, banking became more networked, while concentration was unchanged at the county level because these networks expanded into new counties through this merger process.

Peter B. Meyer uses Joel's concept of macroinventions to explore the invention of the airplane. While he argues that we have no theory of where macroinventions come from, he finds that the sharing of information and experiments across a broad international group of experimenters characterized the process. This sharing of useful knowledge as it is generated resonates with the innovation processes Joel identified in the seventeenth and eighteenth centuries.

Innovation can also take the form of technological change, as Karine van der Beek explores in her chapter on the complementarity between new machine tool technologies and skilled labor during industrialization in Britain. She analyzes data on apprentice contracts (1710–70) to examine how workers responded to the increased demand for skilled labor during the early decades of industrialization. She finds that workers increased their skills, and that skilled machine tool labor and technological change were more complements than substitutes in this period.

Finally, innovation is an important consideration methodologically within economic history as well as historically. Rick Szostak explores some ways that economic history could grow as a research field by exploiting its openness to heterogeneous methods of analysis. He argues that the main purpose of economic history is understanding the causes and consequences of economic growth and that economic historians should engage more deliberately in comparative history that enables the drawing of generalized lessons regarding economic growth.

INDUSTRIALIZATION

Part III brings together research that deals with issues relating to the (first) Industrial Revolution of the eighteenth century or to economic and social changes in the period of late industrialization at the end of the nineteenth century. Hoyt Bleakley, Louis Cain, and Joseph Ferrie examine and compare the fates of the two groups that supplied the bulk of the unskilled labor force that powered American development in the late nineteenth century—blacks and the Irish—by studying the fates of Civil War veterans. Native-born Irish fared about as well as non-Irish whites, while the immigrants tended to lag behind. For blacks, the more startling contrast is between those born in slave states, who performed especially poorly, versus a substantial fraction of blacks born in free states, nearly half of whom did quite well and enjoyed survival rates comparable to those of non-Irish whites.

Ralf R. Meisenzahl's piece is a contribution to the long-standing debate on Britain's supposed decline in the second half of the nineteenth century. His thesis is that the technological leadership that derived from Britain's skilled craftsmen and engineers was lost in this later period as Germany caught up and surpassed the British in terms of technical competence, mostly due to its superior systems of apprenticeship and technical training.

Carolyn Tuttle and Simone A. Wegge deal with the important question of child labor and its regulation in the nineteenth century by comparing the experiences of Belgium and Germany with those of Britain. In this comparison, the early adoption of child labor laws does not seem to have made much of a difference between those countries (such as Britain and Germany) that sought to restrain and regulate child labor versus those, such as Belgium, that thought of children's employment as a societal necessity. Changes in the law seemed to move in tandem with or even lag the general decline in child labor throughout Europe.

Joyce Burnette, using data from the Pepperell Manufacturing Company of Maine, returns to the problem of the occupational wage gap between males and females during industrialization and seeks to distinguish between differences caused by differential pay in the same or similar jobs versus differences in average wages because of differential sorting of males and females into very different occupations. In general, within-occupation differences declined substantially over the late nineteenth century and sorting between occupations tended to explain the persistence of average pay gaps.

Finally, Eric Jones concludes the section with a grand overview of the causes of the Industrial Revolution—in particular, whether that transformation was long delayed and what role changing institutions played in first hindering and then aiding in industrialization. Jones concludes in a guardedly optimistic fashion that although eighteenth-century British laws and property rights were not ideal and were often opposed to the demands of a transforming economy, there was enough flexibility in the legal system and enough adaptation to the demands of a changing market that changes in rights became possible within the existing framework. They were especially notable in permitting necessary improvements in transport and transport networks.

One thread common to all contributions to this volume, and among the participants in the conference, is deep and profound appreciation and respect for the influence Joel Mokyr has had on each one of us in our work and play, on the body of economic history knowledge, and on the practice of economic history. His energetic, enthusiastic, and original mind has contributed to economic history, and his unalloyed enthusiasm and passion for ideas and learning infect all of us who have contributed to this book.