

Chapter 3

Phases of Development

Economic growth has not been steady since 1820. There have been five distinctive “phases”: 1820-70; 1870-1913; 1913-50; 1950-73; and 1973-92 (1973-94 for regions where data availability permits). These were recognisable segments of the growth process, whose momentum differed from those which preceded and followed. The chronology of the five phases serves as an organising framework for summarising most of the quantitative evidence in our tables.

Phases are identified, in the first instance, by inductive analysis and iterative inspection of empirically measurable characteristics. Each must have a different and distinctive momentum, in dimensions which are analytically significant; these changes must extend to a substantial majority of countries under examination, and be sustained longer than a business cycle. They are not conceived as an analytical sequence of progressively interrelated “stages” such as one finds with Rostow, nor are they derived from a theoretical model of business cycle rhythm or Kondratieff-style long waves — which is one reason why their length is uneven¹.

Successive phases have not been initiated by collective planning decisions, innovative ideas, or changes in the ideology of domestic and international economic policy. Transitions from one phase to another have usually been determined by some kind of historical accident or system shock. However, the need to devise policies appropriate for new circumstances, or to suit the needs of new political elites (as in postcolonial Asia), has meant that each new phase has tended to be characterised by new “establishment” views about the efficacy of different kinds of policy instruments. These policy views (and the institutions in which they were incorporated) have had at least as much influence on performance as the autonomous play of market forces, or the atomised decision processes of individual economic agents. Thus performance in different phases has not had an ineluctable quality of the kind assumed in Schumpeterian long-wave analysis, but is the outcome of processes which may underexploit growth potential or push it to its limits.

Phase I (1820-70)

Our analysis begins with the nineteenth century, because it is clear that there was a very sharp increase in growth momentum compared with the eighteenth and earlier centuries. Any year in the period 1789-1815 would be an unsuitable starting point because these were years of revolution, war and economic blockade which affected the whole of Europe. There were strong repercussions in the Americas, and some echo of these events in Asia. 1820 was chosen as the initial point because it seemed

likely that recovery from wartime disturbances was likely to have been more or less complete by then, though there is not really sufficient evidence to test this.

1870 was chosen as a terminal point for Phase 1, mainly because inspection of the quantitative evidence suggests very strongly that growth accelerated in all parts of the world economy thereafter. There were also important political changes around 1870 — the abandonment of the slave economy in the USA and the emergence of Italy and Germany as modern nation-states.

It is clear from Table 3-1 that per capita GDP growth was slower in 1820-70 in all seven major regions of the world economy than in 1870-1913. Most of the 1820-70 expansion occurred in Europe and its offshoots. In the “Western Offshoots” GDP grew faster in this period than in any other. They had the most rapid demographic expansion as well as the most rapid per capita growth.

Between 1820 and 1870, 63 per cent of the growth in world output took place in Europe. Belgium, Germany, the Netherlands and the UK did best but significant upward movement appears to have been a universal characteristic. The evidence falsifies the earlier view that there was a sequence of staggered “take-offs” in Western Europe in the nineteenth century. The propinquity of these countries, their substantial trade with each other, the ease of intellectual and entrepreneurial interaction, and institutional similarities ensured transmission of technical progress.

Outside Europe and the Western Offshoots, per capita income growth was meagre. Asia and Africa showed only exiguous progress. Demographic momentum was substantial in Latin America, but per capita growth was slow. Most of Brazil was still a relatively backward slave economy, Mexico was plagued by political instability (71 rulers and 200 ministers of finance between 1821 and 1876) and two foreign invasions. Argentina's main economic activity was sheep rearing and wool exporting; government efforts to open the country to settlement were concentrated on wars to exterminate the Indian population; by 1870 there were only 732 kilometres of railway lines.

The technological leader in this period was the UK. British productivity growth was slower than that of the USA when the latter became the world leader, but Britain did a great deal to diffuse the fruits of technical change by its policy of free trade. It absorbed about a quarter of world imports. They were mainly food and raw materials, its exports mainly manufactured goods. It was the largest provider of trade-related services such as shipping, short-term trade finance and insurance. Its growth performance was favoured by increased efficiency of resource allocation. By 1870, its farm sector employed less than a quarter of its working population. Its joint factor productivity growth was better than that of the US economy, and GNP rose faster than GDP because of increased earnings from foreign investment.

