CHAPTER V

# THE WORLD ECONOMY IN THE TWENTIETH CENTURY: STRIKING DEVELOPMENTS AND POLICY LESSONS

The transformation of the world economy in the course of the twentieth century would have been impossible for even the most acute observer living in 1900 to forecast or perhaps even to imagine. Output per capita, the structure of production, and the domestic and international financial systems that sustained the growth of economic activity over this period have been altered almost beyond recognition. This chapter provides an overview of some of these changes, the connections between them, and the major policy implications. Any account of these profound changes is, by necessity, selective. The discussion focuses on three broad interrelated areas.

First, technological change has driven an enormous increase in the production of goods and services, sufficient to support both vastly higher living standards and vastly larger populations than ever before in history. The increase in productivity has been accompanied by greatly increased specialization in production, leading to the rising importance of markets that have facilitated the exchange of goods and the diffusion of technology, both within and between national economies. By greatly reducing transportation costs, technical progress has contributed to the geographical expansion of markets. The fruits of economic growth have been distributed unevenly among countries, but the extent to which this is true depends on the indicators chosen. Inequality between the world's rich and poor regions, measured by output per capita, has increased dramatically over time. However, alternative measures of development—de-emphasizing output per capita beyond a certain threshold but including non-pecuniary aspects, such as life expectancy and levels of education—actually show some convergence in the course of the twentieth century, although large differences between nations remain for these measures as well. The first part of this chapter documents these developments and divergencies.

Second, the nature of the international monetary system has changed significantly and repeatedly in the course of the twentieth century. The second part of the chapter traces these developments, describing how the international financial system has interacted with trends and developments in the real economy, and particularly how it has affected international trade and capital movements. This includes a discussion of the forces underlying changes in institutions and policies, and how these, in turn, have influenced countries' ability to capitalize on the opportunities afforded by globalization.

Third, the role of the public sector has expanded significantly in the course of the twentieth century, both in industrial and developing countries. This is clearly reflected in the increase in the ratio of public expenditures and revenues to GDP, but regulation and various off-balance activities have also increased. At the same time, views on the appropriate role of government versus the reliance on market forces have changed considerably and are continuing to evolve. After reviewing the changing role of the public sector, the third part of the chapter summarizes some of the major lessons for public policy to be learned from twentieth century experience. The final section points to three major global policy challenges facing the international community at the beginning of the twenty-first century.

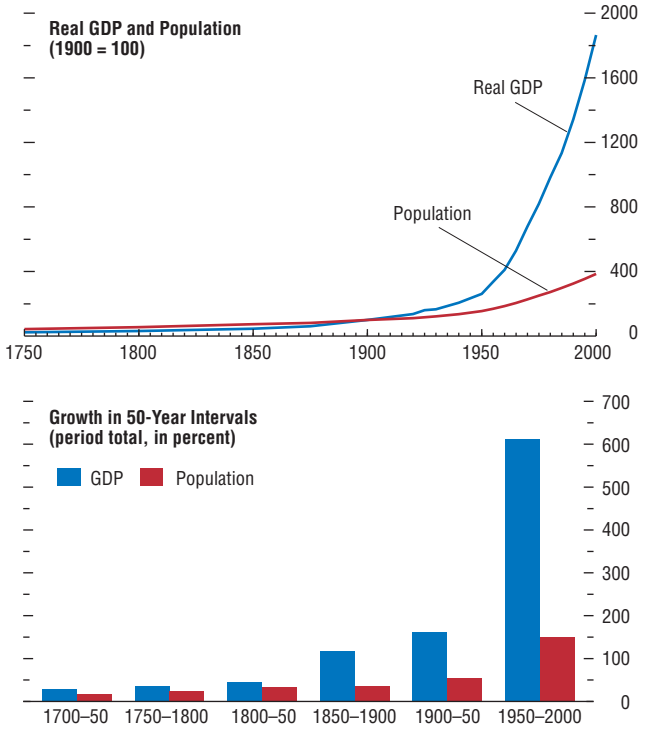
The issues discussed in this chapter, and the lessons highlighted, are not necessarily those that other analysts or observers would emphasize. These topics reflect the developments that the authors of the *World Economic Outlook*, seen from their particular vantage point, regard as particularly striking. One important issue that will be addressed only in passing is the development of demand management policies. Although this is clearly a major change—the

very concepts of macroeconomics and (cyclical) stabilization policy are essentially twentieth-century creations—this topic has been dealt with extensively in earlier *World Economic Outlooks*.

This chapter incorporates some of the many insights contained in two supporting studies commissioned for the *World Economic Outlook*.[1] "Globalization and Growth in the Twentieth Century" (IMF Working Paper 00/44), by Professor Nicholas Crafts of the London School of Economics, discusses real developments during the twentieth century and was particularly important for the discussion of growth and divergence. "The International Monetary System in the (Very) Long Run" (IMF Working Paper 00/43), by Professors Barry Eichengreen and Nathan Sussman of the University of California Berkeley and Hebrew University Jerusalem, respectively, provides an overview of the international monetary system over the last thousand years, and was particularly important for the discussion of the changing nature of international monetary relations in the twentieth century.

**Figure 5.1. World GDP and Population Since 1750**

During the twentieth century both output and population growth increased. However, as a result of accelerating technical progress, output growth increasingly exceeded population growth.




Source: Bradford J. DeLong, "Estimating World GDP, One Million B.C.–Present." Available via the internet at: http://econ161.berkeley.edu.

## Global Economic Growth and Income Distribution

The two most striking characteristics of twentieth-century economic growth are its staggering size and acceleration when compared with developments in previous centuries, and its uneven distribution among different countries and regions of the world.

### Growth of Output and Population

Using conventional GDP estimates over a long historical period, the total amount of goods and services produced in the twentieth century is estimated to have exceeded the cumulative total output over the preceding recorded human his-

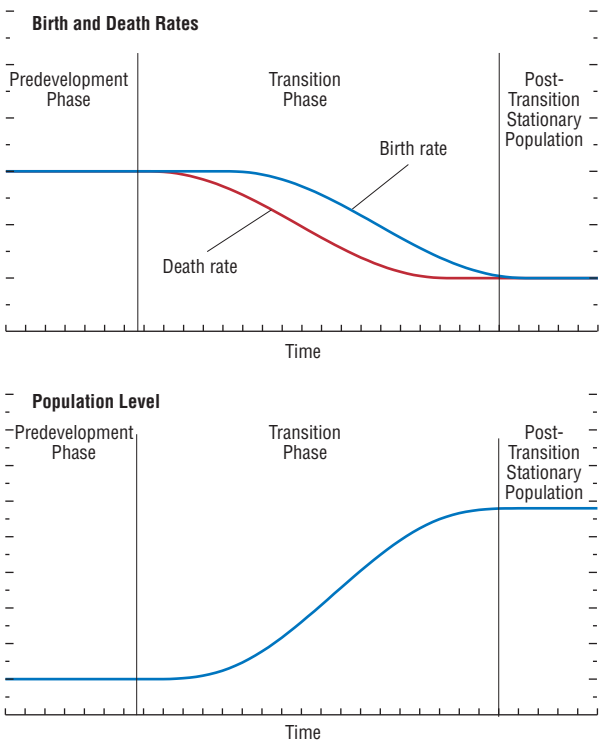
[1]In addition to being issued as IMF Working Papers, both studies are being published in *World Economic Outlook: Supporting Studies 2000* (Washington: IMF, forthcoming).

tory (Figure 5.1, upper panel).[2] Between the years 1900 and 2000 world GDP at constant prices has increased about 19-fold, corresponding to an average annual rate of growth of 3 percent.[3] Population growth also increased significantly in the twentieth century, catapulting the world population from 1.6 billion inhabitants at the beginning to over 6.3 billion persons at the end of the century. This near quadrupling of world population over the 100 years since 1900—following a more than doubling between the start of the industrial revolution around 1750 and 1900—implies an average annual rate of increase of 1.4 percent, an order of magnitude higher than the estimated average annual increase of 0.1 percent over the thousand-year period preceding the industrial revolution. The acceleration of output and population growth in the twentieth century has frequently caused serious concerns about its sustainability in the light of finite global resources, an issue we will return to below.

The rise in population growth, which peaked in the second half of the twentieth century, was not the result of increasing birth or fertility rates, but rather due to the decline in mortality, especially infant mortality (Figure 5.2). A significant rise in average life expectancy at all ages also contributed. Both of these developments were largely a consequence of rapid progress in the medical sciences and improvements in nutrition and basic hygiene, such as the provision of safe drinking water and sewage systems. Toward the end of the century fertility rates, which, together with life expectancy, determine population levels and growth in the long run, were falling rapidly in the large majority of countries. In virtually all countries in western Europe as well as the United

**Figure 5.2. Stylized Population Dynamics**

As the economy develops, the fall in death rates precedes the fall in birth rates, leading to rapid population growth in the transition.




[2]Bradford DeLong, "Estimating World GDP, One Million B.C.—Present," available via the Internet at *http://econ161.berkeley.edu*. Cumulative output is measured by the area under the output curve in Figure 5.1, upper panel.

[3]Imputing output gains on account of new products and quality improvements has been estimated to add some 0.7 percentage points to the annual growth rate, implying a 38-fold increase in aggregate output over the century. See Bradford DeLong, "Estimating World GDP."

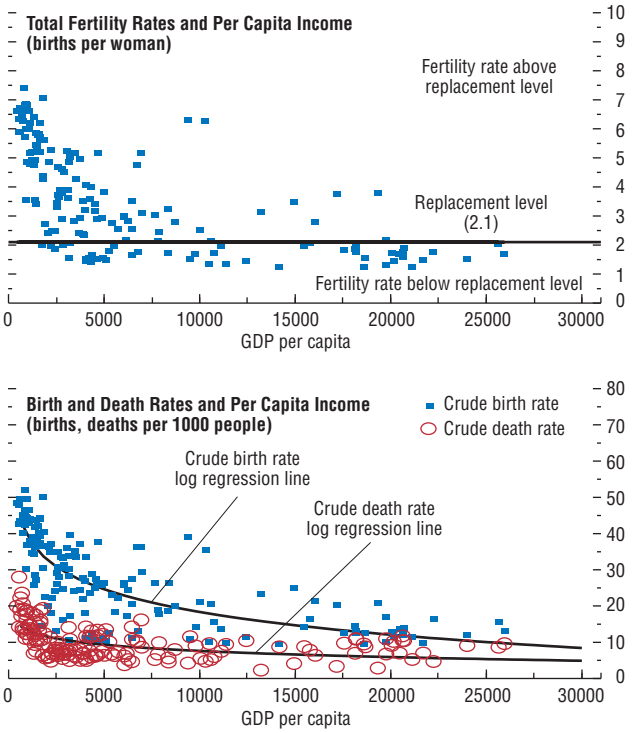
States and Japan the fertility rate had declined well below the replacement level ( i.e., the rate required to prevent population from declining in the long run). Today, the fertility rate exceeds the replacement rate in only three of the 23 richest countries in the world (Figure 5.3).[4]

Part of the observed growth of world output is a result of the increase in the number of workers entailed by population growth. However, as the preceding figures demonstrate, total output growth greatly exceeded population growth, leading to an almost fivefold increase in GDP per capita during the twentieth century (Figure 5.1, upper panel).[5] Indeed, the record is even more impressive when the fall in average hours worked is also taken into account.[6] On the other hand, part of the measured output growth surely represents the transformation of previous home production into market production.

The enormous increase in per capita output points to the pivotal role that technical progress has played in twentieth-century growth. Twentieth-century technology built, and greatly expanded, on the significant foundations laid since the beginning of the industrial revolution in 1750, and many nineteenth-century inventions reached widespread use and commercialization only in the twentieth century.[7] This is

**Figure 5.3. Factors Underlying Population Growth[1]**
*(GDP per capita in 1995 purchasing-power-parity international dollars)*

Fertility, birth, and death rates tend to fall with rising income levels. In many countries fertility rates are now below replacement rates.




Source: World Bank, *World Development Indicators.*
[1]Fertility, birth, death rates, and GDP per capita are averages for the period 1990 to 1997.

[4]The fertility rate is defined as the number of children each woman has on average during her lifetime. The "replacement rate," which stabilizes the level of population in the long run (if life expectancy remains constant, and abstracting from migration), is 2.1.

[5]From a historical perspective the experience of output growth permanently outstripping population growth is remarkable. This phenomenon has been increasingly pronounced and significant since the start of the industrial revolution in eighteenth-century England. The result is that for the last 250 years the world economy has escaped the "Malthusian poverty trap" in which rising population catches up with rising output, keeping per capita incomes at subsistence level.

[6]Since 1870, hours worked per capita have almost halved in western Europe and fallen by 40 percent in Japan and by 15 percent in the United States.

[7]The reasons for the lags between technological breakthroughs and their impact on measured productivity and GDP are explored in Paul A. David, "Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox," *American Economic Review*, Vol. 80 (May 1990), pp. 355–61.

true for the automobile, electric power applications of all sorts, reinforced concrete, radio broadcasting, and cinematography, all of which contributed significantly to economic growth in the first half of the century. But the twentieth century also added entirely new areas of research and development—particularly in chemistry, aeronautics, synthetic materials, nuclear energy, electronics (including computers and television) and biochemistry. As a result, the pace of technological development accelerated to unprecedented speed, generating a significant increase in measured productivity growth. Technical progress has been manifest in the form of both new and more efficient production processes, as well as the development of entirely new products and services.

