

## Chapter 3

### ECONOMIC GROWTH

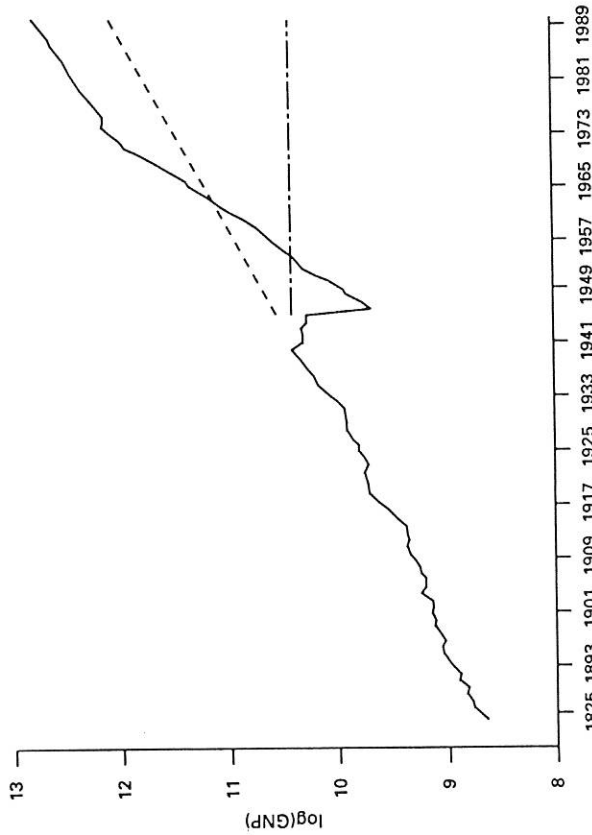
The most remarkable aspect of the postwar Japanese economy is its rapid growth. Between 1950 and 1973 the economy grew at an average rate of 10 percent a year, doubling its size every seven years. The secret of rapid economic growth, or "high-speed growth" [Kōdo seicho], has attracted many researchers.

Figure 3.1 concisely illustrates the history of economic growth in Japan. With the logarithm of real GNP measured on the vertical axis, the slope of the solid line shows the rate of growth. (Recall the explanation of the semi-logarithmic scale in chapter 2.) The line shows slow but steady growth from the Meiji period to World War II, a sharp drop in productive capacity as a result of the war, rapid and accelerating postwar growth until the oil-price crisis of 1973-74, and a slowdown in growth (a kink in the slope) around 1973. The two broken lines in figure 3.1 show the level of the prewar peak and the prewar trend line (the line connecting 1917 and 1938) extrapolated through the postwar period.

Figure 3.2 compares US and Japanese economic growth since World War II. Notice that US growth has proceeded at a roughly constant rate (i.e., no trend), whereas Japanese growth dropped suddenly in 1974.

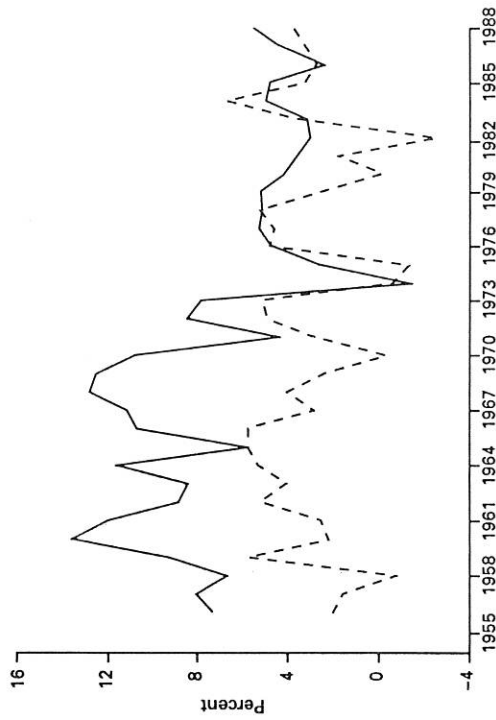
The postwar data in figure 3.2 are restated as five-year average growth rates in table 3.1. The table reinforces the impression of accelerating growth from the 1950s to the early 1970s, followed by slow and steady growth after the 1973-74 oil crisis.

From these data we can derive three observations. First, the rapid economic expansion in Japan was not unique to the postwar era. In fact, the average rate of economic growth from the Meiji Restoration to the 1930s exceeded 3 percent per year, which was respectable for



**Figure 3.1**  
Japan's GNP. — log of GNP (billion yen, 1980 prices); - - - - trend of prewar GNP extrapolated to postwar years; - · - · - peak level of prewar GNP.

a country in the preliminary stages of economic development. Second, Japan's growth accelerated between the end of the war and the oil-price crisis of 1973-74. Since that oil crisis, however, growth has slowed noticeably, averaging only half the earlier rate. Third, Japan's economic growth has consistently outpaced that of the United States, although the gap has narrowed considerably since the oil-price shock of 1979. It is clear that Japan's growth before the oil crises was phenomenal. Even after the first oil crisis, Japan's economic growth rate exceeded that of the United States. Between 1977 and 1986 the average growth rate was 4.2 percent in Japan, while it was 2.7 percent in the United States; between 1986 and 1990, the average rate was 5.0 percent in Japan and 4.0 percent in the United States. These observations suggest that any satisfactory analysis of the Japanese experience should explain how prewar and



**Figure 3.2**  
Growth rates of Japan (solid line) and United States (broken line).

**Table 3.1**  
Real GNP growth rates of postwar Japan.

1953-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85
7.0	8.6	10.6	11.2	4.6	5.1	3.9

Sources: Economic Planning Agency, National Income Accounts and Annual Report on National Accounts.

postwar growth are connected and why the first oil crisis affected Japan's growth so dramatically.

This chapter attempts to explain the secret behind Japan's rapid economic growth from the end of World War II to 1973, and the reasons for the slowdown after the first oil crisis.

It is important to emphasize the major constraints on growth, rather than only the major driving forces. It is often said that in the 1950s and the 1960s Japan's foreign-exchange reserves set a ceiling on growth. Since economic growth in Japan increased Japan's imports of raw materials and intermediate goods, while Japan's exports were determined by the growth of foreign countries' demands, too

high a growth rate in Japan meant a deterioration of Japan's foreign-exchange reserves under the fixed-exchange-rate regime. When foreign reserves declined, policy measures were taken to slow down the growth of aggregate demand. In contrast, after the 1970s the constraint became effective on the aggregate supply side. The growth in technological progress as well as in capital and labor inputs defined the ceiling of growth for the 1970s and the 1980s. This gives a clue as to why Japan's average growth rate after the first oil crisis dropped to half of what it had been before.

A first thought on the rapid economic growth of postwar Japan might be that it was a result of recovery from the devastation of the war or of catching up to the prewar level. This hypothesis has two versions. According to the first version, Japan had abundant technology, capital, and labor at the end of war, idle from the halt of military production but easily convertible to nonmilitary production, and with these resources it was easy to grow rapidly back to the level of the prewar peak (i.e., the peak that was reached before productive factors were confiscated for military purposes). As figure 3.1 shows, the prewar peak of output was surpassed around 1954–55. But the rapid growth continued after 1955. The second version of the "catching up" hypothesis asserts that the prewar "trend line," not the level, was what the postwar Japanese economy was catching up to. If so, the Japanese economy would have grown up to the prewar trend line extrapolated through the postwar years, depicted by a broken line in figure 3.1. The trend line of the prewar period extrapolated through the postwar period was surpassed by actual output around 1963.<sup>1</sup> But the actual rapid growth continued for ten more years. Therefore, it is difficult to find support for either version of the simple recovery hypothesis in figure 3.1.