By 1870, commercial policy had become very liberal throughout the world compared to the eighteenth century when use of foreign shipping was tightly restricted, colonial produce had to be brought to the ports of the metropole before re-export, and internal trade was subject to numerous transit levies. As a result of such restrictions, a substantial fraction of world trade was done by smugglers. During the Napoleonic wars these restrictions were worsened by economic blockade.

In 1820-70, these mercantilist barriers were largely eliminated. The UK removed all tariff barriers and trade restrictions between 1846 and 1860. Free trade policy was enforced in British colonies, and in quasi-colonies such as China, Thailand and Turkey. In Germany, the customs union (Zollverein) of 1834 ended barriers between the German states and the external Zollverein tariff was lowered after 1850. In 1860 the Cobden-Chevalier Treaty removed French quantitative restrictions and reduced tariff barriers to a modest level. This was followed by French commercial treaties with Belgium, the Zollverein, Italy, Switzerland, Spain and other countries. These treaties had most-favoured-nation clauses which meant that bilateral liberalisation applied equally to all countries.

The progress of transport technology, railways, steamships and the construction of the Suez Canal also contributed to reducing costs and increasing the benefits of trade².

As a result of these changes, foreign trade rose four times as fast as world output in this period. This led to economies of specialisation of the type which Adam Smith and Ricardo had emphasised as sources of economic progress. There was technical progress, but this was slower than in later phases, judging by the slow pace at which total factor productivity increased in the UK, and the actual decline in total factor productivity in the USA (see Chapter 2).

Phase II (1870-1913)

This was a relatively peaceful and prosperous era which was brought to an end by the outbreak of the First World War.

We can see from Tables 3-1 and 3-2 that per capita growth accelerated in all regions and in most countries. Population growth also quickened outside Western Europe and its offshoots, so that world GDP increased more than twice as fast as in 1820-70. The acceleration was greatest in Latin America (particularly in Argentina and Mexico), in Asia (particularly Japan), and Africa (where Ghana and South Africa did best). For the world as a whole, the per capita GDP growth record of this period was second only to that in the golden age (1950-73).

It was an era of improved communications and substantial factor mobility. There was a massive flow of foreign capital, particularly from the UK which directed about half its savings abroad. French and German investment were also very substantial, and there were significant flows from the USA and other countries. Table 3-3 shows the amount of capital invested abroad in 1914 and its distribution by investors and recipient region. British foreign assets were equivalent to one and a half times its GDP, French assets about fifteen percent more than GDP, German assets about 40 per cent, and US assets 10 per cent³. A good deal of this foreign investment went into railway construction. Table 3-4 shows the increase in length of railway lines for 36 countries from 1870 to 1913. The total rose from 191 thousand kilometres in 1870 to nearly a million in 1913, and undoubtedly played a significant role in the acceleration of economic growth in this era⁴.

From 1870 to 1913 there was large-scale international migration with an outflow of 17.5 million people from Europe to the Western Offshoots. A large number of Chinese and Indians moved to Burma, Ceylon, Malaya, Indonesia, Singapore and Thailand.

International trade continued to grow faster than output, but its role as an engine of growth was less spectacular than in 1820-70. There was some increase in tariff levels. Germany adopted a more protectionist tariff in 1879 which provoked French retaliation in 1881 and 1892. France also applied a system of imperial preference within its colonial empire. Most highly protected were the Latin American countries, Russia and the USA.

Colonialism was at its apogee in 1913, by which time the European countries had parcelled out Africa. The USA, Japan and Russia had joined them in colonising and staking out spheres of influence in Asia. Colonies received some benefits from world expansion, but a substantial part was siphoned off to the metropolitan powers.

The British Empire, which was run on a free trade basis, had substantial hangovers from mercantilism. In Asian colonies, British shipping, banking and insurance interests enjoyed a *de facto* monopoly. Administration was efficient and free of corruption, but it was by white men, living in white cantonments, with British clubs, so there was an automatic *de facto* discrimination against local enterprise, which was reinforced by neglect of education amongst the native population, and some direct discrimination in government purchasing policies. In Indonesia, the Dutch system of royal monopoly in trade, forced deliveries and forced labour was abolished in 1870, but metropolitan interests were very strong and the profitability of empire was greater than in the British case.