The cause of such an acceleration in technical progress remains largely a mystery. This is particularly true for the major inventions (such as the steam engine, the internal combustion engine, etc.), in contrast to incremental innovations that raise the efficiency of existing technologies at the margin. However, both types are important for the steady increase in measured total factor productivity.[8] Despite intensive research, there is as yet no commonly accepted theory of what causes a major technological breakthrough (or "macro-invention"). Nevertheless, institutions that make it easier for innovators to appropriate the quasi-rents from inventions (whether big or small), like property rights (including patent rights), as well as large and well-functioning markets, which increase the potential gain from a given invention, clearly tend to favor innovative activity.[9] The level of education and the communication infrastructure also seem to play a role, both for new inventions as well as for the ability to adopt technologies already used elsewhere (technology diffusion). As economies become more advanced, they typically attempt to institutionalize the process of innovation by establishing research facilities (both in the public and private sectors) and raising R&D expenditure. Although this seems indeed to increase the number of micro-inventions, its effects on producing "macro-inventions" remain uncertain.[10]

Historically, the advance in total factor productivity—the conventional measure of technical progress—has coincided with an increasing division of labor and specialization in production. This, in turn, has led to an increasing importance of markets, facilitating the exchange of goods and services among specialized production units. Conversely, technical progress in communications and transportation, and the resulting reduction in transaction costs, encouraged the division of labor and the expansion of markets. By facilitating the exchange of goods that embody technical progress, markets also play an important role in technology diffusion from leading economies to those trying to catch up.

Expanding international trade is a specific manifestation of this general phenomenon of increasing division of labor and specialization in production, singled out because of the existence of national borders. It is the underlying division of labor, spread over increasingly wider territory thanks to technical progress in transportation and communications, that is the handmaiden of economic growth. Rising international trade indicates that national territories have become small relative to the regional spread of efficient specialization. However, since national borders can be (mis)used to erect formidable barriers to such optimal division of labor, a nation's trade policies can severely curtail its growth potential.

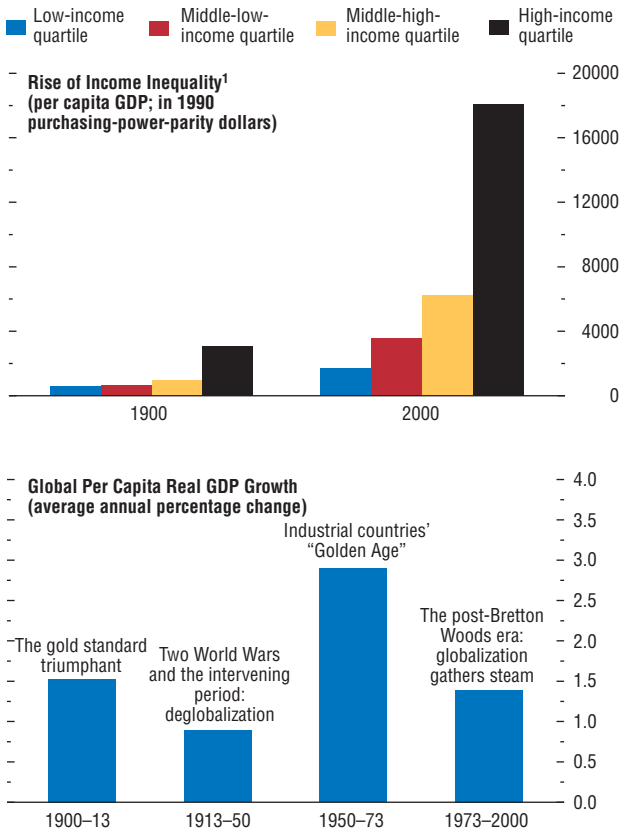
[8]Criticizing the distinction between "inventions" and "innovations" introduced by Schumpeter, Mokyr labels the major inventions "macro-inventions" and the incremental innovations "micro-inventions," in analogy to the concepts of macro- and micro-mutations in evolutionary biology. See Joel Mokyr, *Twenty-Five Centuries of Technological Change—A Historical Survey* (Chur: Harwood Academic Publishers, 1990).

[9]Charles I. Jones, "Was the Industrial Revolution Inevitable?—Economic Growth over the Very Long Run," NBER Working Paper No. 7375 (Cambridge, Massachusetts: National Bureau of Economic Research, 1999).

[10]See the discussion of empirical results of cross-section analysis of factors determining output growth in Robert J. Barro and Xavier Sala-i-Martin, *Economic Growth* (Cambridge, Massachusetts: MIT Press, 1999).

### Figure 5.4. Differential Income Growth

In the twentieth century, per capita income has risen faster in the rich than in the poor countries and at different speeds in different subperiods.




Sources: Angus Maddison, *Monitoring the World Economy 1820–1992* (Paris: Organization for Economic Cooperation and Development, 1995); and IMF staff estimates.

[1]Countries' populations have been assigned to income quartiles according to GDP per capita in each country; each quartile contains 25 percent of world population.

Similar considerations apply to the international flow of capital, which as a manifestation of the rapid growth (both national and international) of financial markets, is itself greatly facilitated by technical progress in information and communications technology. Modern financial markets promote the mutually beneficial exchange between net savers and users of capital for productive purposes over increasing numbers of economic agents and ever larger territories, thus contributing to the optimal use of capital and the maximization of world output. In addition to the international transfer of capital, international financial markets also facilitate the transfer of technology in the form of foreign direct investment and provide various insurance functions. These themes will be explored further in the following sections of this chapter.

The rising specialization in production, while raising productive efficiency, has also increased the economic interdependence (mutual dependence) of individuals, firms, and national economies. This implies, on the one hand, that economic activity in one area will be indirectly affected by shocks and disturbances originating elsewhere in the economy—a process known as "contagion" when occurring in response to a negative shock elsewhere. On the other hand, this interdependence offers the opportunity for individuals, firms, and nations to reduce hardship in cases of real shocks affecting them directly, by temporarily relying on resources from less affected producers.

## Income Differentiation Over Space and Time[11]

Aggregate figures for global output and population conceal remarkable differences across individual economies, as well as uneven growth rates during major defining sub-periods of the

[11]The following analysis is based on output and population data up to 1992 presented in Angus Maddison, *Monitoring the World Economy 1820–1992* (Paris: Organization for Economic Cooperation and Development, 1995). Data after 1992 have been computed by applying growth rates of real per capita GDP from IMF staff estimates to the 1990 Maddison data.

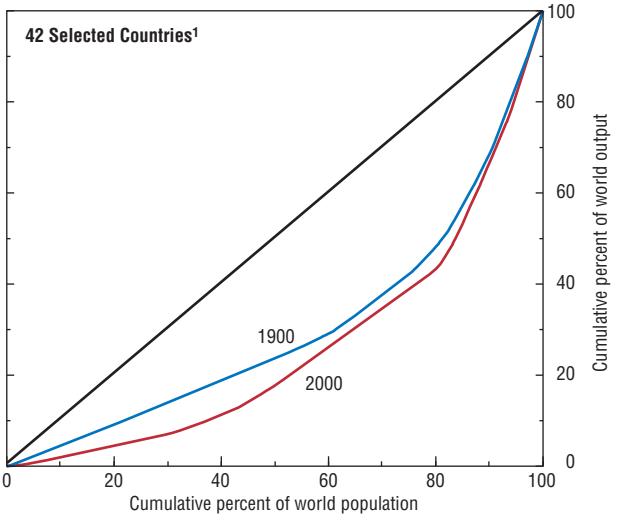
twentieth century. Figure 5.4 summarizes the differential regional income growth, grouping countries' populations into income quartiles according to countries' GDP per capita (upper panel), and the differences of aggregate world GDP growth rates over time (lower panel). Although the richest quarter of the world population has seen its per capita GDP increase close to sixfold over the century, per capita income for the poorest quarter of the world population has increased less than threefold, although—from a long-term historical perspective—this is still a notable acceleration of income growth.

The rise in world income inequality was exacerbated by a change in the geographic pattern of output and population growth. At the start of the industrial revolution and up to 1913, population growth was strongest in countries with the most rapid output growth. In contrast, the tendency in the twentieth century was increasingly for population growth to be concentrated in the poorer countries. In the dynamic industrial (high-income) countries, population growth slowed dramatically starting in the mid-1960s, and the fertility rate in any of these countries is now well below the replacement level. In contrast, in many of the poorest countries, particularly in sub-Saharan Africa, output growth has barely kept pace with population growth, causing stagnating or even falling per capita incomes. This is one reason why income discrepancies are larger at the close than at the beginning of the twentieth century. Increasing global inequality is illustrated by the change in the world "Lorenz Curve" between the years 1900 and 2000 (based upon average income per capita in 42 countries) depicted in Figure 5.5. The Gini coefficient—a measure of inequality, ranging from 0 (perfect equality) to 1 (complete inequality)—has risen from 0.40 to 0.48 between these two benchmark years.

A closer inspection of trends in estimated GDP per capita reveals a number of interesting additional facts about the nature of income divergence in the twentieth century. The levels of real GDP per person toward the end of the century in many poor countries were still well below

**Figure 5.5. World Lorenz Curve, 1900 and 2000**

World income inequality has increased in the twentieth century, mainly due to a large decline in the relative per capita income in poor countries.




Sources: Angus Maddison, *Monitoring the World Economy 1820–1992* (Paris: Organization for Economic Cooperation and Development, 1995); and IMF staff estimates.

[1]The Maddison data set used comprises 42 countries, covering 78.2 and 89.1 percent of world population and GDP in 1990, respectively. The Lorenz curve is constructed by ordering countries' populations and total output in ascending order of countries' GDP per capita.

those already attained by the leading countries (in terms of output per capita) in 1900. Thus, the 2000 average of $1,290 for Africa is well below the 1900 averages of $3,092 and $4,022 for the countries of western Europe and the areas of recent European settlement (Australia, Canada, New Zealand, and the United States), respectively. The level of real GDP per person of $500 in Africa in 1900 was about one-ninth of that of the leading country at the time. In 2000, however, the African level was only about one-twentieth of the leading country. The gap between rich and poor measured in these terms has widened enormously or, as one author recently put it, the central feature of twentieth-century growth as measured by GDP per capita is "divergence, big time."[12]

The position of countries in terms of relative per capita output has remained remarkably stable at the upper and lower tails of the distribution, with a few notable exceptions. The 42 economies in the data set can be classified into four income groups (low, center-low, center-high, and high), each comprising one-fourth of the aggregate sample population, for both the beginning and the end of the twentieth century (Table 5.1). The bottom right corner of the resulting "transition matrix" shows a high persistence among the rich countries: only Russia, which in 1900 straddled the border line between the two higher-income quartiles, fell back to the second ("center-low") quartile. All other initial members remained in the top quartile throughout the century. High persistence can also be seen in the lowest quartile, as shown by the countries in the upper left corner of the matrix. Filling the entire second lowest quartile and straddling both the quartile's upper and lower border in 1900, China has moved to straddle the border between the two high-income quartiles in 2000—the most notable move in the entire matrix. Indeed, most changes occurred in the two middle quartiles: with China moving up from the center-low quartile to largely occupy the center-high quartile, the countries located in this latter quartile in 1900 moved either up (three Asian countries and Venezuela) or down (most Latin American countries and some Asian countries).

Concerning the variation in income growth over time, the lower panel in Figure 5.4 shows considerable variation over four subperiods of the twentieth century, which coincide with distinctly different international monetary regimes. The pre-World War I period corresponds to the mature gold standard, with relatively free (and rapidly rising) trade and capital movements. Average annual growth in output per capita exceeded 1.5 percent during this period, a significant acceleration compared with the preceding century.[13] World output growth per capita almost halved in the subsequent period (1913 to 1950), marked by two devastating world wars and a crippling world recession in the inter-war period. Attempts to restore the pre-World War I gold standard during this period ultimately failed under the strains of a deepening world depression, entailing a severe contraction in world trade and capital movements (Figure 5.6). The post-World War II period to 1973 was characterized by exceptionally rapid output per capita growth (2.9 percent on average) and the recovery of world trade under the Bretton Woods system of fixed exchange rates and widespread capital controls. The period following the collapse of the Bretton Woods system (1973–2000) saw a slowdown in income growth, which nevertheless remained high when judged from a long-term historical perspective (and similar to the 1870–1913 classical gold standard period). Exchange rates among major currencies fluctuated, and as capital controls were increasingly dismantled, capital flows increased spectacularly (Figure 5.7).

[12]The term was coined in a paper by L. Pritchett, "Divergence, Big Time," *Journal of Economic Perspectives*, Vol. 11 (Summer 1997), pp. 3–17.

[13]Average global per capita output growth was 0.8 and 1.2 percent over the periods from 1820 and 1870 to the year 1900, respectively; see Maddison, *Monitoring the World Economy*.