But if not mere recovery, what is the key to Japan's rapid postwar economic growth? This is the question we will explore in the present chapter.

### ANALYZING SOURCES OF ECONOMIC GROWTH

Economic growth can be viewed from either the demand side or the supply side. Balanced growth can be achieved only if both demand and supply grow without disruptions, since output (aggregate supply) in the long run should be equal to aggregate demand. On the

demand side, a small country must rely on exports in order to grow substantially. Therefore, developing international competitiveness is crucial to ensuring demand growth. Aggregate demand can be understood as the definition of GNP:

$$Y^d = C + I + G + (EX - IM), \quad (3.1)$$

where aggregate demand ( $Y^d$ ) is the sum of consumption (C), investment (I), government expenditures (G), and net exports (EX - IM). On the supply side, the accumulation of capital in the form of modern factories and machines is important for increasing productive capacity. The source approach to analyzing growth looks at output from the supply side. It attempts to decompose growth of output into growth of the factors of production, and to determine the relative contribution of each productive factor. The output when viewed from the supply side can be expressed as a (production) function dependent on inputs of capital (K), labor (L), and the technological level (A):

$$Y^s = F(K, L, A). \quad (3.2)$$

Thus, growth can occur through capital accumulation, through increases in working hours and employment, or through technological progress that enhances the productivity of existing capital and labor. The question now is how to decompose growth into contributions from those growth factors. The exact formula for the econometric estimation required for any decomposition depends on the specification of the production function. (See the example of the Cobb-Douglas production function discussed in the accompanying box.)

In table 3.2, conventional estimates of the supply function are used to decompose growth into the amounts due to labor, capital, and technological progress in a comparison between Japan and the United States.<sup>2</sup> Table 3.3 compares the Japan of the 1960s with the Japan of the 1970s. These tables suggest five observations:

- Japan had a higher (absolute) contribution to its growth rate from every factor (labor, capital, and technological progress), and from almost all components of these factors. Therefore, the high growth rate of Japan depends on all three of the major factors.
- There are three subcategories that contributed more to US growth (in absolute terms) than to growth in Japan: number of persons employed, education, and international assets.

Table 3.2

Country	Japan	United States
Period	1953-1971	1948-1969
Average growth rate	8.81%	4.00%
Contribution by factor	Absolute	Relative
	(to 8.81%)	(to 4.00%)
<b>Labor</b>	1.85	1.30
Employment	1.14	1.17
Hours	0.21	-0.21
Sex, age composition	0.14	-0.10
Education	0.34	0.41
Unallocated	0.02	0.03
<b>Capital</b>	2.10	0.79
Inventories	0.73	0.12
Nonres. struc. & equip.	1.07	0.36
Dwelling	0.30	0.28
International asset	0.00	0.03
<b>Technological progress and residuals</b>	4.86	1.91
Knowledge	1.97	1.19
Improved res. alloc.	0.95	0.30
Scale economies	1.94	0.42
Total, allowing for rounding errors	(100.0)	(100.0)

Source: Denison and Chung 1976a, pp. 98-99.

- From the 1950s to the 1960s, the "hours" component of labor input was a positive contributor to growth in Japan but not in the United States.<sup>3</sup> This trend reversed itself during the 1960s. According to the above observations, it would certainly be misleading to say that the major factor contributing to Japan's economic growth in the 1950s and the 1960s was an abundance of cheap labor. On the other hand, the effect of reallocating workers from the low-productivity agricultural sector to the high-productivity manufacturing sector is placed in the "improved resource allocation" subcategory, and Japan also enjoyed an edge in this category.

Table 3.3

Country	Japan	Japan
Period	1960-1970	1970-1980
Average growth rate	10.62%	4.84%
Contribution	Absolute	Relative
	Absolute	Relative
<b>Labor</b>	1.59	1.01
Employment	0.97	0.63
Hours	-0.06	-0.26
Sex, age composition	0.27	0.19
Education	0.41	0.45
<b>Capital</b>	3.40	1.29
Inventories	0.70	0.28
Nonres. struc. & equip.	1.47	0.83
Dwelling	0.27	0.13
Age of equipment	0.96	0.05
<b>Technological progress</b>	5.53	2.54
Knowledge	4.78	2.01
Improved res. alloc.	0.85	0.53
Total, allowing for rounding errors	(100.0)	(100.0)

Source: Shinohara 1986, p. 17.

#### The Cobb-Douglas Production Function

Suppose that the production function is of the Cobb-Douglas type, with disembodied technological progress:

$$Y = AK^aL^{1-a}, \text{ where } 0 < a < 1.$$

Then by defining  $dY = Y(t+1) - Y(t)$ , and likewise for  $dK$ , and  $dL$ , and  $dA$ , we can express the decomposition of growth as

$$\frac{dY}{Y} = a \frac{dK}{K} + (1-a) \frac{dL}{L} + \frac{dA}{A}.$$

It can be shown that when the factor market is competitive, parameter  $a$  is the capital share of output, namely  $rK/Y$ . Thus,  $(1-a)$  is the labor share,  $wL/Y$ .

- Capital accumulation was more important than labor in Japan, in contrast to the US experience. The (absolute and relative) contribution of capital in Japan diminished significantly in the 1970s, however. In particular, the average age of structures and equipment rose.
- More than half of Japan's growth is attributed to "technological progress and residuals." Of the technological subcategories, "knowledge" represents (in the case of Japan) improvement in the average state of technology due to technology transfers from Western countries, better business organization, and improvements in management practice. US growth also received a strong contribution from advances in knowledge. The contribution of "scale economies" to growth was far greater in Japan, owing to the enlargement of the domestic and foreign markets.

Although the source approach demonstrates how the growth rate can be divided into contributions from various factors of production, it does not offer any explanation as to why those factors behaved as they did. In effect, this approach answers the question of why Japan grew so fast by raising other questions. For example, who financed the large increase in the capital stock in Japan? Was the much higher rate of technological progress in Japan due to "catching up" to the West? How much credit could the Japanese government claim for the achievement of rapid economic growth? The source approach also does not explain how the increased capacity was used, or whether the most efficient use was made of the increased capacity. If demand does not follow when supply is increased, economic growth stalls. We now turn to the question of how the components of aggregate demand grew.

### GROWTH IN AGGREGATE DEMAND

As Japan's productive capacity expanded sharply, expenditures on the output it generated necessarily increased. Among the components of aggregate demand, investment and exports played key roles in the rapid expansion. The ratio of private fixed investment to GNP remained very high (sometimes topping 20 percent) from 1955 to 1975. Figure 3.3 shows the ratio of private fixed investment to GNP and that of exports to GNP in nominal terms. Note that the invest-

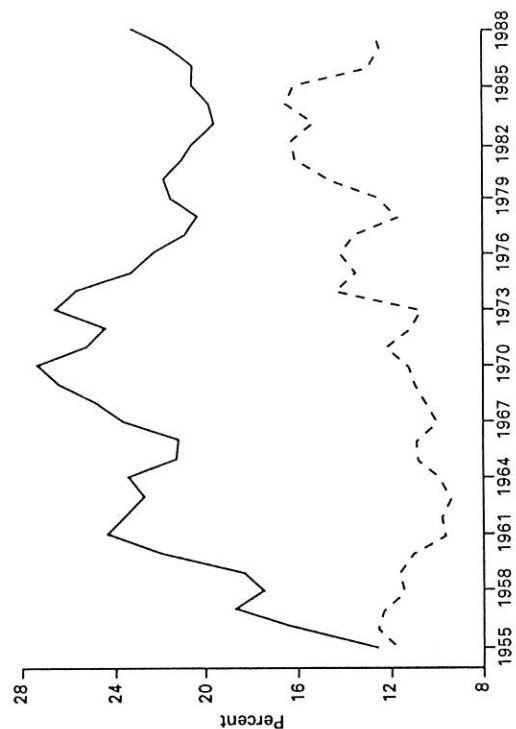


Figure 3.3

Nominal investment/GNP (solid line) and Exports/GNP (broken line).

ment ratio increased until 1973 but declined in the late 1970s, implying that investment was an engine of "high-speed" growth in the 1950s and 1960s. Note also that the export ratio does not seem to have increased during the 1950s and the 1960s.

