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CHAPTER FIFTEEN

Wrapping Up

In the early 1950s, when Robert Gallman was a graduate student training under Simon Kuznets at the University of Pennsylvania, capital accumulation was at the center of economists' understanding of the process of economic growth. The countries with high and rising incomes were those that were wealthy and that saved a larger share of their income. Some economists during this period, most notably Walt Rostow (1960), held that a substantial increase in a country's saving rate was a necessary precondition for its "takeoff" into modern economic growth. Neither Gallman nor Kuznets subscribed to this view.

But Gallman would not accept today's orthodoxy either. New Growth theorists Charles Jones and Paul Romer (2010, 226) write: "Ideas, institutions, population, and human capital are now at the center of growth theory. Physical capital has been pushed to the periphery." The view that the accumulation of physical capital is not important for long-run growth is based on several lines of thinking. Most macro-growth economists focus on balanced growth paths that fit Nicholas Kaldor's (1961) so-called stylized facts. In addition, growth theories, such as Solow's neoclassical model, yield predictions where changes in the saving rate affect the short-run dynamics but not the economy's long-run growth rate. Under the assumptions of decreasing returns to capital in production and of capital consumption (depreciation) proportional to the capital stock, a Solow economy with capital accumulation but no technical change settles down to zero-growth equilibrium.

Anecdotal evidence is put into play. Advanced market-based economies (such as Germany and Japan) can see their capital stocks devastated

Rhode wrote this chapter.

during war, and then experience growth miracles in the aftermath. Less advanced economies can receive capital inflows as result of foreign aid but enjoy no lasting beneficial effects for development. And planned economies (such as the Soviet Union) can massively shift resources from consumption to investment without creating the conditions for long-run growth.[1]

Growth accounting exercises, which were popularized by Moses Abramovitz (1956), Robert Solow (1957), John Kendrick (1961), and Edward Denison (1962), also deemphasized the role of capital accumulation relative to technological change. In the horserace between invention and thrift, invention wins. But as Abramovitz (1989) noted, while the residual in growth accounting exercises may be labeled as "total factor productivity" or TFP, it is more properly called a "measure of our ignorance." Abramovitz thought it meant we did not sufficiently understand the nature of the investment process.[2]

Gallman's career was devoted in large part to enhancing our understanding of that process. He sought to document the growth of the American capital stock, to relate these stocks to investment flows using the national product accounts, and (in work with Lance Davis) to determine how these investment flows were financed. Gallman's research showed that the rate of capital formation soared and the capital-to-output ratio doubled over the "long" nineteenth century. The capital-to-output ratio increased across a broad spectrum of economic activities, and real interest rates declined; these changes were signs that an increasing saving rate, rather than technologically induced shifts in investment demand, was the important driver. Gallman also found that the price of capital generally fell relative to other goods, and that capital consumption also rose as a share of gross product (see also Kuznets 1961).

In Gallman's view, capital accumulation clearly mattered for nineteenth-century America. It mattered for the creation of vast acreages of farm land as part of the process of territorial expansion, for the development of its sprawling transportation infrastructure and burgeoning cities, for the adoption of new technologies embodied in physical capital, and for the catching-up growth to attain the economy's potential, following the losses from the greatest war fought on American soil. The growth process slowed down, at least temporarily, when crises damaged the financial system's capacity to facilitate investment (most notably in the 1890s, 1930s, and in recent years). Growth accelerated in the postbellum period when market developments and policy changes enhanced the ability of financial

intermediaries to better connect savers who had a surplus to lend, and investors with profit opportunities to justify borrowing. Over the long nineteenth century, as Gallman often noted, America's capital stock grew enormously—faster than output, faster than its population, faster than its labor force, and faster than its land base. As his application of growth accounting exercises for the nineteenth century indicates, capital formation was a strong driver of the accelerated growth over the period from 1840 to 1900. He was, of course, aware that historical periods differed.

To understand capital formation and its relationship to economic growth, Gallman needed better measures of both income and capital. He needed to build national product accounts and capital stock series. These data are essential for understanding not only when economic growth occurred, but also how and why. This volume caps the lifetime of effort that Gallman dedicated to constructing a consistent and detailed record of American economic growth over the long nineteenth century.