## Table 5.1. Changes in Nations' Relative Income Position: 1900–2000[1]

| 1900 GDP Per Capita Group | | 2000 GDP Per Capita Group: Lowest Quartile | Center Low Quartile | Center High Quartile | Highest Quartile |
|---|---|---|---|---|---|
| **Lowest Quartile** | Ghana ($462)<br>Egypt ($509)<br>Bangladesh ($581)<br>India ($625)<br>China[2] ($652) | Ghana ($1,111)<br>Bangladesh ($932)<br>India[3] ($1,880) | Egypt ($2,279) | | |
| **Center Low Quartile** | China[2] ($652) | | | China[2] ($6,283) | |
| **Center High Quartile** | China[2] ($652)<br>Myanmar ($667)<br>Pakistan ($687)<br>Brazil ($704)<br>Indonesia ($745)<br>Taiwan Province of China ($759)<br>Thailand ($812)<br>Peru ($817)<br>Venezuela ($821)<br>South Korea ($850)<br>Columbia ($973)<br>Philippines ($1,033)<br>Japan ($1,135)<br>Mexico ($1,157)<br>former USSR[4] ($1,218) | Myanmar ($1,079)<br>Pakistan ($1,773) | Brazil ($5,355)<br>Indonesia ($3,136)<br>Thailand ($5,720)<br>Peru ($3,797)<br>Columbia ($5,514)<br>Philippines ($2,442)<br>Mexico[5] ($5,721)<br>former USSR ($3,686) | | Taiwan Province of China ($16,854)<br>Venezuela ($7,643)<br>South Korea ($14,293)<br>Japan ($20,616) |
| **Highest Quartile** | former USSR[4] ($1,218)<br>Portugal ($1,408)<br>Finland ($1,621)<br>Hungary ($1,682)<br>Italy ($1,717)<br>Czechoslovakia[6] ($1,729)<br>Norway ($1,762)<br>Chile ($1,950)<br>Spain ($2,040)<br>Ireland ($2,495)<br>Sweden ($2,561)<br>Argentina ($2,756)<br>Canada ($2,758)<br>France ($2,849)<br>Austria ($2,901)<br>Denmark ($2,902)<br>Germany ($3,134)<br>Switzerland ($3,531)<br>Netherlands ($3,533)<br>Belgium ($3,652)<br>United States ($4,096)<br>Australia ($4,299)<br>New Zealand ($4,320)<br>United Kingdom ($4,593) | | | | Portugal ($14,565)<br>Finland ($19,655)<br>Hungary ($7,053)<br>Italy ($18,416)<br>Czechoslovakia[6] ($8,398)<br>Norway ($22,297)<br>Chile ($10,275)<br>Spain ($15,266)<br>Ireland ($19,511)<br>Sweden ($19,968)<br>Argentina ($9,122)<br>Canada ($22,401)<br>France ($20,377)<br>Austria ($19,716)<br>Denmark ($22,057)<br>Germany ($19,119)<br>Switzerland ($21,601)<br>Netherlands ($20,546)<br>Belgium ($19,958)<br>United States ($27,272)<br>Australia ($20,609)<br>New Zealand ($16,072)<br>United Kingdom ($19,704) |

Source: Maddison, *Monitoring the World Economy* 1820–1992 (Paris: Organization for Economic Cooperation and Development, 1995); and IMF staff estimates.

[1]To partition the population of the 42 sample countries into income quartiles, the populations of China, India, Russia, and Mexico were split and partially allocated to different income quartiles; see specific footnotes 2 to 5. GDP per capita in constant 1990 dollars at purchasing power parities for each country and period is given in parentheses.

[2]In 1900 China's population actually filled the entire center-low-income quartile, spilling over into both neighboring quartiles. In 2000 it straddled the borderline between the two upper-income quartiles.

[3]India's population straddled the borderline between the two lowest per capita income quartiles in 2000.

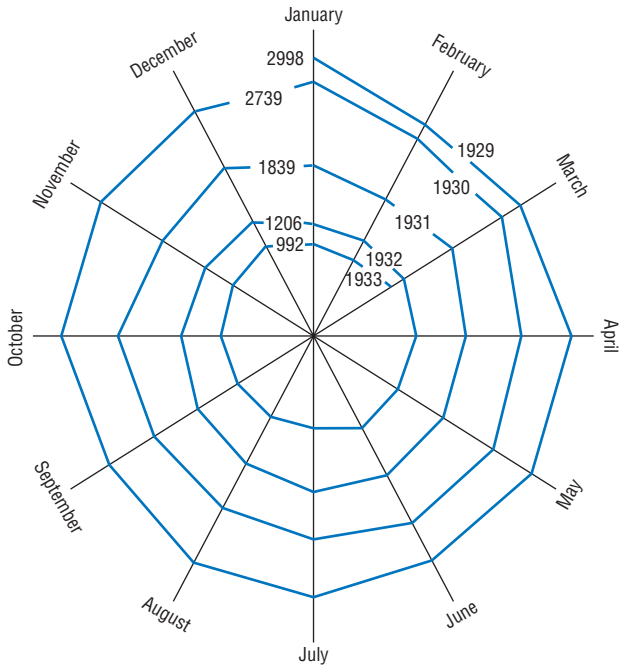
[4]The population of the former USSR straddled the borderline between the two upper income quartiles in 1900.

[5]Mexico's population straddled the borderline between the two center income quartiles in 2000.

[6]Territory of the Czech and Slovak Republics.

**Figure 5.6. Contraction of World Trade, 1929–33**
*(Millions of U.S. gold dollars)*

Between January 1929 and February 1933, total imports of 75 countries contracted by 69 percent. Since world prices declined during this period, the fall in volume terms, while still large, was slightly less pronounced.




Source: Charles P. Kindleberger, *The World in Depression 1929–1933* (revised edition; Berkeley: University of California Press, 1986).

The forces underlying these major transformations in the international monetary regime are explored in more detail in the next section. The current section looks at the relative output growth rates of major world regions during the four sub-periods of the century in order to see whether there is any systematic relationship between relative income convergence and divergence with the leading nation and the global monetary order. The relevant information, summarized in Table 5.2, provides the following stylized facts:

- During the pre-World War I classical gold standard period, the independent nations of Latin America and (especially) the territories of new European settlement were able to improve their per capita income position relative to the leading nation.[14] Africa and Asia (excluding Japan), which were largely under the control of colonial regimes and locked into unequal bilateral trade and financial relationships, lost ground in terms of relative per capita output.
- During the two world wars and the inter-war period, when international trade and capital flows collapsed, all major global regions saw per capita output decline relative to that of the United States.[15] Although this setback is clearly linked to the ravages of war for most European and Asian countries, this explanation is not applicable to Latin America, where relative incomes also declined.
- Following World War II and up to 1973, per capita output in western and southern Europe and especially Japan rose spectacularly, rapidly narrowing the gap with the United States. Eastern Europe and the Soviet Union also improved their relative positions, but by much less than the mem-

[14]The leading nation was Great Britain in 1870 and 1900, and the United States subsequently.

[15]The only exception is the Soviet Union, whose economy was already effectively cut off from the world economy before the inter-war collapse of world trade and thus was not significantly affected by it.

ber countries of the Organization for Economic Cooperation and Development (OECD). Latin America and Asia (excluding Japan and China) basically held their own, while Africa continued its relative decline.

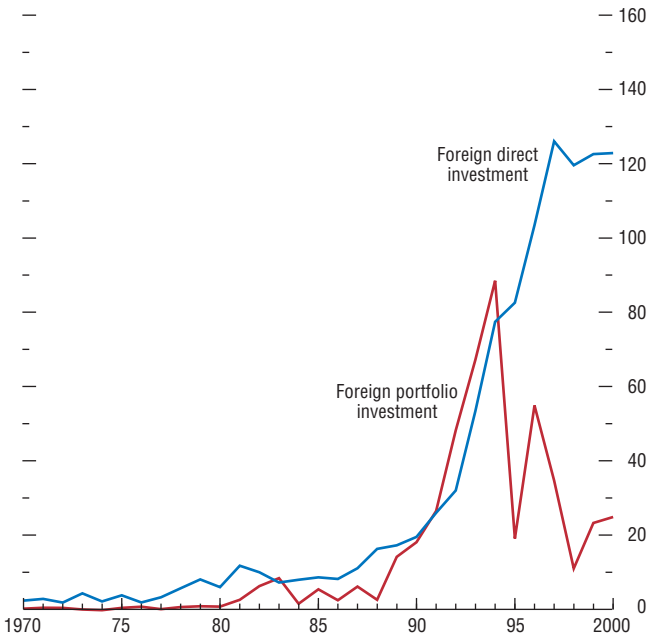
- Following 1973, several Asian countries, including China, entered a period of very rapid growth. In contrast, Latin America and Africa lost some ground, while western Europe's catch-up came to a halt, reflecting the significant growth differential in favor of the United States in the last decade of the century. Much more ground was lost by the countries of the former Soviet Union and eastern Europe, where the contraction following the collapse of central planning in the area had not yet been fully recovered by the year 2000.

While a systematic and detailed analysis of the (inter-) relation between regional income convergence and the operation of the international monetary system has not been undertaken, the stylized facts presented above permit a number of interesting conjectures. Although periods of increasing free trade and international capital mobility ("globalization") do not guarantee convergence, they do seem to increase the convergence opportunities of those countries that are able to establish fundamental conditions favorable to economic growth and are willing to benefit from the international division of labor.[16] Conversely, administrative barriers to international trade and capital movements seem detrimental to both rapid growth in the leading economies as well as to rapid catch-up of the poorer countries. Furthermore, even star per-

**Figure 5.7. Net Flow of Foreign Investment to Developing Countries[1]**

*(Billions of U.S. dollars)*

Net inflows of foreign investment to developing countries have grown rapidly since 1980, and flows of direct investment have been less volatile than flows of portfolio investment.




[1]Data for 2000 are IMF staff projections.

[16]For example, while in the second half of the century catch-up started running into mounting difficulties in Latin America, where it was largely based on an inward-looking import substitution strategy, several Asian countries, which had adopted an outward-looking (export-oriented) development strategy, were proving increasingly successful. In most countries in sub-Saharan Africa, however, which achieved political independence only in the 1960s, economic development never took off, as the political situation remained unstable in many countries due to civil wars and military coups.

### Table 5.2. Regional GDP per Capita as a Percent of Leading Nation[1]

| | 1870 | 1900 | 1913 | 1950 | 1973 | 2000 |
|---|---|---|---|---|---|---|
| Western Europe | 64.7 | 67.3 | 69.8 | 53.5 | 74.0 | 74.1 |
| Areas of recent European Settlement [2] | 74.8 | 87.6 | 98.7 | 96.7 | 96.8 | 96.5 |
| Southern Europe (including Turkey) | 34.0 | 34.2 | 33.0 | 21.1 | 36.2 | 36.1 |
| Eastern Europe | 33.3 | 29.9 | 31.9 | 27.5 | 34.6 | 15.5 |
| Eastern Europe (excluding USSR) | 35.9 | 35.1 | 38.2 | 23.9 | 30.9 | 13.3 |
| USSR | 31.4 | 26.5 | 28.0 | 29.6 | 36.5 | 16.6 |
| Latin America | 23.3 | 23.4 | 27.1 | 26.0 | 26.4 | 20.1 |
| Asia | 17.8 | 14.8 | 14.0 | 8.0 | 10.8 | 15.9 |
| Asia (excluding Japan and China) | 19.0 | 14.4 | 13.7 | 7.8 | 8.6 | 8.3 |
| Japan | 22.7 | 24.7 | 25.1 | 19.6 | 66.3 | 75.6 |
| China | 16.0 | 14.2 | 13.0 | 6.4 | 7.1 | 23.0 |
| Africa | 14.7 | 10.9 | 10.8 | 8.7 | 7.9 | 4.8 |
| World | 27.4 | 27.5 | 29.0 | 22.3 | 24.8 | 21.9 |
| *Memorandum:* | | | | | | |
| GDP Per Capita (in 1990 purchasing-power-parity dollars) | | | | | | |
| United Kingdom | 3,263 | 4,593 | 5,032 | 6,847 | 11,992 | 19,704 |
| United States | 2,457 | 4,096 | 5,307 | 9,573 | 16,607 | 27,272 |

Sources: Angus Maddison, *Monitoring the World Economy 1820–1992* (Paris: Organization for Economic Cooperation and Development, 1995); and IMF staff estimates.

[1]Great Britain in 1870 and 1900; the United States in 1913 and after.

[2]Australia, Canada, New Zealand, and the United States.

Note: All data up to and including 1973 are from Maddison, *Monitoring the World Economy*. The figures for the year 2000 were computed by applying growth rates of real per capita GDP at *World Economic Outlook* purchasing power parities to the Maddison GDP per capita data for 1990 (also measured in purchasing power parities).

formers over a long period can run into extended periods of stagnation or slump, either because of bad policies (the United States in the 1930s) or because they fail to adapt their institutions (Japan in the 1990s). The latter condition seems to apply even more strongly in the case of centrally planned economies. The experience of the Soviet Union suggests that while central planning allowed rapid progress at an early stage of the development process, it was unable to cope at higher levels of income, when resource allocation decisions became more complicated. Recognizing this shortcoming, China, which had adopted central planning in 1949, implemented sweeping reforms starting in the late 1970s, leading to a remarkable acceleration of output.