Figure 3.4 shows the same ratios in real terms. Investment, exports, and GNP are each divided by the relevant price deflator; then investment and exports are divided by real GNP. In this figure, it is clear that the ratio of exports to GNP has been increasing continuously. Thus, in real (volume) terms, exports have contributed to absorption of output. The difference between figures 3.3 and 3.4 implies that export prices rose more slowly than the GNP deflator during the 1950s and the 1960s, so that Japanese goods became more and more competitive. (Note that the exchange rate was fixed at 360 yen per dollar from 1949 to 1971.)

The above analysis of the demand side suggests that the popular notion that Japan experienced investment-led growth and export-led growth is, in general, correct for the 1950s and the 1960s. The role of investment changed after the first oil crisis, however.



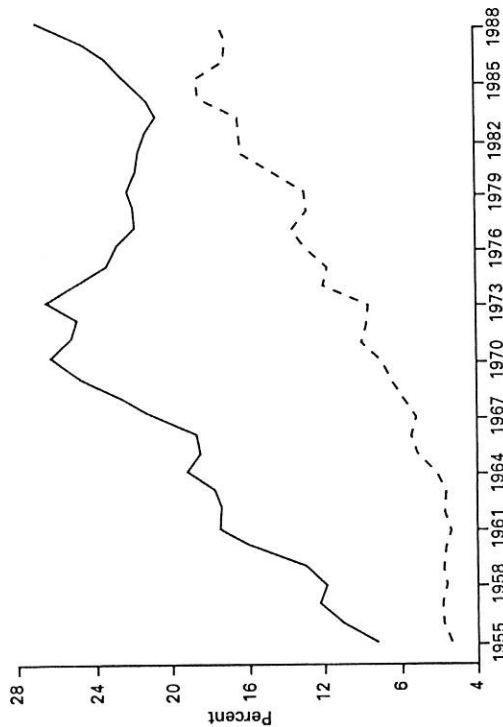


Figure 3.4  
Real investment/GNP (solid line) and Exports/GNP (broken line).

**REFORM AND THE BEGINNING OF STRONG GROWTH: 1945-1950<sup>4</sup>**

The Second World War destroyed a fourth of Japan's national wealth and assets, a fourth of its structures, and 82 percent of its ships. The country was quickly repopulated as veterans returned home and started families. With little productive capacity, the Japanese population was near starvation. This section provides a description of how Japan brought itself from the aftermath of destruction to the starting point of strong economic growth. There were three stages to the transition: a period of high inflation, a recession due to an austerity plan, and a boom created by the Korean War.

As table 3.4 shows, inflation was rampant immediately after the war. This was a direct result of the monetization of government war bonds. The three-digit inflation was controlled only after a package of drastic emergency measures called the Dodge Plan was introduced in 1949. This austerity plan (explained in detail below) halted the increase in the monetary base, curbed the size of the government's budget, and fixed the exchange rate at 360 yen per dollar.

Table 3.4

	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
GNP growth rate (%)	...	...	8.4	13.0	2.2	11.0	13.0	11.0	5.7	6.1
Inflation rate (%)	51.1	364.5	195.9	165.6	63.3	18.2	38.8	2.0	5.0	6.5
Monetary base growth rate (%)	148.2	67.5	132.9	61.5	0.3	18.9	19.9	13.8	10.8	-0.9
Gov't budget balance to GNP ratio (%)	9.0	418.3	75.9	135.1	56.0	1.2	24.0	16.8	16.6	2.3
Trade balance to GNP ratio (%)	...	...	-6.2	-3.8	-2.0	0.3	-1.9	-2.3	-4.5	-2.2
Major events	Surrender of Japan (Aug.)	Financial asset freeze (Feb.); price control (March); Zaibatsu dissolution	General strikes banned (Feb.); breakup of monopolies, land reform, labor reform		Dodge Plan	National railway labor problem	Korean War (Oct.)	End of Korean War		

Source: Toyo Keizai, Economics Statistics Annual, 1979.  
Note: Monetary base is sum of currency and coin.

### Three Economic Reforms Imposed by the Occupation Force

Soon after General Douglas MacArthur arrived in Japan as head of the Allied Occupation Force, he introduced several measures aimed at democratizing Japan politically and economically. Three major reforms imposed during the occupation—anti-trust measures, land reform, and labor democratization—affected the postwar Japanese economy significantly and are credited with promoting a higher rate of economic growth.

#### Anti-Trust Measures

The prewar *Zaibatsu* were groups of large companies across different industries controlled by family-owned holding companies. At the end of the war, major *Zaibatsu* groups held about 40 percent of equity (paid-in capital). The occupation force required the auctioning off of the shares owned by their holding companies, and thus the *Zaibatsu* groups were technically dissolved in 1946 and 1947. Furthermore, in 1947 the occupation force introduced a measure (called the Elimination of Excessive Concentration of Economic Power) intended to break up monopolistic companies. To maintain competition they also introduced the Anti-Monopoly Law. These policies made many markets more competitive, prompted vigorous investment demand, and enhanced consumer welfare.<sup>5</sup>

#### Land Reform

Also in 1946 and 1947, land was confiscated from absentee landlords with little compensation and resold to tenant farmers at bargain prices.<sup>6</sup> This drastic redistribution of wealth contributed to a considerable convergence in the standard of living. The percentage of farmland cultivated by tenant farmers declined from 46 percent in November 1946 to 10 percent in August 1950. On the one hand, the land reform created a middle class, thus contributing to income equity and political stability in the agricultural sector. The increase in agricultural production was rapid, and Japan's food supply was stable a few years after the land reform. On the other hand, the small lot size, partly a result of the land reform, has prevented farmers from taking advantage of scale economies. Agriculture has gradually become heavily subsidized and has been placed under numerous government controls.<sup>7</sup>

#### Labor Reform

Workers were granted the rights to organize in unions and to engage in collective bargaining by the Labor Union Law of 1946. The occupation force encouraged the organization of labor unions. Standards for the working environment and for compensation were established in the Labor Relations Adjustment Act of 1946 and the Labor Standards Law of 1947, respectively. As a result of these changes, labor unions spread quickly in every sector of the Japanese economy. The percentage of unionized workers jumped from 3.2 percent in 1945 to 41.5 percent in 1946, and then to 53.0 percent in 1948. In the midst of three-digit inflation and food shortages, unions and management clashed often. The labor unions planned a general strike for February 1, 1947; the occupation force, seeing that the labor movement was not moving along the course envisioned for it, banned that strike. Even after the occupation force withdrew its active support for labor unions, the number of strikes and labor-management conflicts continued to increase. In 1948 there were 913 strikes, involving more than 2.6 million workers. It was not until the 1960s that the cooperative labor-management relationship often cited in the Japanese management literature emerged nationwide.

In addition to the above-mentioned economic reforms, drastic social and political changes were implemented by the occupation force. The educational system was reformed on the American model, with all children required to attend elementary school for 6 years and junior high school for 3 years. High school (3 years) and college (4 years) are optional. Coeducation was introduced throughout the public schools.