Japan and the USA were colonial latecomers. Both created their own trade zones with commercial preferences. They pushed public investment and infrastructure development in Taiwan, Korea and the

Philippines much more forcefully than other colonial powers did in the lands they controlled.

China and Thailand were not colonies, but their sovereignty had been limited in tariff matters and by extraterritorial rights ceded to foreigners. As a result, both countries were very reluctant to borrow to finance development.

The only country which provides some sort of test of what might have happened in Asia if power had been vested in a westernising national bourgeoisie is Japan, which achieved faster growth than the other Asian countries by colossal investment in education, by westernising its institutions, and by government activism in fostering industry. But the growth performance of Japan was not spectacular in this period, because a good deal of its energy and resources went into military modernisation and imperial conquest.

With limited exceptions in Germany and Japan, this was not a period when governments felt the need of activist policies to promote growth. They assumed that the free operation of market forces in conditions of monetary and financial stability would automatically lead to something like an optimal allocation of resources. Low taxes and free labour markets were felt to be the best stimulus to investment. Domestic policy was generally inspired by principles of fiscal responsibility and sound money. Taxes and government expenditure were low and generally in balance; spending was mainly confined to provision for domestic order and national defence. Social spending was small, generally covering only elementary education and preventive health measures, though Bismarck began to provide pensions and welfare payments in Germany in the 1880s, and Lloyd George introduced similar measures in the UK in 1909. Table 3-5 provides an idea of the growth of government expenditure since 1880. It is clear that it was generally rather modest in 1913 by later standards.

Stable institutions and market freedom also characterised international transactions. Most of the world moved to fixed exchange rates by adopting the gold standard which the UK had practiced since 1821. Germany adopted the gold mark in 1871-3; Belgium, France, Italy and Switzerland created the Latin Monetary Union in 1873-4 based on the gold franc. The Scandinavian Union of Denmark, Norway and Sweden was created in 1875-6. The Netherlands adopted the gold standard at the same time and Egypt in 1885. The USA adopted a fixed gold parity in 1879, Austria in 1892, Japan in 1895, Russia in 1897, Argentina and Mexico in 1905. The colonial empires of these countries were also included in these decisions.

It was a world which relied on simple rules and protection of property rights. There were no international organisations like the OECD, IMF, BIS and GATT to “manage” a world “system”, and no equivalent of the World Bank, UN agencies, or bilateral aid donors to direct capital flows in the light of

“developmentalist” objectives.

Phase III (1913-50)

This was an era deeply disturbed by war, depression, and beggar-your-neighbour policies. It was a bleak age, whose potential for accelerated growth was frustrated by a series of disasters⁵. It was also an age in which the conceptions of capitalism were changing, particularly in Europe where the role of government spending increased very substantially, as did government intervention in the form of subsidies, controls and trade restrictions. In Italy, Portugal and Spain fascist regimes were established. European fascist ideas had substantial echoes in Argentina and Brazil. Russia departed the capitalist world to experiment with an autarkic command economy. By the end of the period, the European fascist experiments had been destroyed or discredited, but the USSR succeeded in incorporating the whole of Eastern Europe in its camp of command economies.

As the events of these years were very complex, it is useful to look at the evidence separately for four sub-periods; 1913-29, 1929-38, 1938-44 and 1944-9. Figure 3-1 shows how feeble GDP growth was in 1913-50 as a whole compared with the rapid growth that followed in the golden age from 1950 to 1973.

a) 1913-29

Table 3.6 shows the evidence available on annual GDP movements for major regions. It is complete for Western Europe and the Western Offshoots, involves a modicum of “guesstimation” for Latin America, and a substantial degree of interpolation for Asia. The picture for Southern Europe, Eastern Europe and Africa is incomplete, but we know enough to see what happened to a relatively large part of the world economy.

The region which fared worst was Eastern Europe. There were 3.3 million military deaths from the war. Another 10 million died in the course of the Russian revolution, civil war and foreign intervention. The forced collectivisation of agriculture and political repression that went with the switch from capitalism to collectivism caused massive suffering in Russia and the Ukraine in the 1920s and 1930s.