GDP has long dominated the discussion of economic growth and development, but it has been frequently challenged as the appropriate and most meaningful measure of economic progress. Alternative measures of development can lead to a significantly different appraisal of convergence or divergence among national economies. For example, a comparison based on the Human Development Index (HDI), an alternative measure of progress developed by the United Nations Developmental Programme (Box 5.1), leads to different results than those based on GDP per capita (Table 5.3). One reason underlying the difference is that the HDI is more akin to an absolute indicator of poverty

### Table 5.3. Dispersion of Alternative Measures of Development

| Measure of Development/ Dispersion | 1913 | 1995 |
|---|---|---|
| **GDP per capita (PPP)** | | |
| Standard deviation | 1,382 | 6,420 |
| Coefficient of variation | 0.455 | 0.451 |
| **Human Development Index** | | |
| Standard deviation | 0.197 | 0.100 |
| Coefficient of variation | 0.388 | 0.112 |

Source: Nicholas Crafts, "Globalization and Growth in the Twentieth Century," IMF Working Paper 00/44 (Washington: IMF, 2000), computed from Table 1.1.

## Box 5.1. Trends in the Human Development Index

For many years, economists have used per capita real GDP as a summary measure of economic well-being, despite the many well-known caveats to using it in this way. The Human Development Index (HDI) is an alternative measure of a country's economic well-being, which has been developed under the United Nations Development Programme (UNDP).[1] It is constructed as an aggregate index of three components: education, income, and life expectancy at birth (a proxy measure for health standards), and scaled to lie within a 0 to 1 interval. The focus of the HDI is on the escape from poverty, which is defined as an HDI below 0.5. Human development is regarded as a process of expanding people's choices; income is assumed to impact on this primarily at low levels of material well-being and, above a threshold level, is considered to make a sharply diminishing contribution, the increments eventually approaching zero. Life expectancy and education are taken to be central to the enhancement of human capabilities, but are not generally dependent on private income, given the important role the public sector usually plays in their provision.

Although there are various index number problems associated with the HDI, it offers an interesting alternative perspective on development, to be considered together with the evidence on growth in real GDP per person. Long-run HDI estimates provide a comparative context in which to place recent Third World development and offer a different angle on divergence between high- and low-income countries from that which emerges from GDP per capita data.

The most striking feature is that in contrast to real GDP per capita, the 1997 HDI scores for poor developing countries are well above the 1870 scores for the leading countries at that time. Australia's score of 0.539 in 1870 would rank 134th in the world in 1997. Conversely, Mozambique's 1997 score of 0.341 (169th in the world) is distinctly above the levels achieved in some parts of Europe in 1870, for example Italy and Spain. Assuming that the HDI score of 0.055 for India in 1913 represents the lowest level at the time, the absolute HDI gap of 0.650 in 1997 between the highest and lowest HDI country scores in the world is smaller than in 1913. And since 1950 there has been a substantial reduction in the gap between the average HDI in Africa and in the advanced countries of Western Europe, North America, and Australia/New Zealand from over 0.6 to less than 0.4.[2]

Concerning the components of the HDI, the low level of life expectancy at birth in leading countries in 1870 is striking, with the highest figure at only 49.3 years, a level which has now been exceeded by the large majority of countries. Research in historical demography has concluded that, during the twentieth century, improvements in life expectancy resulting from advances in medical science and public health measures have been largely independent of changes in real income outside the leading economies.[3] The levels of life expectancy (and HDI) now enjoyed by countries like Algeria and Tunisia were simply not attainable in 1870 for any country given the state of medical technology at the time. By contrast, levels of literacy, which in 1950 were still very low in much of Africa and India, continue to compare unfavorably in many cases with those of the leading countries of 1870.

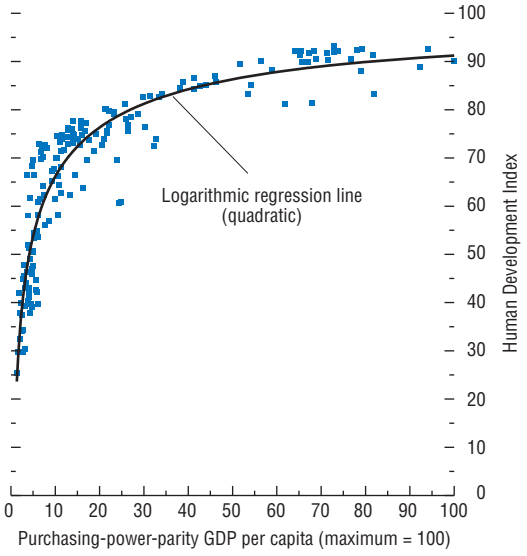
[1]The HDI has been described and refined in successive issues of the *Human Development Report*, published periodically by the United Nations Development Programme. For a detailed definition of the HDI, see Nicolas Crafts, "Globalization and Growth in the Twentieth Century," IMF Working Paper 00/44 (Washington: International Monetary Fund, 2000). The HDI has been quite controversial, and a useful review of various criticisms is provided in a technical note in the 1993 *Human Development Report*.

[2]The numbers quoted in this paragraph are from Crafts, "Globalization and Growth," Table 1.1 and from the UNDP, *Human Development Report*, 1999.

[3]S. H. Preston, "The Changing Relation between Mortality and Level of Economic Development," *Population Studies*, Vol. 29 (1975), pp. 231–48.

## Box 5.1 *(concluded)*

### Relative Output Per Capita and Human Development Index by Country, 1997




Source: United Nations Development Program, *Human Development Report* (1999).

In contrast to the GDP per capita estimates discussed in the main text, the HDI measure shows convergence between countries (see Table 5.3). This is partly because of its heavy discounting of higher incomes and partly because it takes into account life expectancy. The diminishing contribution to the HDI from income is evident in the figure . Clearly, any index of living standards that gives a substantial weight to life expectancy will make present day developing countries look much better relative to either past or present high-income (industrial) countries than do comparisons based only on real GDP per person. This shows how important it may be not to judge progress in development by GDP alone.

### Regional HDI Averages[1]

| | 1870 | 1913 | 1950 | 1995 |
|---|---|---|---|---|
| **Australia/New Zealand** | **0.539** | **0.784** | **0.856** | **0.933** |
| North America | 0.462 | 0.729 | 0.864 | 0.945 |
| Western Europe | 0.374 | 0.606 | 0.789 | 0.932 |
| Eastern Europe | | 0.278 | 0.634 | 0.786 |
| Latin America | | 0.236 | 0.442 | 0.802 |
| East Asia | | | 0.306 | 0.746 |
| China | | | 0.159 | 0.650 |
| South Asia | | 0.055 | 0.166 | 0.449 |
| Africa | | | 0.181 | 0.435 |
| Standard deviation | | | 0.302 | 0.196 |

Source: Crafts, "Globalization and Growth," Table 1.4.
[1]Weighted by population of countries pertaining to each region.

The table shows the long-run HDI convergence at the level of large regional blocs—a striking contrast with developments in GDP per capita. All regions, including South Asia and Africa, exhibit significant HDI catch up with the leading countries after 1950. The averages for both South Asia and Africa in 1997 are quite near to the North American level in 1870. Indeed, all developing countries for which an estimate of HDI is possible for 1950 reduced the gap with the leading country both proportionately and absolutely between 1950 and 1997. In the period 1913 to 1950 there is catch up in HDI for both Eastern Europe (markedly) and Latin America.

Taking the change in HDI as a measure of the speed of this transition, there is an interesting contrast between the late nineteenth and twentieth centuries. The 16 countries in a state of low human development in 1870 (i.e. less than 0.5) posted an average HDI gain of 0.212 by 1913. In contrast, a more comprehensive sample comprising 48 countries with an HDI below 0.500 in 1950 had achieved an average HDI gain of 0.350 by 1995. The pace of human development has been markedly higher in the more recent period, as has been the growth of output per capita.

than to a measure of relative income.[17] The near tripling of GDP per capita in the lowest income quartile during the twentieth century implies that absolute incomes and living conditions have improved at the lower end of the income distribution as well—even if the group as a whole has seen less improvement than its counterparts in the higher income quartiles have.

Nevertheless, poverty still exists on a massive scale, not only in relative but also in absolute terms, as is documented in Chapter IV. This is because income growth within the lowest quartile has been uneven: the quartile includes countries in which per capita income has declined over long periods. Furthermore, income distribution within countries is uneven, implying that even in countries falling into the upper income quartiles, with average per capita incomes well above conventional poverty levels, a substantial number of citizens have income levels below the poverty level. Thus, using per capita GDP as an indicator clearly underestimates the problem of world poverty.[18] Finally, even though the share of poor people in the world may have declined somewhat, their absolute number has remained at a staggering level, in part because rapid population growth has been increasingly concentrated in the poorer countries.

## The Role and Development of the International Monetary System

Like other major institutions, the international monetary system has undergone several radical changes in the course of the twentieth century. Some interesting parallels with a (much) earlier period or European Economic History are presented in Box 5.2. Twentieth-century development was shaped by both market forces and policy design, as policymakers repeatedly changed their priorities in trying to reconcile exchange rate stability and domestic policy objectives in an environment of variable international capital mobility. Moreover, changing perceptions concerning the role and desirability of international capital movements influenced the policies brought to bear on the system.

The classical gold standard prevailing at the start of the twentieth century is a case in point. Its resiliency has been widely commented upon. The leading industrial and commercial powers remained on gold continuously for a third of a century up to World War I. Notably, the system was uninterrupted by currency crises, even though currency crises were not uncommon at the system's periphery.[19] But those crises were less persistent, and their effects less severe, than those of the twentieth century.[20] Almost without exception, gold convertibility was restored following each crisis, generally at the previously prevailing gold price and rate of exchange.[21]

In the light of the repeated financial crises suffered in the final quarter of the twentieth century, a pertinent question is what explains the widespread political acceptance of the gold standard and its success in reconciling capital mobility with exchange rate stability. An important factor is undoubtedly the willingness and

[17]The marginal increases in the HDI in response to a rise in GDP per capita above a certain threshold ($5,120 in constant 1990 prices at purchasing power parties) is heavily discounted, implying that rising income levels in poor (rich) countries tend to add a lot (very little) to the HDI. This makes HDI-convergence almost inevitable as long as the poor countries' income grows in absolute terms, even if this growth is slower than that in the rich countries.

[18]Obviously, GDP per person is not the only relevant criterion for economic well-being, and a more comprehensive analysis would have to take into account additional factors like health and education (as does the HDI), as well as the preservation of the environment, hours worked, unemployment, human rights, and other factors affecting the quality of life.

[19]The gold standard had been strengthened when the United States abandoned bi-metalism in 1879, and had become all but universal with the accession of Russia and Japan toward the end of the nineteenth century. A few countries in Central and South America and Asia (notably China) did not adopt the gold standard, but they became an increasingly small minority as the period progressed.

[20]This is the finding in recent work by Michael Bordo, Barry Eichengreen, and Douglas Irwin, "Is Globalization Today Really Different Than Globalization a Hundred Years Ago?" NBER Working Paper No. 7195 (Cambridge, Massachusetts: National Bureau and Economic Research, 1999).

[21]This "resumption rule" played a major role in anchoring expectations and rendering speculative capital flows stabilizing.

### Box 5.2. The Monetary System and Growth During the Commercial Revolution

There are some interesting parallels between the monetary system, globalization and growth in the twentieth century and over the period from 1100 to 1300, called the "commercial revolution" by some economic historians. These similarities serve as a reminder that underlying economic forces have operated and contributed to shaping history long before economics was recognized as a (social) science.

The commercial revolution was a period of rapid output growth, urbanization, population growth and technological innovation that transformed key parts of western Europe from an autarkic and feudal economy to a vibrant commercial one. The progress made during that period led to European economic and political hegemony of subsequent centuries. The seeds of many legal and economic institutions that prevail today were also sown back then.

One striking resemblance between the commercial revolution and the period of rapid economic growth during the gold standard era and since World War II is the performance of the monetary and financial systems. During the commercial revolution, the emerging nation states took control over issuance of coins and provided the infrastructure for the accelerating pace of interregional and international trade. The state regained monetary control by competing with private coin producers that proliferated during the eleventh century. The state prevailed because it was able to circulate a stable, reputable and therefore universally accepted medium of exchange that catered to the merchant community's demand. By 1250, gold coins were being issued and a truly international currency (the Florentine Florin) emerged. A process of regional monetary integration and an era of price stability were inaugurated.

The stability of the monetary system and rates of exchange allowed the development of banks and, in particular, bills of exchange that facilitated international transactions and contributed to the rise in trade volumes which facilitated the process of division of labor and specialization. There was also a substantial amount of foreign lending to governments. The result of these developments enabled the European periphery, most notably England, to reap the fruits of economic growth. While hard data are lacking, one can speak of a process of convergence within Europe and convergence between Europe and the more advanced regions of the world at that time—China and the Orient.