The political system was also changed drastically by the occupation force. Under a new constitution drafted by the occupation force, the emperor became a "symbol" of the nation rather than the head of state. Military forces were permanently banned. Women were given voting rights, and elections for members of the House of Councilors were introduced. These reforms and social changes were carried out amid trials of war criminals, food shortages, runaway inflation followed by fiscal restraint, and political struggles between the right and the left. In order to prevent a total collapse of the economy, special aid and grants were extended to Japan by the United States and other Western countries.

### The Education System

In Japan there are national guidelines for what should be taught in elementary schools and high schools. Textbooks for these schools must be approved by the Ministry of Education. There is no skipping of grades, however smart a student may be; therefore, anyone entering college is at least 18 years old.

Colleges and universities are classified as national, prefectural (or municipal), and private, depending on their major funding sources. Even private universities receive subsidies from the national government, amounting to as much as a third of a school's general budget.

The college entrance examination is one of the central events in a student's life, and sometimes it can affect a person's entire career. In addition to a nationally standardized test (like the SAT), there are university-specific exams. By the time he or she applies to a college or university, the student must choose a major field, since the entrance exam is department-specific. Dates for university-specific exams are arranged so that a student can take exams for two different national universities. A student may take as many private-university entrance exams as he or she can handle in a year. (For about ten years prior to 1988, students had only one chance for admission to a national university.) Many universities, including most national universities, base their admission decisions solely on the student's performance on the entrance exam, a minority of schools consider high school grades, recommendations, or other information.

It is not uncommon for a student who fails the entrance exam to a good university to attend a "cram" school (*yobikō*) full-time for a year in order to prepare for another try, and many high school students attend cram schools in the evenings and on weekends. In fact, many junior-high students go to cram schools in order to get into good senior high schools.

The Japanese pre-college school systems are said to be stricter than their American counterparts. There are more school hours per week and more school days per year—on the average, 240 days in Japan, versus 180 in the United States.

### The Political System

The Japanese political system resembles the British system. There are two houses in the Diet (parliament): the House of Representatives (Lower House) and the House of Councilors (Upper House). Although members of both houses are elected, the methods of election and the lengths of terms differ between the two houses.

The House of Representatives has more political power when the two houses are in conflict over a budget, a treaty, or the selection of a prime minister. The head of government, the prime minister, is elected in the Diet. The majority leader in the House of Representatives is the usual choice. According to the constitution, a majority of cabinet members must be members of the Diet. In practice, a great majority of cabinet members are chosen from the House of Representatives; the rest come from the House of Councilors and, on very rare occasions, from outside the Diet.

There are 512 seats in the House of Representatives and 252 in the House of Councilors. Japan is divided into 130 electoral districts for the House of Representatives. Each district elects from three to six representatives, and this improves the prospects of candidates from minority parties.

The redrawing of electoral districts in order to reflect changes in population distribution, which lags behind actual shifts in population, is always a hot political problem. Currently, the most underrepresented district has as much as three times the population of the most overrepresented district, per representative. Several lawsuits related to this issue have been tried before the Supreme Court. Voters who claimed that an election was unconstitutional lost the suit when the Supreme Court found that a ratio of less than 3 to 1 was within the bounds of tolerance. In some other cases of ratios *greater than* 3 to 1, the Supreme Court found elections unconstitutional but did not declare them void.

There are two ways to elect members of the House of Councilors: through electoral districts corresponding to prefectures, and through one national district. In the national district, voters vote for parties rather than for individuals, and the seats are given to individuals on the parties' lists (announced before the election) in proportion to the parties' earned votes.



### Stabilization Efforts and Inflation

From 1946 to 1948 the Japanese government was trying to achieve two opposing goals: accelerating the recovery of productive capacity in major industries and taming inflation. On the inflation front, the government tried direct controls on prices and resource allocations. To rebuild productive capacity, the government pursued more traditional forms of fiscal and monetary policies.

The Japanese government directly planned the growth of the coal and steel industries. Its plan called for allocating domestically produced coal and imported coal preferentially to the steel industry, and domestically produced steel to the coal industry. The priority production plan [*keisha seisan hōshiki*] was very socialistic. The government also froze many consumer prices and rationed necessities such as rice.

Expansionary fiscal and monetary policies were adopted. The Reconstruction Bank, established in January 1947, became the primary machine for fiscal stimulation. The Reconstruction Bank issued bonds (most of which were bought by the Bank of Japan) and used the proceeds to subsidize key industries such as coal, fertilizers, electric power, and iron and machinery. The subsidies were used to keep the (controlled) producer prices higher than the (controlled) consumer prices. The Reconstruction Bank also made loans to public corporations. In essence, the arrangement was equivalent to government finance by the printing of money; in this respect, it was very Keynesian.<sup>8</sup> Of course, this type of Keynesian policy will cause inflation if the low production is due to a lack of productive capacity rather than a lack of aggregate demand; in such a case, the policy could exacerbate the problem of too much money chasing too few goods.

In an attempt to stop the momentum of inflation, the Japanese government took drastic action in February 1946, freezing assets and converting them into bank deposits, only a fraction of which were permitted to be withdrawn for living expenses.<sup>9</sup> In effect, the measure was equivalent to the confiscation of assets (and consequently of their purchasing power) through inflation. This measure was not successful in halting inflation, although it did succeed in bringing about greater income equity.

It is very difficult to evaluate Japan's economic policy of the years 1946–1948. Since the circumstances are extraordinary, standard

economic theory may not be applicable. Although the policy failed to stop inflation, economic growth was strong during this period.

### The Dodge Plan

The end to inflation did not come until drastic measures were taken to balance the budget. The American banker Joseph Dodge, already credited with ending Germany's postwar inflation, was appointed to work in Japan in 1948. The policy he initiated, which later became known as the Dodge Plan, was put into force in 1949. The main objective was to stop inflation by tightening the fiscal budget so that the government would not need to print money in order to finance its spending. The exchange rate was set at \$1 = 360 yen, and various steps were taken to encourage exports.

Although the Public Finance Law of 1947 prohibited the government from issuing bonds, the Reconstruction Bank continued to issue bonds. For the fiscal year 1949, Dodge proceeded to balance the unified fiscal budget (which included special accounts and government agencies such as the Reconstruction Bank), in addition to the general budget. As the fiscal budget was tightened, the economy went into a severe deflationary spiral. Prices fell, and it became possible to lift price controls without great economic disruption.

The Dodge Plan successfully put out inflation, brought back the market economy, and reopened Japan to international trade. It was a classic example of breaking an inflation spiral.<sup>10</sup> The economy was, however, heading for a recession. The increase in production stalled, and the fear of job losses increased. A severe recession was averted only by the special export demand created by the Korean War.

### The Early Days of the Cold War

In October 1947 the Cominform was organized by the Soviet Union and East European countries, and it became clear that the Communist Party was gaining power in China. In 1948 the blockade of Berlin by the Soviet Union was countered by a massive US airlift. As the world entered the Cold War period, the occupation policy changed. The most notable change was the creation of the "Self-Defense Forces." In addition, the policy of breaking up large companies was not fully carried through. The priority shifted to encourag-

#### Article 9 and the Self-Defense Forces

Japan's current constitution was drafted by the American occupation force in February 1946. After a little revision it was approved by the Diet (under the old constitution), and it became effective on May 3, 1947. A major thrust of the constitution is the establishment of a truly democratic state. It defines the emperor as the symbol of the unity of the state, without any real political power. All adults, male and female, received the right to vote for members of the Diet.