By the late of thirteenth century, growth rates started to decline and many regions descended into economic crisis.[1] Much like the reaction of states in the inter-war period and during the Great Depression, many states abandoned and others were forced to abandon stable monetary policies. Parallel to the increase in warfare, many states took recourse to inflationary finance, and monetary wars raged for almost two centuries. Foreign lending also collapsed, as did international trade credit, and the most prominent Italian banks were forced into bankruptcy. As in the 1930s, monetary disintegration and exchange rate volatility exacerbated the decline in output and delayed recovery.

[1]Historians do not agree on the reasons for this decline. Some suspect that climatic change had a significant impact, while others argue that the fall of the Crusader state and the decline in trade access to the Orient are to blame. And some think that the rapid increase in population, not matched by sustained productivity growth, sent Europe into a Malthusian trap.

ability of governments under the gold standard to subordinate other—mainly domestic—economic, political, and social objectives to the maintenance of gold convertibility.[22] In the late nineteenth and early twentieth centuries, pressure to direct monetary policy to other objec-

[22]This, of course, is the same factor that enables countries like Argentina and political jurisdictions like Hong Kong SAR to fix their currencies to the U.S. dollar today: they are able and willing to subordinate other objectives to the maintenance of "convertibility."

tives was minimal. There was no widely accepted theory linking monetary policy to the state of the economy. Competing policy targets were few, and central banks came under little pressure to minimize unemployment when the very concept of unemployment was unfamiliar and unionization rates were low.[23] Working class voters could not vote out of office governments that supported defending the exchange rate over and above other goals so long as the franchise remained limited to a priviledged minority, as it was until well into the twentieth century.

Another factor contributing to the positive performance of the gold standard was its smooth interaction with private markets. Investors regarded adherence to the gold standard as a "Good Housekeeping Seal of Approval."[24] Adopting it allowed countries to gain access to foreign capital more freely and on more favorable terms. And the capital flows that resulted took place in an environment of expanding trade and export-led development. The dominant use of these funds, especially in the overseas regions of recent European settlement, was for investment in infrastructure, specifically railways and port facilities, which augmented the recipient's capacity to export commodities, earn foreign exchange, and service and repay the borrowed funds.[25] Because trade was relatively free, countries seeking to export in order to earn foreign exchange and service their debts had the requisite market access.[26] And when economic activity in Britain, the principal export market, turned down, investment was redeployed from British to foreign markets, sustaining growth in the latter. Capital flows were stabilizing because they were counter-cyclical.

Other factors contributed to this stability. The flexibility of wages and prices allowed economies to adjust without changing their exchange rates in response to internal and external shocks. The absence of major macroeconomic disturbances like those that destabilized the world economy in the 1930s limited dislocations and adjustment costs.[27] The stability of the gold standard (and of economic activity generally) in Great Britain, the nation at the center of the international monetary and financial system, buttressed stability in other countries to which Britain's finances and economy were linked. International loans in times of crisis, and in response to temporary shocks—organized by governments, central banks, or private financiers—enabled the countries at the core of this system to maintain convertibility, and protect their reputations.

This early "golden age" of world capitalism ended abruptly and irreversibly in August 1914 with the outbreak of World War I, ringing in a 35-year period of political turmoil and great economic instability and disruption. The first World War led to the suspension of the gold standard and rising price levels around the world.[28] In the case of previous major wars, the gold standard eventually had been restored after hostilities had

[23]The word "unemployment" only appeared in 1888, and the compilation of official unemployment statistics came much later.

[24]This term is borrowed from Michael Bordo, Michael Edelstein, and Hugh Rockoff, "Was Adherence to the Gold Standard a 'Good Housekeeping Seal of Approval' during the Interwar period?" NBER Working Paper No. 7186 (Cambridge, Mass.: National Bureau of Economic Research, 1999).

[25]The importance of this pattern, known as "development finance" (rather than using funds to finance government deficit spending), has been emphasized by Fishlow in his accounts of the pre-1913 world economy. See Albert Fishlow, "Lessons from the Past Capital Markets During the 19th Century and the Interwar Period," *International Organization*, Vol. 39 (Summer 1985), pp. 383–439.

[26]Britain's role as importer of last resort—the provider of an open market in distress goods for foreign debtors—has been emphasized as key to the stability of prewar capital markets by Charles P. Kindleberger, *The World in Depression 1929–1933* (revised edition; Berkeley: University of California Press, 1986).

[27]Evidence supporting this point is provided in Tamim Bayoumi and Barry Eichengreen, "The Stability of the Gold Standard and Evolution of the International Monetary System," in *Modern Perspectives on the Gold Standard,* ed. by Tamim Bayoumi, Barry Eichengreen, and Mark P. Taylor (Cambridge: Cambridge University Press, 1996).

[28]Unlike other belligerent nations, the United States never suspended internal convertibility during World War I and its immediate aftermath, but it, too, suspended gold exports (external convertibility) in 1917. It took the world depression and the concomitant financial market turbulence to finally force the United States into suspending domestic convertibility in 1933.

ceased, and this was generally expected to happen again. However, the war and its aftermath had caused enormous economic as well as political upheavals in Europe, which greatly complicated the task of restoring the gold standard to its prewar dominance. When—in the guise of the "gold exchange standard"—the system was eventually restored in the second half of the 1920s, it proved to be much less robust than it had been during the prewar period, and was unable to withstand the strains of the severe recession that commenced in 1929 in the United States and rapidly spread around the world, accelerating the reversal in the globalization process that World War I had initiated.

There are several reasons why the inter-war gold standard was more fragile than its prewar predecessor. Competing domestic policy objectives in the leading world economies diminished the credibility of their commitment to exchange rate stability, and increased reliance on foreign exchange reserves magnified the deflationary consequences of a shock to confidence. In addition, the new constellation of exchange rates established in Europe was not ideal: the British pound was overvalued, the French franc was undervalued, and a variety of other currencies were stabilized at inappropriate levels. War debt and reparation transfers strained the balances of payments of the European economies, heightening the dependence of the international system on the continued willingness of the United States to recycle its surpluses. Wages and prices adjusted less flexibly than before, reflecting the rising public provision of unemployment insurance and other relief. Finally, central bank cooperation was more difficult to arrange so long as the sour aftertaste of World War I lingered.

In addition, capital flows were less closely linked to productive investment. Two-thirds of new capital issues in London during the 1920–31 period were for governments, while the comparable figure for U.S. issues was nearly 80 percent. The 1920s was a decade of budget deficits, with governments borrowing to finance public consumption and public investment of dubious value. This fiscal spending did not translate into an increase in export capacity to generate the foreign exchange needed to service and repay foreign debts. The postwar political settlement only aggravated this situation. It created new nation states, which in turn created thousands of kilometers of new national borders. These new states, forced to create tax administrations from scratch, relied on import duties for public sector revenues.

The recession that commenced in the United States in 1929, even in its early stage, was exceptionally severe. There is reason to wonder whether any system of fixed exchange rates could have survived such a pronounced downturn in the world's largest economy, its principal capital exporter, and the country at the center of the international monetary system. Although monetary policy mistakes undoubtedly contributed to the depression, it is questionable whether they can fully account for its unusual depth and duration, and its eventual spread around the world.[29] A more comprehensive explanation must include the absence of international leadership, provided earlier by the United Kingdom under the prewar gold standard. While the United Kingdom—weakened by the war—was not able to provide this leadership, the United States—which had emerged from the war as the leading world economy—was not yet willing to assume it.[30]

In 1931, the various pressures combined with the diminished credibility of the inter-war gold-exchange standard to bring the international system crashing down. Capital flows collapsed as financial market conditions grew turbulent. Different countries responded in different ways but ultimately with similar effects. Some deval-

[29]The argument that monetary policy errors are the major (if not only) cause for the unusually deep and protracted recession are presented in Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867–1960* (Princeton, N. J.: Princeton University Press, 1963).

[30]This argument is developed in more detail in Kindleberger, *The World in Depression*.

ued quickly, while others clung to gold for as long as possible. Some slapped on capital and exchange controls, while others defaulted on their external debts. Many jacked up tariffs, while others imposed quantitative restrictions on imported goods. The result was the disintegration of the world economy, and the international monetary system was one of the casualties.

The second World War caused even more destruction than the first. But in contrast to the period in the aftermath of World War I, the dominant economic power—the United States—was willing to accept the leadership role, which no other country was in a position to assume in World War II's aftermath. Remembering the chaos and vacillation that followed the first World War, the allies began preparing for the restoration of a viable economic world order before the conflict had actually ended. These preparations culminated in the Bretton Woods agreements of 1944. Subsequently the United States confirmed its leadership role by supporting the creation of the General Agreement on Tariffs and Trade (GATT) and by jump-starting European reconstruction with a bold aid program (the Marshall Plan).

Under the Bretton Woods agreement, the U.S. dollar was to remain convertible into gold at $35 an ounce, the rate that had prevailed since 1934. Stable exchange rates were to be restored, since currency stability was considered essential to the restoration of world trade, which U.S. officials viewed as an economic and political imperative. In contrast to the classical gold standard, however, the new system involved three key innovations:

- Exchange rates, although pegged, could now be adjusted in the event of fundamental disequilibrium.
- Capital movements could be controlled by governments that wished to gain room for maneuver to address domestic problems and to avoid a replay of the inter-war experience with "destabilizing speculation."
- The International Monetary Fund was created as a way of placing international monetary cooperation at some distance from domestic politics.

Although exchange rates could be adjusted under the Bretton Woods system, realignments were relatively infrequent, entailing not much of an increase in exchange-rate flexibility compared to the "fixed" exchange rate systems that had preceded it.[31] The 1920s and 1930s had not enamored officials and others (aside from a few academic dissenters) of the merits of flexible rates. Floating in the 1930s was associated with the collapse of trade and output, although the direction of causality has not been established beyond doubt. After World War II, governments did not develop alternative monetary anchors like monetary targeting or inflation targeting. By a process of elimination, exchange-rate policy became the cornerstone of governments' entire economic strategy—the symbol of their commitment to sound and stable policies. To devalue cast doubt on that strategy and on the competence of the people in charge. And to revalue, as Germany and the Netherlands came under pressure to do, threatened the postwar social compact (which rested on an implicit agreement to pursue export-led growth) and generated strong opposition from an influential export lobby (often supported by trade unions).[32]

During the Bretton Woods period, the stability of the real economy and of exchange rates reinforced each other. The world economy was growing rapidly—by 5 percent per annum, more than

[31]There was a general realignment of European currencies in 1949 (accompanied by devaluations by the members of the sterling area and some of Britain's long-standing trading partners), designed to launch the Bretton Woods system successfully. Other realignments included the French franc devaluations of 1957, 1958, and 1969, the sterling devaluation of 1967, and the deutsche mark revaluations of 1961 and 1969. There were 69 major stepwise devaluations by (politically independent) developing countries between 1949 and 1971.

[32]The United States was not able to devalue unilaterally, as the U.S. dollar was the common reference currency. If the U.S. government raised the dollar price of gold, which was the only instrument it controlled, other governments would also raise the domestic-currency price of gold, leaving their dollar exchange rates and U.S. international competitiveness unchanged.

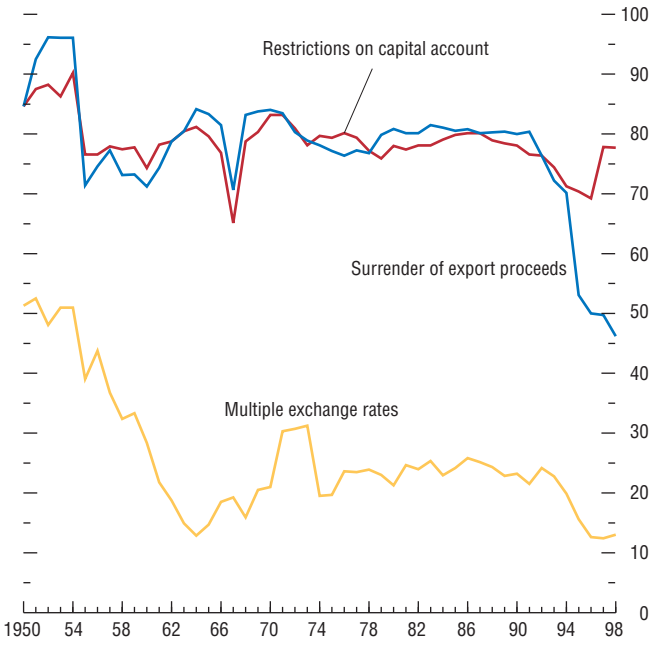
twice as fast as the annual rate between 1870 and 1913. This alleviated the pressure to devalue as a way of boosting growth. Commodity markets were not disturbed by large price movements, either upward as in the 1970s or downward as in the 1920s and 1930s. Wage pressures were moderate, reflecting the impact on labor markets of memories of high unemployment in the 1930s and rapid non-inflationary real wage growth, made possible by unexpectedly high productivity growth. Cyclical stability was enhanced by this combination of rapid growth and stable prices: between 1950 and 1971 there was no year in which the output growth of western Europe as a whole turned negative.