Article 9 of the constitution states that Japan renounces all military forces—explicitly including an air force, a navy, and an army—as means of resolving international conflicts. It is widely believed that at the time of the drafting of the constitution the United States wanted to keep Japan as non-militaristic as possible, but that the American policy shifted to encourage Japan to have some "self-defense" forces in order to counter the Communist threat during the Cold War. The Self-Defense Forces were established in 1954.

Some Japanese still interpret the constitution as not allowing any forces. The traditional line of the Socialist Party is that the Self-Defense Forces are unconstitutional. Many Japanese, however, believe that these forces are permissible under Article 9. Over the years, several Japanese governments have made interpretations and commitments with regard to the coexistence of the Self-Defense Forces and Article 9: not to possess any offensive capabilities, to keep the defense budget under 1 percent of the GNP, and to keep the Self-Defense Forces within the bounds of Japanese territory.

During the Persian Gulf Crisis of 1990–91, some members of the Liberal Democratic Party proposed to send Self-Defense Forces to the Gulf area in a support role (never in a combat role). This idea did not receive enough support, probably because many voters felt that it might lead to further stretching of the constitution.

ing greater production by existing companies rather than ensuring a competitive market by breaking up those companies. The aim of this policy was to strengthen Japan's productive capacity quickly.

#### The Korean War

After the outbreak of war in Korea (June 1950), Japan was used as a supply base for US and United Nations troops. This increased the demand for Japanese-manufactured goods and parts, and the economy grew quickly.

#### Summary

It is generally acknowledged that Japan owes much to the United States for helping, during the occupation, to create a foundation for postwar economic growth. The measures aimed at democratizing Japan, including the anti-monopoly policy, land reforms, and changes in labor relations, made the Japanese economy more competitive and dynamic. The Dodge Plan rescued Japan from runaway inflation, and a brisk rise in orders for Japanese manufactured goods due to the Korean War rescued Japan from a recession that the Dodge Plan might otherwise have caused.

#### RAPID GROWTH: 1950–1973

Japan's sovereignty was restored on April 28, 1952, when the San Francisco peace treaty, signed the preceding year, became effective.<sup>11</sup> Japan also resumed the independent formulation of economic policies after this date. The surge in orders for Japanese goods as a result of the Korean War continued until 1952. The increase in exports, through the multiplier effect, led to rapid expansion and provided much-needed foreign reserves. However, as production expanded, inflation resumed.

Table 3.5 summarizes the behavior of major economic variables in the late 1950s. In 1951, the lessening of the special demand for supplies for the Korean War left Japan in a difficult position. The balance of payments, which had been in surplus because of the extra demand, declined and became a major concern. From 1953 to 1957 Japan experienced trade deficits, although their magnitude declined over time.

Rapid economic growth in the 1960s is at the heart of the postwar Japanese economic "miracle." When Hayato Ikeda became prime minister in July 1960, his goal of "doubling income in ten years" became the focus of policy discussion and media attention.<sup>12</sup> Its adoption in December as the basic economic plan of the government indicated that strong growth-oriented economic policies would be coming. Critics initially argued that it was too optimistic to expect high growth rates for ten consecutive years, but the doubling of national income (measured by real GNP) was in fact achieved in seven years. (See table 3.6.)

The high rate of growth was sustained for nearly 20 years. Over this period, every recession raised fears that the end of rapid growth had arrived; however, growth was soon renewed. The government's forecasts of economic growth in its "economic plans" consistently underestimated actual growth. The realized economic growth was clearly beyond even the most optimistic forecasts of the time.

There is a long list of reasons why Japan was able to sustain rapid growth up to 1973. Besides the competitive environment created by the changes implemented by the US occupation forces and the stimulation brought about by the increased demand for Japanese exports generated by the Korean War in 1950 and 1951, these reasons include

- a sustained period during which the prices of the raw materials and agricultural commodities which Japan had no choice but to import were relatively low,
- sound policy decisions by Japan's monetary and fiscal authorities through the 1950s and the 1960s, and
- a high saving rate, which provided sufficient funds to support a high investment rate.

The role of saving-cum-investment cannot be overemphasized. Wise investment in state-of-the-art machines made it possible to take advantage of the great technological progress that was occurring during this time. High investment, due to high potential growth, also increased aggregate demand, so that output and income grew faster. Finally, investment created the additional capacity to increase aggregate supply. Domestic investment (gross domestic fixed capital formation) accounted for 30–35 percent of Japan's GNP through the 1960s. In 1988 Japan still devoted 30 percent of its GNP to investment, while the United States committed only 17 percent of its GNP to investment.

Confidence among industrial leaders, capital controls against foreign investment, and a strong financial system that funneled money from domestic savers (households) to domestic investors (firms) worked to translate the high saving into high investment. It was truly fortunate that Japan could match a relatively high saving rate with a strong demand for domestic investment. Without its high saving rate, Japan would have had to borrow from abroad to maintain its high investment and its rapid growth. A large quantity

Table 3.5

Calendar year	Real GNP growth rate (%)	CPI inflation rate (%)	Real domestic gross fixed investment (divided by GNP)		Trade balance divided by nominal GNP <sup>a</sup>	
			in WPI	in CPI	in WPI	in CPI
1955	...	-1.0	9.3	5.4	-0.2	
1956	7.3	0.0	11.0	5.8	-0.5	
1957	8.1	3.2	12.2	5.8	-1.3	
1958	6.7	-0.6	11.9	5.6	1.1	
1959	9.3	1.3	12.9	5.8	1.0	

Sources: nominal and real GNP, and investment: EPA, Choki Sokyū, 1988; CPI and trade balance: Toyo Keizai Tokai Nenpo, 1979.

a. (\$million × 360)/Nominal GNP.

Table 3.6

Calendar year	Real GNP growth rate (%)	Inflation rates		Real domestic gross fixed investment (divided by real GNP)		Real exports (divided by real GNP)	
		in WPI	in CPI	in WPI	in CPI	in WPI	in CPI
1960	13.6	1.1	3.8	15.9	5.7		
1961	11.9	1.1	5.1	17.5	5.4		
1962	8.9	-1.6	6.9	17.5	5.7		
1963	8.4	1.6	7.5	17.9	5.7		
1964	11.6	0.4	4.0	19.3	6.1		
1965	5.9	0.7	6.7	18.7	7.1		
1966	10.7	2.3	5.3	18.8	7.5		
1967	11.1	1.8	3.7	21.2	7.2		
1968	12.8	0.9	5.5	22.9	7.9		
1969	12.5	2.2	5.5	25.0	8.6		

Source: GNP, investment, export: EPA, Choki Sokyū, 1988; WPI, CPI: Toyo Keizai Tokai Nenpo, 1979 and 1989.

of external, non-yen-denominated debt would have made Japan even more vulnerable to such external shocks as oil-price increases and worldwide interest-rate increases. If investment demand had been weak, or if Japanese capital had been attracted to foreign countries, or both, then rapid economic growth would not have been possible even with high domestic saving.

Balancing the budget was also essential to rapid growth. Because the government was prohibited by law from issuing deficit bonds (bonds to finance the deficit in the general budget, as opposed to special development projects) until 1965, government expenditures did not crowd out private investment. It should be noted, however, that the Fiscal Investment and Loan Program [Zaisei Tōyūshi], which came from the Postal Savings System, was utilized for government investment. Even after the law was changed, it was not until 1975—after the first OPEC shock—that the government deficit became large. Monetary policy was also conducted with the aim of financing Japan's strong investment needs. In sum, Japan's domestic fiscal and monetary policies were sound in the sense that they promoted rapid economic growth without disturbing the economy in the 1950s and the 1960s.