Finally, capital controls remained in place, limiting the instability from disruptive international financial flows (Figure 5.8). It was possible for a government to contemplate a change in the par value because massive amounts of capital would not immediately hemorrhage out of the country in anticipation of official action. And change in the speed with which controls were relaxed became one of the mechanisms through which governments regulated the balance of payments.[33]

However, the recovery of capital mobility in the decades following World War II ultimately proved to be one of the principal threats to the viability of this system. The progressive relaxation of the controls that had been imposed on domestic financial institutions in the 1930s and 1940s made it harder to stop capital flows at the border.[34] Financial institutions found new ways

**Figure 5.8. Capital Account Restrictions, 1950–98**
*(Percent of all countries)*

Restrictions on capital accounts remained in effect for the majority of countries throughout the Bretton Woods period.




Source: Eichengreen and Sussman, "The International Monetary System in the (Very) Long Run," IMF Working Paper No. 00/43 (Washington: International Monetary Fund, 2000).

[33]In the 1950s, members of the European Payments Union accelerated or slowed the rates at which they relaxed controls on current-account transactions in response to the development of the balance of payments. Changes in the stringency of controls substituted for exchange-rate changes as an instrument of adjustment. See the national case studies provided in Charles Wyplosz, "Financial Restraints and Liberalization in Postwar Europe" (unpublished manuscript; Graduate Institute of International Studies, University of Geneva, 1999).

[34]Financial systems in many countries emerged from World War II tightly regulated and controlled. Those controls weakened over the course of the 1950s and 1960s as memories of market instability in the 1930s faded, and postwar normalization allowed the market economy to be rebuilt.

around the remaining controls; the development of the Eurodollar market in response to the U.S. Interest Equalization Tax is a case in point. As controls became less effective, containing and adjusting to payments pressures became more difficult, since capital flows now could force the issue more quickly than before.[35] Even contemplating a change in par values was problematic, for mere rumor that devaluation was in the offing could precipitate massive capital flight. This rendered the adjustable peg less adjustable, but the countries at the center of the system were not prepared to sacrifice domestic objectives such as the pursuit of full employment in order to adjust and eliminate payments imbalances. As a result, the Bretton Woods System grew increasingly rigid and brittle.

Compounding these difficulties was the inadequacy of international reserves. The 1960s was a decade of rapid expansion in Europe, Japan, and much of the developing world. Countries needed additional international liquidity to buffer their economies from trade-related shocks and therefore sought—generally with only limited success—to run current account surpluses against the United States. Although integral to the operation of Bretton Woods, this pattern also heightened the fragility of the system, since foreign holders of dollars could "run on" U.S. gold reserves at any time. Unfortunately, the policymakers' solution to the shortage of international reserves, the creation of Special Drawing Rights, came too late to salvage the Bretton Woods System.[36]

The combination of factors that brought the Bretton Woods system ultimately to an end—despite the remarkable growth performance it had facilitated in the post-war period—was the rising international capital mobility, inadequate reserves, and diverging views on domestic policy priorities (inflation in particular) among the major countries. Technical progress in communications technology had greatly increased the speed of transborder information and capital mobility. In these circumstances, the fixed exchange rate system implied that participating countries had to give up their independent monetary policy—and thus their control over domestic inflation. When inflation started to accelerate in the United States in the wake of easy monetary policy, effectively helping to finance the Vietnam war, countries trying to resist the spread of inflation (like Germany, Switzerland, and Japan) were experiencing destabilizing speculative capital inflows. Following various unsuccessful attempts to patch up the system, it finally collapsed in 1973 when the major economies abandoned their fixed exchange rate to the U.S. dollar and allowed their currencies to float.

The transition to flexible exchange rates was not based on a carefully prepared strategy but on decisions made under duress. Moreover, the circumstances accompanying it were not particularly conducive to a smooth transition. Shortly after the final breakdown of the Bretton Woods system, the world economy was jolted by a spectacular increase in oil prices, abruptly ending the preceding long downward trend in the real price of oil. Less conspicuous—but probably more influential in the long run—was a significant slowdown in the extraordinary rate of productivity growth experienced during the preceding "golden age." The combination of these two supply shocks initiated the hitherto unfamiliar phenomenon of "stagflation," involving a simultaneous acceleration in prices and a rise in unemployment.

Stagflation was a result of the policy response to the oil shock. Cut free from the fixed-exchange rate anchor, policymakers stepped hard on the accelerator. Monetary aggregates rose rapidly and budget deficits widened significantly

[35]As the British appreciated when they compared the 1967 sterling crisis with its predecessors in 1947 and 1949; see Alec Cairncross and Barry Eichengreen, *Sterling in Decline: The Devaluations of 1931,1949 and 1967* (Oxford: Blackwell, 1983).

[36]In any case, it is questionable whether the major players in the world economy were willing at the time to concede to a supranational authority the right to issue sufficient international reserves (in the form of SDRs) to overcome the rising scarcity of international reserves resulting from the rapid expansion of world trade and the basic design of the Bretton Woods system.

in the 1970s and early 1980s. Several factors help to explain why the response differed from the last time an international system of fixed rates had collapsed in the 1930s. Keynesian ideas, that fiscal and monetary policies should (and could) be used to counter unemployment, had gained considerable currency. In many countries, policies to maintain full employment were an explicit element of the postwar social compact of equity and shared growth, leaving governments little choice but to respond aggressively to the rise in unemployment.[37] Moreover, after two decades of relative stability, the fear that aggressive counter-cyclical action would excite inflation and capital flight was subdued. Finally, the widespread retention of capital controls also meant that market discipline on inflationary pressures was more limited, initially at least, than it had been four decades before.

Given that they were entering uncharted territory, it is not surprising that policymakers did not anticipate the markets' reaction. As governments responded more aggressively to rising unemployment, the markets responded more aggressively to policy. Under the fixed exchange rate system, demand stimulus was normally regarded as temporary (otherwise it would come into conflict with the exchange-rate commitment) and therefore it did not provoke sharp increases in wage demands.[38] But once that anchor was lifted, expansionary policies today simply excited fears of additional inflationary pressure tomorrow, with corresponding repercussions on wage behavior. Demand stimulus produced mainly inflation rather than additional output and employment as wages and prices responded more quickly to policy. Consequently, as governments pushed harder on their policy levers, those levers grew increasingly ineffectual.

It took the majority of industrial countries almost ten years to recognize this vicious circle and reverse their policy approach, and close to another decade to bring the inflation and budget deficits unleashed in response to the oil crises under satisfactory control. The accelerated push toward a single market and a unified currency among member countries of what is now known as the euro area constituted a major innovation in the international monetary framework. It also provided strong incentives for—and secured ultimate success in—the restoration of monetary stability and fiscal sustainability in many European Union member countries with traditionally "weak" policies. But similar progress in the fight against high European unemployment did not (so far) materialize for reasons explored elsewhere in more detail.[39]

Given the lack of a credible anchor for the price level, exchange rates between major currencies proved much more volatile than had been anticipated when the Bretton Woods system was abandoned. And, starting in the 1980s controls on international capital movements were dismantled in many countries in pursuit of efficiency gains from deregulation. The resulting large increase in internationally mobile capital combined with domestic policy imbalances and volatile exchange rate expectations to generate repeated international financial crises.[40] Establishing a new monetary policy operating framework to replace the earlier exchange rate-centered policy regime, and designing and implementing efficient banking regulation, has occupied the international community for the better part of the last quarter century, but progress has so far been very gradual, with no universally applicable optimal solution to the problem being developed.

Lessons concerning the international monetary system are probably best understood in the context of the important insight that a pegged exchange rate, independent national monetary policy, and unrestricted international capital mo-

[37] *The European Economy: Growth and Crisis,* ed. by Andrea Boltho (New York: Oxford University Press, 1982).

[38] In other words, occasional recourse to demand stimulus, like temporary suspensions of convertibility under the gold standard, was stabilizing because it occurred in a framework within which a credible nominal anchor existed.

[39] See Chapter IV in the *World Economic Outlook*, May 1999: "Chronic Unemployment in the Euro-Area: Causes and Cures."

[40] See *World Economic Outlook*, October 1998, which discussed "Financial Turbulence and the World Economy."

bility cannot be achieved simultaneously. Much of the international financial system's experience in the twentieth century deals with changing government priorities regarding these objectives. Before 1914, international capital mobility was high, and countries' monetary policy was subordinated to maintaining "convertibility" and thus fixed exchange rates. In the inter-war period, pursuit of domestic stabilization objectives led most countries to abandon fixed exchange rates. Under the Bretton Woods system, pervasive capital controls allowed countries to pursue domestic policy objectives (to some extent) despite pegged exchange rates. In the final quarter of the century capital became increasingly mobile, as many countries, engaging in domestic stabilization, allowed their exchange rates to float. Changes from one set of priorities to another have usually been rather slow to develop, and pertinent organizational changes have typically been implemented only following some acute crisis.[41]

One possible explanation for this element of inertia that has characterized the international monetary system is the strong hold of the ideologies that develop in support of prevailing institutional arrangements.[42] Another is the strength of vested interests who benefit from prevailing arrangements.[43] A third possibility is the network-externality characteristic of international monetary arrangements—in particular the reluctance of countries to adopt arrangements radically different from those of their neighbors for fear of sending a negative signal to the markets. Finally, there is failure of vision: the failure of policymakers to articulate a clear and coherent alternative monetary policy operating strategy before the crisis strikes.

The international monetary turbulence of the last quarter century is arguably explicable, at least in part, in terms of this inability to adapt international monetary arrangements to changing economic, financial, and political circumstances. The collapse of Bretton Woods loosened the exchange rate constraint and cut the last remaining link to commodity money. It removed the focal point for monetary and fiscal policies. The 1970s became a decade of big budget deficits and high inflation, as policy was cut loose from its moorings. And with the failure of policymakers to articulate an alternative monetary anchor, policy grew increasingly ineffectual. Figure 5.9 illustrates the simultaneous deterioration in government budget balances, inflation, and labor market performance in the major industrial countries during the 1970s. This dismal experience led to a search for a new policy paradigm in the 1980s and 1990s. An important aspect of the new paradigm was the willingness to concede increasing autonomy to the monetary authorities in an attempt to reduce the political pressure for "easy money" and to strengthen the objective of medium-term price stability. Equally fundamentally, the new paradigm placed much greater weight on market forces while attempting to narrow the scope and change the nature of government intervention in the economy.

## The Changing Role of the Public Sector

The twentieth century has witnessed significant changes in the economic role of the state. The expansion of the public sector as measured by the ratio of total public expenditure to GDP is depicted in Table 5.4. The increase was largest in the European countries, where the public ex-

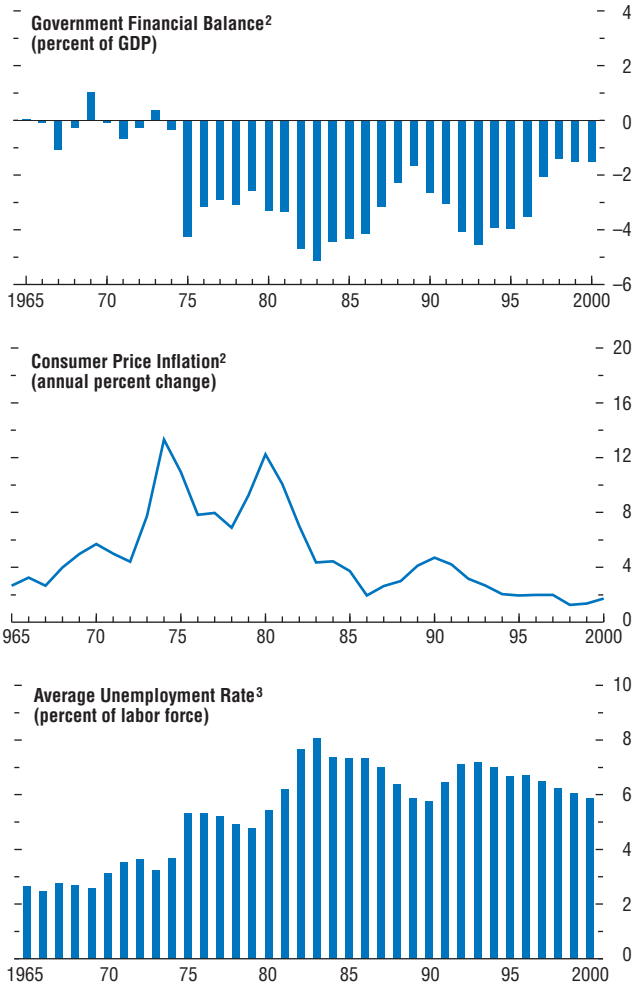
[41]See the evidence in Barry Eichengreen, Paul Masson, and others, *Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility*, IMF Occasional Paper No. 168 (Washington: International Monetary Fund, 1998). The noteworthy exception is the Bretton Woods system, which was designed with considerable foresight to rebuild a badly mauled world trading system. In combination with the GATT it has been remarkably successful in achieving this objective, notwithstanding its eventual demise.

[42]See Barry Eichengreen and Peter Temin, "The Gold Standard and the Great Depression," NBER Working Paper No. 6060 (Cambridge, Massachusetts: National Bureau of Economic Research, 1997).

[43]See Jeffrey Frieden, "Greenback, Gold and Silver: The Politics of American Exchange Rate Policy, 1870–1913," CIBER Working Paper No. 91–04 (Los Angeles: Center for International Business Education and Research, University of California, Los Angeles, 1994).

### Figure 5.9. Government Deficits, Inflation, and Unemployment in the Group of Seven Countries[1]

The deterioration in governments' financial balances, inflation, and unemployment experienced by the major industrial economies in the course of the 1970s has so far been completely reversed only in the case of inflation.




[1]Data for 2000 are IMF staff projections.
[2]GDP weighted average.
[3]Labor force weighted average.

### Table 5.4. Public Sector Expenditure Ratios: Total and Transfers

*(Percent of GDP)*

| | 1870 | 1913 | 1960 | 1998 |
|---|---|---|---|---|
| **Total Outlays** | | | | |
| Australia | 18.3 | 16.5 | 21.2 | 32.9 |
| Belgium[1] | | 13.8 | 30.3 | 49.4 |
| France | 12.6 | 17.0 | 34.6 | 54.3 |
| Germany | | 14.8 | 32.4 | 46.9 |
| Italy[1] | 11.9 | 11.1 | 30.1 | 49.1 |
| Japan | | 8.3 | 17.5 | 36.9 |
| Netherlands[1] | 9.1 | 9.0 | 33.7 | 47.2 |
| Norway | 5.9 | 9.3 | 29.9 | 46.9 |
| Sweden | 5.7 | 10.4 | 31.0 | 58.5 |
| United Kingdom | 9.4 | 12.7 | 32.2 | 40.2 |
| United States | 7.3 | 7.5 | 27.0 | 32.8 |
| | **1880** | **1910** | **1960** | **1990** |
| **Social Transfers** | | | | |
| Australia | 0.0 | 1.1 | 7.4 | 15.4 |
| Belgium | 0.2 | 0.4 | 13.1 | 29.7 |
| France | 0.5 | 0.8 | 13.4 | 27.8 |
| Germany | 0.5 | na | 18.1 | 21.2 |
| Italy | 0.0 | 0.0 | 13.1 | 24.5 |
| Japan | 0.1 | 0.2 | 4.0 | 16.1 |
| Netherlands | 0.3 | 0.4 | 11.7 | 31.7 |
| Norway | 1.1 | 1.2 | 7.9 | 23.0 |
| Sweden | 0.7 | 1.0 | 10.8 | 21.3 |
| United Kingdom | 0.9 | 1.4 | 10.2 | 16.8 |
| United States | 0.3 | 0.6 | 7.3 | 16.3 |

Sources: Total outlays from Vito Tanzi and Ludger Schuknecht, *The Growth of Government and the Reform of the State in Industrial Countries* (Washington: IMF, 1995) and OECD, *Economic Outlook* (Paris: Organization for Economic Cooperation and Development, 1999); social transfers, defined to include spending on pensions, welfare, unemployment compensation and health by national and local governments, from Peter H. Lindert, "The Rise of Social Spending, 1880–1930," *Explorations in Economic History*, Vol. 31 (1994), pp. 1–37; Peter H. Lindert, "What Limits Social Spending?" *Explorations in Economic History*, Vol. 33 (1996), pp 1–34; Howard Oxley and Maitland MacFarlan, "Health Care Reform: Controlling Spending and Increasing Efficiency," *OECD Economic Studies*, Vol. 24–1 (1995), pp. 7–55; OECD, *Historical Statistics 1990–1995* (Paris: Organization for Economic Cooperation and Development, 1997).

[1]Central government only through 1913.

penditure ratio to GDP has risen more than fourfold, exceeding 40 percent on average by the end of the century.[44] Although the ratio is generally lower in the poorer countries, it is much larger there today than it was in the rich countries at the start of the twentieth century. The major contribution to this remarkable in-

[44]The extent of public sector expansion, its underlying causes, and recent reforms are discussed in more detail in Vito Tanzi and Ludger Schuknecht, *The Growth of Government and the Reform of the State in Industrial Countries*, (Washington: International Monetary Fund, 1995).

crease has been the expansion of government transfer payments, closely linked to the growth of the welfare state, though most other expenditure categories have also contributed. Apart from public sector activities reflected in the budget, government intervention in the economy also increased on account of various "off-budget" activities, although this trend is more difficult to document.[45]

The Bolshevik revolution in Russia in 1917 constituted a much more radical and complete takeover of the economy by the state. The newly created Soviet Union embraced central planning to manage its economy, a socio-economic experiment setting the stage for a global ideological competition that was to dominate the better part of the century. Following World War II, the Soviet Union forcefully expanded its political influence in eastern Europe, greatly enlarging the number of countries that imposed the "Soviet model" of economic management. And in 1949, with the victory of the communist revolution, China—comprising a fifth of the world population—joined the group of countries embracing central planning.

In the western industrial countries the expansion of the public sector gathered momentum during the 1930s, following an earlier boost during World War I. Many governments sought actively to combat mounting unemployment and poverty during the depression by public works projects and welfare payments. This partly reflected the change in the political balance of power, resulting from the extension of voting rights after World War I.[46] It was also supported by the ideas of John Maynard Keynes—which rapidly gained respectability—who advocated active use of fiscal policy to combat the recession. The second World War greatly increased government claims on resources among all belligerent countries, an effect that was not entirely reversed following the war. Nationalization of "key industries" became fashionable in many European countries and newly independent ex-colonies following World War II, greatly increasing the role of the public sector as an active participant in the economy. However, the subsequent disappointing performance of these industries under government tutelage has led to widespread (re-)privatization in the last quarter of the century.

A significant cause of growth in the ratio of public expenditure to GDP, especially during the high productivity growth period following World War II, has been the "relative price effect."[47] Rapid productivity growth in the private sector and sluggish or zero (imputed) productivity growth in the public sector will tend to raise relative output prices in the latter. This will lead to an increase in the share of government expenditure if income and price elasticities in the two sectors are such as to increase real demand for their output proportionally. The effect will be the more pronounced the higher (lower) the income (price) elasticities of demand for public goods (i.e., if they are "superior goods," demand for them increases more rapidly than income).[48] The same phenomenon contributed to the expansion of the share of private services in total output.

[45]Prominent among off-budget activities are government loan guarantees, tax expenditures, and government ownership of commercial enterprises, the latter entering the budget usually only in the form of net profit figures.

[46]An econometric study of the growth of social transfers reported in Lindert found that the most important influences through 1930 were the extension of the electoral franchise, which in some countries profoundly altered the identity of the median voter, and the aging of the population. For the 1960s to the 1980s, when democracy was already mature, population age structure was by far the dominant factor in explaining the rise of social spending over time; see P. H. Lindert, "The Rise of Social Spending, 1880–1930," *Explorations in Economic History*, Vol. 31 (1994), pp. 1–37, and P. H. Lindert, "What Limits Social Spending?" *Explorations in Economic History*, Vol. 33 (1996), pp. 1–34.

[47]The importance of this effect was first pointed out by William J. Baumol, "Macroeconomics of Unbalanced Growth: the Anatomy of Urban Crisis," *American Economic Review*, Vol. 57 (1967), pp. 415–426.

[48]Supporting evidence for this hypothesis, also known as "Wagner's law," is presented by Lindert, "The Rise of Social Spending" and "What Limits Social Spending?" The relative price effect has been shown to be important in accounting for the rise in government expenditure shares in the areas of education, health care, and general government services; see Peter Saunders and Friedrich Klau, "The Role of the Public Sector," *OECD Economic Studies,* special issue (Spring 1985).

Most of the expansion of the public sector during the twentieth century can, however, be explained by the government taking on entirely new tasks, which it had not previously pursued.[49] Prominent among these are the various components of social insurance, including income redistribution. And a significant expansion in the government provision of (especially higher) education has also taken place. Unlike the steady upward trend in government expenditures and taxation, the trend in government regulation has been mixed. On the one hand there has been a gradual net increase in domestic regulation concerning predominantly labor markets and consumer and environmental protection. In the second half of the century, however, significant liberalization took place in the areas of international trade (in the framework of the General Agreement on Tariffs and Trade) and domestic as well as international capital markets, reversing the highly protectionist policies that had been put in place during the inter-war period. Finally, the twentieth century also witnessed the birth of demand management policies; while these do not necessarily increase the average level of government activity, they certainly constitute a major government involvement in economic management.

Although there has been much political rhetoric during the final quarter of the century about the desire to scale back the public sector, in no country outside the former Soviet Bloc has the public sector expenditure ratio been reduced by anywhere near the amount of its increase following World War II. In contrast, government involvement in the economy has been drastically cut back in the countries comprising the former Soviet Union and eastern Europe, where central planning was abandoned with the collapse of the Soviet empire. These countries are currently in the process of rebuilding their economies, largely to rely on market forces. The change has been less abrupt in China, which started reforming its centrally planned economy in the late 1970s by opening the door to private initiative (importantly, including foreign private investment) and stressing economic incentives.

Indeed, arguably the most important lesson from twentieth-century economic history is the failure of central planning. While this observation seems almost trivial in retrospect, it should be remembered that during the third quarter of the century close to half the world population was living in countries with centrally planned economies, and in the 1960s the capitalist market economies were under serious political attack from left wing radicals and many intellectuals.[50] The "attraction of a planned and directed economic system" (Hayek), especially among intellectuals at the time, was not only based on miscellaneous shortcomings of real world alternatives, but also on excessive optimism concerning governments' ability to predict the future, know the present, and improve on market-determined outcomes, as well as on the utopian belief that human nature can be "perfected."

Central planning eventually failed on economic criteria because of its refusal (and inability) to exploit the capability of well-functioning and contestable markets to generate valuable information to guide resource allocation and—through competition among decentralized decision units—exert continuous pressure on producers to raise efficiency and to innovate. The advantages of decentralized information processing and decision making in resource allocation became increasingly important as technical progress accelerated, requiring an ever faster

[49]The trend had been initiated in Germany in 1883 with the introduction of workers' sickness insurance and old age pensions under the conservative government of Bismarck. It spread among other European governments and beyond only in the twentieth century.

[50]For an analysis of the popularity of anti-market sentiments among intellectuals, see Friedrich A. Hayek, *The Intellectuals and Socialism* (London: The Institute of Economic Affairs, 1998, reprint). It is interesting to note that Hayek's main argument against central planning (or more generally "socialism") was not based on the greater efficiency or productivity of "capitalism," but on its potential to enhance or preserve personal freedom and liberty.

response by firms to stay competitive.[51] It also made economies much more resilient to large external shocks like big changes in raw material prices and exchange rates, by endowing them with superior flexibility to adapt to changing circumstances.

Still, central planning was pursued for some 70 years in the Soviet Union and for over a generation in many other countries. Why did it take so long for its shortcomings to be recognized? One reason is that, at the initial stage of development, it did succeed in delivering impressive growth rates and in mobilizing resources for development. In the case of Russia and China, at the outset predominantly agrarian economies where the majority of citizens were illiterate, the transformation to an industrialized and educated society was achieved roughly within a generation. However, once these economies entered intermediate or higher stages of development and resource allocation choices became more complicated, the system was unable to cope. It also had difficulties dealing with accelerating technological change and other types of exogenous shocks.

The advantages of competitive markets in raising economic efficiency and stimulating innovation are now generally recognized, and most countries attempt to harness them in their effort to promote growth. However, as the example of the economies in transition demonstrates, well-functioning contestable markets do not appear spontaneously, but require an elaborate social infrastructure and robust institutions preventing the abuse of market power. The lesson here is that there is an essential role for the government to create conditions that allow markets to develop, to function orderly and efficiently, and to remain contestable. Foremost among these conditions is the establishment of clear property rights (covering both individuals and corporations, and including effective rules on how to transfer property and resolve bankruptcies), and institutions that secure the equitable "rule of law" for all citizens, comprising an independent judiciary system and objective and effective law enforcement to back it up. These requirements can be met only with stable political systems, explaining the importance of the latter, repeatedly confirmed in empirical analysis of the success (or lack of it) in economic development (see Chapter IV).

Even where the pertinent social infrastructure is in place (including sound financial policies and institutions), free markets may fail to produce efficient outcomes due to a number of market imperfections. Prominent among these are costly and asymmetric information, market power due to economies of scale ("natural monopolies"), and externalities of various types. In principle, such market imperfections provide opportunities for government intervention to improve on market outcomes. The appropriate type of intervention—taxation, regulation, or government provision of output—cannot be determined in the abstract, however. It requires a detailed analysis of the issue under consideration, including the knowledge of available technology, since changes in the latter may alter the nature of scale economies and the feasibility of internalizing various externalities.[52]

Mounting concerns about market failures has probably been one of the major reasons behind the increased government intervention observed during much of the twentieth century. But an important lesson learned in this context is that

[51]At an early stage of the rapid development of large-scale computers, it had been assumed by some that this would tilt the balance in favor of central planning by greatly speeding up data processing. This ignored the fact that it would do so for decentralized decision makers as well, and that by greatly accelerating structural change both overall and within firms it would actually favor decentralized decision making.