Since Japan lacks oil, iron, and many other important raw materials, it must generate considerable export revenue to pay for necessary imports. With the exchange rate fixed at 360 yen per dollar, constant productivity gains were made in order to make the costs of production cheaper, which in turn ensured international competitiveness.

How important a role did the Japanese government play in orchestrating economic growth? Since investment and exports were identified as the major components of demand growth, the government's role was concentrated in promoting investment and exports. There were two types of government plans in Japan: macroeconomic plans and microeconomic industrial policy.

### Macroeconomic Planning

Japan's postwar economic plans started as rationing plans with a socialistic flavor, but soon there was a shift to "indicative" plans that emphasized the market. In 1955 the Economic Planning Agency (successor to the Economic Stabilization Bureau) began to announce five-year plans setting targets for the growth rate of the

#### The Economic Planning Agency

Japan's Economic Planning Agency (EPA) performs many tasks that are handled by several different agencies in the United States. It tabulates the national-income accounts (as the US Department of Commerce does), dates the economic peaks and troughs (as the National Bureau of Economic Research, a private research corporation, does in the United States), and prepares the White Paper on the Economy (which is comparable to the Economic Report of the President, prepared by the Council of Economic Advisors in the United States).

The Economic Planning Agency has created several long-term "economic plans" since the end of World War II. The word "plan" might give an incorrect impression that Japan has rigid economic planning. In fact, the long-term economic plan is closer to a forecast than to a plan. Since the EPA does not have any regulatory power, it has less influence on the course of economic policies than the Ministry of Finance or the Ministry of International Trade and Industry.

GNP and for its demand components. Those economic plans were more forecasts than directives, however. The EPA was not given authority to allocate funds or raw materials. (Those powers belong to the Ministry of Finance and the Ministry of International Trade and Industry.) Moreover, actual growth outpaced each of the EPA's plans until the first oil shock. Table 3.7 shows how the Japanese government underestimated the growth potential of the economy prior to the 1970s. A five-year plan was usually scrapped in two to three years when actual growth made it obsolete. During the 1970s, however, the economic plans *overestimated* the growth potential of the economy, partly because they could not anticipate the oil crises. In the 1980s, the growth rate was close to the target.

Those who find indicative plans effective emphasize the importance of the government's signal and its commitment to growth. It is often the case that investment in structures and equipment in a particular industry will not take place unless sales projections are favorable. Uncertainty might make investors pessimistic and keep the economy in a low-demand equilibrium. If an announcement by the government provides credible information on output projections for various industries and government expenditures, it stimulates investment decisions in the private sector. When the private sector believes the plan and behaves accordingly, the plan becomes self-fulfilling. Indicative planning can select a particular equilibrium



**Table 3.7**  
Postwar economic plans in Japan.

Nickname	Cabinet decision date Name of prime minister	Planning horizon and plan survival	Growth	
			Planned	Actual
Five-year Economic Independence Plan <sup>a</sup>	December 23, 1955 Hatoyama	FY 1956-1960 FY 1961 FY 1962	5.0	6.1 7.8
New Long-term Economic Plan	December 17, 1957 Kishi	FY 1958-1962 FY 1963 FY 1964 FY 1965	5.8	6.0 11.2 12.5
Doubling Income Plan	December 27, 1960 Ikeda	FY 1961-1970, ave. FY 1961 FY 1962 FY 1963	7.8 9.0 9.0 9.0	13.5 6.4 12.5
Middle-term Economic Plan	January 22, 1965 Sato	FY 1964-1968 FY 1964 FY 1965 FY 1966	8.1	10.6 5.7 11.6
Economic and Social Development Plan	March 13, 1967 Sato	FY 1967-1971 FY 1967 FY 1968 FY 1969	8.2	13.1 13.8 12.3
New Economic and Social Development Plan	May 1, 1970 Sato	FY 1970-1975 FY 1970 FY 1971 FY 1972	10.6	10.2 5.6 10.4
Economic and Social Basic Plan	February 13, 1973 Tanaka	FY 1973-1977 FY 1973 FY 1974 FY 1975	9.4	6.5 -0.0 3.2
First Half of Showa 50s Economic Plan	May 14, 1976 Miki	FY 1976-1980 FY 1976 FY 1977 FY 1978	6.0+	5.1 5.3 5.1

**Table 3.7**  
(continued)

Nickname	Cabinet decision date Name of prime minister	Planning horizon and plan survival	Growth	
			Planned	Actual
New Economic and Social 7-year Plan	August 10, 1979 Ōhira (midterm correction, 5.1)	FY 1979-1985 FY 1979 FY 1980 FY 1981 FY 1982	5.7	5.3 4.6 3.5 3.3
Outlook and Guide for the Economy and Society in the 1980s	August 12, 1983 Nakasone	FY 1983-1990 about 4.0 FY 1983 FY 1984 FY 1985 FY 1986 FY 1987	4.0	3.7 5.1 4.5 2.7 5.2
Japan Together with the World—Five-year Economic Plan	May 27, 1988 Takehita	FY 1988-1993 FY 1988 FY 1989 FY 1990	3.75	4.9 4.0?

a. This plan survived only two years and was replaced by the next plan.

among many possible equilibria.<sup>13</sup> This process works so long as the actual rate of economic growth exceeds the forecast, as it did in Japan for a long time. In sum, government planning solved the coordination failure that occurs in macroeconomic models in the Keynesian tradition.

### Industrial Policy

In several instances specific industries were "targeted" (that is, identified to be full of growth potential) mainly because of their importance for Japan's overall economic activity. During the 1950s and the 1960s, targeted industries received favorable allocations of foreign exchange and subsidized loans through government agencies. The main purpose of industrial policy in those years was to identify

"sunrise" industries and nurture them quickly. First, the government targeted industries with increasing-returns technologies (that is, industries in which the average cost of production becomes significantly lower when the scale of operation is expanded). Given a greater demand for the product created by export subsidies and import restrictions, a targeted industry could increase its capacity quickly, so that its average costs would go down. Thus, the industry could become cost-competitive by itself. This is a classic argument for "infant-industry protection."

Take, for example, the First Iron and Steel Rationalization Plan (1951-1954).<sup>14</sup> The plan called for the investment of 63 billion yen. The actual investment amounted to 120 billion yen. Government subsidies were provided, and the industry's outputs were used extensively in public works. During the Second Rationalization Plan, there was a fixed investment (over the eight years) of 500 billion yen. The demand for consumer durables had increased, and funds for investment were available through commercial loans from the private sector.

One of the major tools of Japanese industrial policy was the allocation of foreign reserves for the purchase of capital equipment and raw materials. Unless a firm was assigned foreign currency by the government, it could not carry out capacity expansion, since borrowing from abroad was essentially prohibited. Another tool was the subsidization of loans for investment in structures and equipment through government financial agencies such as the Development Bank.

The initial phase of industrial policy was easy for the government to undertake, since the allocation of funds or of foreign reserves automatically determined the investment plan. Through the 1960s, however, private domestic funds became abundant, and trade surpluses swelled foreign reserves. In this environment, the Ministry of International Trade and Industry (MITI) also supplied administrative guidance to regulate the speed of investment in order to avert excessive competition due to "overcapacity." The investment plans of firms were coordinated so that total capacity expansion fell within MITI's projections of demand expansion.

These policies were generally effective. Even administrative guidance had an impact on the behavior of the private sector. The final evaluation of industrial policy is mixed, however. It is true that some targeted industries (steel, shipbuilding, chemicals) blossomed.