[52]A particular manifestation of market failure occurs in the operation of utilities. The network dependence in providing the related services has long been considered the reason why they constitute natural monopolies, either to be regulated by the government (the United States solution) or to be operated by the public sector (the European approach). Similar differences can be observed (to some degree) in other network industries. Changing technology can, however, change the borderline between natural monopolies and contestable markets, influencing the optimal scope of government involvement in the economy, including recent moves to generate competition in some networked services.

there is not only market failure but also government failure.[53] This has implications for the feasibility of government corrective action. Market failure alone is not a sufficient condition for justifying government intervention; it must also be shown that the government is indeed capable of remedying the identified shortcoming, and that its intervention results in a net increase in social welfare. Where the borderline between efficient (i.e., welfare raising) and inefficient government intervention actually lies remains very much a bone of contention, not least because in many cases such intervention also has important distributive implications.

While efforts to correct for market imperfections explain much of the twentieth-century increase in government regulation, the significant increase in the ratio of government expenditure to total output is (apart from the relative price effect discussed above) mainly accounted for by the emergence of the government as provider of social insurance and its effort to redistribute income through the tax/transfer system. The rationale for government involvement in various social insurance programs (including health insurance) has usually been based on arguments of market failure (moral hazard and adverse selection) preventing private insurance markets from operating properly or at all.[54] In contrast, income redistribution is mainly based on normative objectives. The practical implementation of the various programs has often lead to unexpected negative side effects, including inefficiency and abuse. Rising recognition of these problems has, in turn, triggered periodic efforts to reform existing programs.

Though virtually all (advanced) economies now accept in principle some government role in social insurance and income redistribution, the extent to which such services are provided in different countries differs widely. For example, transfer payments (and therefore taxes) are much higher in many European countries than in the United States and Japan. This may well be efficient if the degree of government intervention reflects different national tastes and preferences: the optimal degree of redistribution and provision of social insurance is largely a value judgment and cannot be decided on the basis of positive economics. A resulting issue that nevertheless concerns all countries is how to provide the desired redistribution and social insurance with minimal negative effects on incentives and efficiency; this remains very much a subject of both political debate and economic research.[55] Another issue of rising importance is the extent to which the rapidly increasing mobility of capital and highly skilled labor will limit countries' ability to impose taxes to finance the social insurance and income redistribution schemes of their choice.

Two areas where government involvement seems to be highly beneficial and probably indispensable in fostering economic development is infrastructure investment and (basic) education. In both these cases, government involvement is justified on the basis of important positive externalities, which implies that too little would be supplied if provision were left entirely to the private market. Transport and communications infrastructure has a close link to the development and proper functioning of markets, while basic education is important in enabling people to exploit the opportunities for gainful activity that markets provide.

The government's role in providing the social, physical, and institutional infrastructure that allows competitive markets to function and in ad-

[53]The reasons for this are developed in public choice theory; see Hugh Stretton and Lionel Orchard, *Public Goods, Public Enterprise, Public Choice: Theoretical Foundations of the Contemporary Attack on Government* (New York: St. Martin's Press, 1994).

[54]These programs in general have also been popular with the electorate, reflecting a genuine voter demand for social insurance. It is possible, however, that this voter demand is biased upward because of the failure to relate the program to its full costs, giving the illusion of a "free" (or cheap) service.

[55]Many recent reforms in this area are based on the experience that mixing the social insurance function with income distribution objectives, as is usually the case with government programs, reduces transparency and exacerbates negative incentive effects.

dressing market imperfections has long been recognized.[56] In contrast, the government's role in smoothing cyclical fluctuations has a relatively short history and is controversial. "Stabilization policies" and "macroeconomics" are innovations of the twentieth century in reaction to the perceived lack of stability of the market economy.[57] The idea of an active government role in stabilizing the business cycle by employing fiscal policy, born during the inter-war depression, had gained general acceptance by the mid-1960s among academics and politicians alike. The subsequent performance of fiscal stabilization policies, however, fell distinctly short of expectations.

The difficulties of diagnosing the cyclical situation correctly, and of implementing fiscal measures at the right time, proved substantial. Another impediment to successful demand management has been politicians' inability to use it symmetrically. Although eager to use expansionary measures in times of (actual or alleged) recession, governments were, and remain, very reluctant to apply contractionary policies during a boom. The result has been a severe inflationary bias in fiscal policy, resulting in an unprecedented peacetime increase in both government debt and the price level in the second half of the twentieth century. Moreover, the idea of being able to "fine tune" the economy has been increasingly questioned, especially with respect to fiscal policy. However, the operation of built-in stabilizers is widely recognized and generally welcome. In combination with the increased size of the government sector and the active pursuit of counter-cyclical monetary policies, built-in stabilizers probably contribute to the fact that cyclical fluctuations in modern ("mixed") economies tend to be less violent than they had been in nineteenth-century laissez-faire economies.

Returning to the importance of institutions, a stable medium of exchange ("money") is an essential prerequisite for well-functioning markets. The quest for stable money and the appropriate institutions to support it was an important part of twentieth-century economic history and is likely to continue into the twenty-first century.[58] This quest faces three major difficulties:

- Rapid technical change and innovation in financial markets tend to make the appropriate system a moving target, requiring frequent modifications and corrections in pertinent government regulation.
- The crucial role of banks in the operation of financial markets and getting the "right" degree and type of bank regulation.
- Political interference with the state monopoly of issuing the official currency make any system based on fiat money vulnerable to abuse in pursuit of short-term political objectives.[59]

The current thinking on the issue, developed during the painful experience of a quarter century of high inflation, is that an independent (from direct political influence) central bank, with clearly defined responsibilities and accountability, and a carefully supervised and regulated banking system are most likely to meet the stable money objective.[60] In some cases, countries have adopted currency boards to strengthen the credibility of their commitment to stable money.[61]

[56]The principle insights go back to Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, originally published in 1776.

[57]One source of this instability may be the greater economic interdependence due to increased specialization; another cause may be reduced flexibility in prices and wages, which has diminished the self-adjustment capacity of the market economy. And ill-conceived government intervention, some would note, can also be a source of instability.

[58]Hopes that strict monetary targeting would create financial stability proved overoptimistic, not having taken into account the lack of stability in the money demand function and the difficulty of identifying a reliable money concept under conditions of rapid financial innovation.

[59]One of the advantages of commodity money (and an explanation of its popularity) may have been the fact that it protects the currency from political interference—even though history has shown that this protection is not necessarily absolute; see Eichengreen and Sussman, "The International Monetary System."

[60]The fiscal system also enters the picture because persistent large fiscal deficits will sooner or later lead to monetary financing and thus threaten the stability of the national currency.

[61]These include Argentina, Estonia, and Hong Kong SAR.

And some countries have actually gone so far as to abdicate their sovereign right to issue money and have adopted a supra-national currency to meet that need.

In the 1980s and 1990s, alternative operating strategies—monetary targeting, inflation targeting, "two pillar" systems of both inflation and monetary targets, and "Taylor rules" including inflation and the output gap—were adopted in response to the instabilities and excesses of the 1970s. But the spread of these institutional and conceptual developments has been slow and halting. As these alternatives continue to spread from the advanced industrial countries to the developing world, there may be reason to hope that confidence will grow and that some causes of turbulence in currency markets will die down. With the further advance of globalization, however, volatility in financial markets, including exchange rates, will probably continue.

In addition, the democratization of the Third World—while highly desirable in its own right—has highlighted the conflict between internal and external objectives that has been a source of tension in the First and Second Worlds for the better part of a century. Now that those primarily affected by unemployment and distributive policies can make their priorities count via the ballot box, it has become harder for governments to subordinate all other goals of policy to stabilizing the exchange rate. As exchange rate policy has come into conflict with other priorities, it has lost credibility. But as they gain experience with democracy, a growing number of societies appear to be concluding that the politicization of economic policymaking can entail serious costs in cases where governments' behavior is opportunistic. Societies have responded to this risk with institutional reforms—for example, strengthening the independence of their central banks and adopting fiscal rules (the Growth and Stability Pact in western Europe, the Fiscal Convertibility Law in Argentina)—in the attempt to better insulate policy and the foreign exchange market from day-to-day political pressures. Another example is the currency board, an alternative to floating exchange rates that appears to be gaining adherents, which is, in a sense, a return to the gold-standard-style arrangements of previous centuries.

## Some Global Challenges Ahead

Notwithstanding the astonishing achievements of the world economy in the twentieth century, economic policymakers around the world will continue to be challenged to meet the aspirations of their electorates and to adjust continuously to the changing economic environment to do so effectively. Most of these challenges will be posed by the domestic economy, concerning the optimal utilization of national resources—importantly, including the achievement of full employment—growth, and a "just" distribution of income (however each nation may define it). Some of the challenges will, however, transcend national borders, given the increasing interdependence of the world economy; this section will highlight three of them.

From a global perspective, the major failure of economic management in the twentieth century also defines the greatest policy challenge for the future: to raise the productive capacity and incomes of the fifth of the world population (some one billion people), who remain in the grip of absolute poverty, and whose command of goods and services has hardly increased, even though they have benefited from global progress in the medical sciences through the reduction in morbidity and mortality rates.[62] The policies required to work toward raising the incomes of the world's poor are outlined in some detail in Chapter IV. Based on the policy lessons discussed above, the essential condition for success would seem to be the capacity of the countries concerned to create the social institutions and stable and secure environment that permit and motivate their citizens to pursue gainful activities

[62]However, in some of the poorest countries the secular trend toward lower morbidity and higher life expectancy has recently been reversed as a result of the spreading AIDS epidemic.

and plan for their future. While building this social infrastructure must remain the responsibility of the national authorities and the citizens they represent, a growing body of evidence and expertise has been accumulated by governments, public and private think tanks, nongovernmental organizations, and international organizations (including the international financial institutions) to assist them in this formidable task. Drawing the appropriate implications and lessons from this evidence and experience may be as essential a contribution to sustainable development of the poorest nations as access to external savings. But these lessons cannot be forced on an unreceptive government or population, and this may indeed constitute the most serious obstacle to rapid improvements in the near term in several cases.

A second challenge is to strengthen and expand the open world trading and financial system and reduce its potential for disruption. Twentieth-century experience has shown that international trade and capital movements are essential to realize the vast potential benefits of global division of labor and to accelerate the diffusion of technology. But it has also shown that the resulting interdependence of national economies can lead to rapid propagation of adverse shocks that may seriously set back even well-managed economies. And large amounts of internationally mobile capital combined with domestic policy imbalances and volatile exchange rate expectations can generate serious international financial crises. However, retreat from globalization is no solution as shown by the inter-war experience, which led to a prolonged disruption in international trade, capital movements and technology diffusion, with detrimental effects for output growth in poor and rich countries alike. Strengthening the network of international trade and capital flows and making it less vulnerable to sudden disruption require both skilled economic management at home as well as international economic cooperation, including a useful and constructive role of the various international financial institutions. Last but not least, to be durable, it requires political leadership that is willing and able to explain the advantages of the system to the electorate at large and to prevent special interest groups from gaining exceptional treatment, undermining the principles of free trade.

A third global concern is that success in promoting economic growth and international trade may lead to increasing pressure on finite global resources and the environment.[63] The corresponding challenge is to make economic development "sustainable," defined as meeting the needs of the present without compromising those of future generations.[64] Uncontrolled population growth was for a long time considered a major threat to sustainability, but more recent demographic data and global population projections suggest that this threat is declining.[65] Even if the world population stabilizes, the use of nonrenewable and finite resources (like fossil fuels and minerals) may pose a problem for sustainability. Optimistic observers maintain that steady technological progress and the substitutability between materials and processes will overcome the limits of nonrenewable resources, permitting not only sustainability but even perpetual growth in output and consumption.[66]

This maxim seems to have been valid since the start of the industrial revolution. However, there is no guarantee it will hold indefinitely, and an

[63]Many of the problems of resource waste and environmental degradation stem from ill-defined property rights and the resulting absence or distortion of market signals. At a local level, many pollution problems can and have been successfully addressed from this angle.

[64]World Commission on Environment and Development, *Our Common Future* (The Brundtland Report), (Oxford: Oxford University Press, 1988).

[65]The concerns go back to the eighteenth century and Malthus. However in 1997, 51 countries, comprising 44 percent of the world population, had fertility rates below the replacement level of 2.1 children per woman in child-bearing age, and fertility rates in the majority of other countries were on a steep downward trend (Figure 1.3).

[66]Julian Simon, *The Ultimate Resource* (Princeton, N.J.: Princeton University Press, 1996)

overly complacent attitude toward the issue of sustainability risks being dangerous. The problem is greatly complicated by intrinsic future uncertainty. It also involves important questions of how to value the existing stock of environmental assets and of comparing the welfare of different generations.[67] Climate change, preservation of bio-diversity, and the use of nuclear energy (and disposal of resulting radioactive waste) are just a few examples of the pressing policy issues involved. The fact that few decisive actions have been taken (so far) in any of these areas is less a reflection of technical or political inability to act than of uncertainty and disagreement about the precise mechanisms and trade-offs involved.[68] Under these conditions, acquisition of better information and knowledge ought to be a policy priority, while balancing the cost of preliminary preventative action against the risk of future damage resulting from non-action.

[67]See the discussion in Geoffrey M. Heal, "Interpreting Sustainability," Paine Webber Working Paper Series in Money, Economics and Finance, Columbia University Business School, PW-94-24 (1995).

[68]The Montreal Protocol to ban chemicals that cause stratospheric ozone depletion ("ozone holes") shows that swift international action is possible, once there is agreement on the facts.