But some of Japan's "star" industries, such as consumer electronics and precision optical products, were not targeted. The automobile companies refused to follow MITI's guidelines to reduce competition.

As was mentioned in chapter 2, Japan renounced military power. The budgets for the self-defense forces were kept very low—typically, below 1 percent of the GNP—relative to the defense budgets of other industrialized nations. Hence, a larger portion of the government's budget for industries was directed to improving social infrastructures and government investment projects. Although this aspect contributed to Japan's higher rate of economic growth, it would be difficult to quantify.

### THE SLOWDOWN

Toward the end of the 1960s, Japan's economic growth accelerated and was accompanied by large trade surpluses. This was an indication that the yen, fixed at 360 per dollar since 1949, had become undervalued. Moreover, the problem was not limited to the yen. The United States was recording persistent trade deficits, while Germany sustained trade surpluses. A massive realignment of exchange rates was needed. Although the Bretton Woods regime of fixed exchange rates (in effect since 1944) had a mechanism for adjusting the exchange rate when a country's economy underwent significant structural change, it was rarely invoked. Devaluation was seen as a political embarrassment by the devaluing country. It was also opposed by competing countries, who feared changes in price competitiveness.

The Bretton Woods fixed-exchange-rate regime gave way to floating exchange rates in the early 1970s. In August 1971, President Nixon suspended the gold convertibility of the dollar. After the adjustment period provided by the Smithsonian regime from December 1971 to February 1973, the major currencies began to float in the spring of 1973. Since Japan's government and private sector had been accustomed to the fixed exchange rate, the transition took some time.

The yen's revaluation (appreciation) was strongly opposed by business executives and politicians during the adjustment period. The opposition may have been due in part to fear of losing competitiveness in exporting industries. However, the accumulation of

Table 3.8  
Japan during oil crises.

First oil crisis			Second oil crisis		
Calendar year	GNP growth <sup>a</sup>	Inflation <sup>b</sup>	Calendar year	GNP growth <sup>a</sup>	Inflation <sup>b</sup>
1971	4.3	-0.8	1977	5.3	1.9
1972	8.5	0.8	1978	5.2	-2.6
1973	7.9	15.7	1979	5.3	7.3
1974	-1.4	31.6	1980	4.3	17.8
1975	2.7	3.0	1981	3.7	1.4
1976	4.8	5.0	1982	3.1	1.8

a. Real GNP growth rate from previous year (%).

b. Rate of change in wholesale price index (%).

c. Growth rate of outstanding of M2 (or M2 + CD, after 1980) at end of year (%).

large trade surpluses made it clear that the yen should be revalued. Many Japanese and American economists argued for adjusting the exchange rate (opinions differed regarding how fast the adjustment should be), but political opinion went the other way. The Minister of International Trade and Industry hinted that moderate inflation in Japan would help. If adherence to the fixed-exchange-rate system had been considered the economic mandate, inflation to avoid revaluation would have been justified. However, the fixed-exchange-rate system was only a means to achieve other economic objectives, such as lower inflation and higher growth rates. Nevertheless, with an attitude more lenient toward inflation than revaluation and with the political goal of "transforming the Japanese archipelago," Prime Minister Tanaka's government increased the money supply and lowered the interest rate in 1972. Inflationary pressure built up throughout the spring of 1973.

When the oil embargo imposed by the OPEC countries was announced in October 1973, inflation took off. Inflationary expectations made the situation worse. "Wild inflation" [Kyōran Bukka] reached 30 percent in 1974. Wages increased more than 20 percent in that year, since prices were also rising, but in turn the increase in wages fueled inflation, resulting in a classic example of a price-wage spiral.<sup>15</sup>

It took at least several years for Japan to reallocate resources from unconditionally growth-oriented sectors to energy-conservation and pollution-control sectors.

The oil embargo of 1973 and the Nixon overture to China gave Japan a sense of fragility. Japan's lack of domestic energy sources had always been a fact of life, but it took the Kyōran Bukka for the Japanese to realize how crucial energy was. When Nixon suddenly visited China in February 1972, the shock to the Japanese public was comparable to that caused by the suspension of convertibility in the preceding year. The visit was an embarrassment to the Japanese government, which had not been informed of Nixon's plans in advance. This incident also made the Japanese aware that they were not politically well-connected to Washington.

The global environmental problem, highlighted in the Club of Rome's 1972 report *The Limits to Growth*, also contributed to pessimism. This report had a strong impact in Japan, where the growth rate had been very high and where zero growth would mean substan-

tial changes in the economy. Pollution in Japan was also reaching the point where many thought something had to be done. In four major court cases, companies that had carelessly polluted the environment were found guilty.

By the time of the second oil crisis (1979–1980), Japan's monetary policy was much more prudent, and the inflation rate was not greatly affected (see table 3.8).

The oil crises can be viewed as negative aggregate supply shocks that lowered the supply potential of the Japanese economy, at least in the intermediate run. A sudden downward shift in aggregate supply causes a decline in output (GNP) and an increase in inflation. If the downward adjustment of output is slowed, then inflation is aggravated, as in the 1973–74 episode; if a sharp increase in prices is to be avoided, a prolonged decline in output must be endured. In either case, the two oil crises decreased Japan's growth potential significantly.

Of course, the three major factors in the end of the postwar Japanese miracle—the oil crises, the decrease in investment, and the slowdown in technological progress<sup>16</sup>—were not independent of one another. The oil crises, which drew attention to Japan's heavy dependence on nonrenewable resources, gave many people a pessimistic outlook and caused downward shifts in expectations of future growth as well as in current growth potential. Japanese pro-

ducers and investors suddenly became aware of the limits of the world's natural resources and of Japan's vulnerability as an importer of raw materials. Since expected future earnings fell, investment demand also fell. The decline in investment lowered current aggregate demand as well as future capacity, and slowed the adoption of advanced technology.

Moreover, it is possible to think that Japan finally caught up with the United States and the Western European countries technologically at some point in the mid 1970s. Since it is harder to develop a country's own new technology than to merely obtain licenses, Japan's growth rate then had to fall.

## SUMMARY

Japan had sustained reasonably rapid growth from the 1880s to the beginning of the Second World War. That war devastated much of Japan's capital stock and was followed by high inflation; nonetheless, by the mid 1950s the Japanese economy was growing even faster. Investment was the key: the higher investment rate brought the higher rate of economic growth. Japan's high saving rate seems to have made investment easier. (In the 1940s and the 1950s, the worldwide capital market was not ready to finance capital expenditures in Japan.)

The exceptionally rapid growth of the Japanese economy came to an abrupt end in 1973-74, with the average growth rate dropping from about 10 percent to about 5 percent. Among the factors contributing to the lowering of the growth rate was the decrease in investment caused by the downward revision of the forecasts of future growth. Another factor was pessimism regarding the resources available to Japan, due to the monopolistic power of OPEC and to environmental concerns. Furthermore, by the mid 1970s Japan had caught up with the Western countries technologically.

Put differently, by the mid 1970s the major constraint on Japan's economic growth was no longer foreign-exchange reserves and aggregate demand; it was now aggregate supply potential.

Although investment is still higher in Japan than in other countries, Japan's growth potential is now only slightly higher than those of other advanced countries, such as Germany and the United States.

**Table 3.9**  
Summary of real-GNP series.

Coverage:	1834-1940	1955-1970	1970-most current
yen units:	in millions	in billions	in billions
deflator:	1934-36 prices	1970 prices	1980 prices
Source:	<i>Patterns</i>	EPA <i>Choki Sokyū</i> , 1989	EPA Annual Report, 1989

## APPENDIX: GUIDE TO GNP DATA

### Prewar Data

See appendix to chapter 2.

### Postwar Data

A report of national accounts is published by the Economic Planning Agency every March. Quarterly updates can be obtained from the agency or from any data service agency (for example, Nikkei NEEDS).

The national-income accounts, available at annual and quarterly frequencies, have often been revised. After Japan switched to a new System of National Accounts (SNA) basis, backdating with the new SNA measure took time. For several years, backdating with the consistent basis was available only from 1965. It was only in 1989 that the government completed backdating from 1955. The figures are compiled in the Economic Planning Agency's 1989 publication *Report on National Accounts from 1955 to 1969* [*Choki Sokyū Suikēi*]. Newer data and revisions of the preceding few years become available every March in the EPA's *Annual Report on National Accounts*. In performing an analysis, one should make sure that one has the new backdated estimates.

### Use of Data

Researchers performing econometric analyses involving postwar GNP data should be careful in handling the following points: The oil shock of 1973-74 caused a structural change in Japan, as is explained in chapter 4. The average rate of economic growth dropped from nearly 10 percent to about 5 percent. When the logarithm of



the GNP series for the entire postwar period is analyzed, a linear trend term is not sufficient. Either a quadratic trend or a dummy variable for the post-oil-shock period is recommended.

## NOTES

1. Denison and Chung (1976a, p. 81) estimate that it was in 1953 that "national income first exceeded the prewar peak." Ohkawa and Rosovsky (1973) estimate that the prewar peak in 1937 was surpassed around 1954, and the extrapolation of the prewar peaks in 1917 and 1937 was reached in 1962.
2. See Denison and Chung 1976b for a more detailed treatment of growth accounting.
3. Japan and Italy were the only exceptions among thirteen industrialized countries.
4. For a detailed discussion of the material covered in this section, see Nakamura 1981.
5. These policies are discussed in detail in chapter 7.
6. The holding of land by absentee landlords was banned; resident landlords were limited to 1 cho (2.45 acres), and land-owning tenants to 3 cho. The buying up and reselling of land was handled by a land committee. Tenant farmers paid 757 yen per tan (= 0.1 cho = 0.245 acres) of rice paddy and 446 yen per tan of any other kind of field; landlords received (in government bonds) 978 yen per tan of rice paddy and 577 yen per tan of other fields. The amount was no more than 7 percent of the annual crop value from the land. (Kosai 1986, p. 20)
7. Government intervention in rice distribution started in 1921, when the *Beikoku* act was enacted. In 1942 the food-control law was passed, and the government became the sole agent for purchasing rice and distributing (rationing) it to consumers. With modifications that allow some unregulated distribution, this law is still in effect.  
Rice costs about 7 times as much to produce in Japan as in the United States. Rice imports are prohibited. The inventories of rice amount to more than a year's domestic consumption. The surplus of rice has prompted the government to order cutbacks in planting. Before the war, heavy taxation of the agricultural sector contributed to Japan's economic development by providing funds for investment in the manufacturing sector. Since the war, the agricultural sector has been increasingly subsidized rather than overtaxed.
8. Keynes' general theory was even cited in a speech to the Diet by Finance Minister Tanzan Ishibashi in July 1946.

9. In addition, there was a redenomination of the yen on March 3, 1946. A redenomination of the yen and a deposit freeze do not have to accompany each other. Another yen redenomination was proposed during the 1970s because the yen and the lira were the only currencies with three-digit exchange rates against the US dollar. Theoretically, making old 100-yen notes equivalent to a new one-yen would not change any real economic activity, aside from being a temporary boon for the printing business. However, the fear of inflation and the memory of the asset freeze and the subsequent confiscation produced opposition to the measure among the public.

10. The inflation in Japan was much smaller in magnitude than the famous German inflation of the 1920s or that in some of the Latin American countries during the 1980s. Therefore, a less drastic measure was necessary to curb it.

11. The peace treaty with the Soviet Union has not been signed yet, although diplomatic relations were established long ago. Japan has made it clear that the four islands off Hokkaido (the Northern Territory) must be returned to Japan before the peace treaty can be signed. The four islands have been claimed by Japan since the Tokugawa period. Under the Yalta agreement in which the United States, the Soviet Union, and other countries agreed to limit Japan to the territory it had held before the start of its imperial aggression, these islands do belong to Japan. Soviet troops invaded and occupied them after Japan surrendered on August 15, 1945.

12. The forming of the Ikeda cabinet was preceded by a bitter clash between radical and moderate factions in the labor movement and by an argument between the Liberal Democratic Party and the opposition parties over the ratification of a revised US-Japan Security Treaty. After the Liberal Democratic Party voted for the treaty in the House of Representatives over strong (sometimes violent) opposition from other parties, the political conflict took to the streets. Prime Minister Kishi resigned in July to take responsibility for the "turmoil" and was replaced by Ikeda. The head of the Socialist Party was stabbed to death in October. One might suspect that Ikeda's income-doubling plan was intended to divert attention away from the confrontational political divisions and toward an economic target that all parties could agree with.

13. A macroeconomic equilibrium (in the simplest sense) means that aggregate demand equals aggregate supply. If aggregate demand equals aggregate supply at different levels, one says that there are multiple equilibria.

Suppose that a firm becomes optimistic about prospective sales, then hires more workers and produces more, thus increasing the aggregate supply. Since more workers are hired, more disposable income is generated, increasing the aggregate demand. If the workers' propensity for consumption and their marginal productivity satisfy a special relationship, the aggregate supply and the aggregate demand are equalized at a new level. This cyclical argument may work even with a constant price level.

14. "Rationalization" was a code word in Japan for capital-intensive investment in order to raise productivity, with implications of automation, state-of-the-art technology transfer, and streamlining of production and management. Moreover, it often meant that workers had to be transferred to other jobs, factories, or companies, if not laid off. Thus, labor unions often opposed "rationalization."
15. The cycle was interrupted in 1975; see chapter 8.
16. Kosai and Ogino (1984, p. 41) list two more factors: a falloff in the supply of labor and a slowdown in the expansion of exports. I do not consider those to have been very important, however. The labor supply (both in hours and in employment) indeed fell during the 1970s, but the decline in labor's contribution to growth from 1.59 percent during the 1960s to 1.01 percent in the 1970s was a relatively minor change. The export/GNP ratio increased during the 1970s.

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## Chapter 4

### BUSINESS CYCLES AND ECONOMIC POLICIES

Many key economic variables, such as GNP, industrial production, employment, and consumption, move together (i.e., grow at higher and lower rates together). Their fluctuations about their long-run trends have shown remarkable regularities for many decades. These co-movements characterize what is called the *business cycle*. To be precise, business cycles represent the deviation of major macroeconomic variables from their trends in a cyclical fashion for some duration. That is, there are pronounced co-movements and significant serial correlation among aggregate variables. A business cycle is divided into an expansion (boom) phase and a recession (contraction) phase. The former is the period from a trough (a low turning point) to a peak (a high turning point); the latter is the period from a peak to a trough. Business cycles have been observed in virtually all countries at various times, and their causes and possible cures have been popular topics in macroeconomics.

In this chapter, the short-run fluctuations of the Japanese economy are examined in connection with business cycles. The topic of business cycles is a good setting in which to think about the role of macroeconomic policy in the "stabilization" of the economy.

### DATING OF BUSINESS CYCLES

In Japan, the Economic Planning Agency (a wing of the government) compiles a *diffusion index* (DI) and a *composite index* (CI) and uses these indices to identify business cycles.<sup>1</sup> Variables such as the industrial production index, the manufacturing shipping index, the manufacturers' raw material consumption index, and the import quantity index are checked every month. Conceptually, the DI is