Many frontiers were redrawn in Eastern Europe as Germany was truncated and the Austrian, Hungarian and Turkish empires disappeared. Estonia, Finland, Latvia, Lithuania, Czechoslovakia, Poland and Yugoslavia emerged as new national entities. The new Austria had only a third of the income and a quarter of the population of its pre-war share of the Habsburg Dual Monarchy. Imperial Hungary was also cut to a third of its former size. The division of the old area led to new tariff barriers, upset traditional transport routes, and created massive problems of adjustment to new market situations.

Poland had to forge a national economy out of three different currency and fiscal areas.

The war caused a drop in GDP in most West European countries, with the biggest damage to living standards in Belgium, France and Austria. Western Europe's 1913 GDP level was not regained until 1924; for a decade, per capita product was well below pre-war levels. A large proportion of resources was diverted from consumption and investment to war purposes. There were 5.4 million deaths amongst the armed forces (including 2 million in Germany, 1.3 million in France, and three-quarters of a million in the UK). Apart from the grief inflicted on the families of these victims, many of the survivors were left with mutilating injuries or the lasting effects of poison gas.

The destructive impact of the war in the West was concentrated on a narrow band of territory in Belgium and Northern France. These two countries suffered significant damage to their domestic capital stock. France lost two-thirds of her foreign investments because of default (mainly by Russia) and inflation. Germany's smaller foreign assets were either sold or seized for reparations. The UK suffered very heavy losses to its merchant shipping fleet. The British net foreign asset position was not greatly changed by the war (see Keynes, 1920 on the impact of the war on particular countries).

In Southern Europe the impact of the First World War was milder than in Eastern or Western Europe. Asia was relatively unscathed. Latin American GDP was mildly affected by the interruption of world trade, but its 1913-29 GDP growth averaged 3.3 per cent a year — the fastest of any region in this period.

The Western Offshoots grew by 3 per cent a year over 1913-29 as a whole. They suffered significant war casualties, and diversion of resources to war purposes, but their role in the world economy (and particularly that of the USA) had changed. By 1929, the GDP of the Western Offshoots was bigger than that of Western Europe, and also bigger than that of Asia.

In spite of the wartime interruption of international trade and capital flows, the redrawing of boundaries, the legacy of hostility and quarrels over reparations, there was some success in reconstructing a fragile facsimile of the pre-war order with a return to the gold standard. There was a respectable rate of growth in the world economy from 1924 to 1929 (3.5 per cent a year in Western Europe, 3.4 per cent in the Western Offshoots, 4.6 per cent in Latin America and 1.9 per cent in Asia). There was a resurgence of world trade (5.7 per cent a year volume increase) which seemed to herald a return to "normalcy" and some recoupment of growth opportunities which had been frustrated by the horrors of war.

b) 1929-38

The illusion of “normalcy” was shattered by the huge depression of 1929-33 whose epicentres were in Germany and the United States. The fall in output was deepest there because of massive collapses of their financial systems. The impact of the depression on world GDP was bigger than that of the First World War, though consumption did not fall as much as GDP, whereas the opposite had been the case in the war.

The depression was most severe in North America, Austria, Germany, Central Europe, and Latin America (see Table 3-7). Its impact was mild in Asia, and for Africa the evidence is too poor to judge what happened.

The international economic order and the aspirations of domestic economic policy were affected very powerfully by the depression. The gold standard system was jettisoned by most countries. The international capital market collapsed and the liberal trading order was destroyed. The United States gave an unfortunate lead with the Smoot-Hawley tariff legislation of 1929-30. This set off a retaliatory wave elsewhere. The UK introduced imperial preference in 1932 which abrogated the multilateral principle. France, Japan and the Netherlands followed similar tactics in their empires. Even worse were the quantitative restrictions on trade and foreign exchange which Germany pioneered. They were copied in some degree in France, Italy, Japan, the Netherlands, Eastern Europe and Latin America.

The volume of world trade fell by more than a quarter, and the 1929 peak was not reached again until 1950. Widespread debt default and the breakdown of reparations arrangements led to a massive flight of capital from Europe to the United States.

In the 1930s, the recovery from the depression was much more successful in Europe and Latin America than in North America. There were major departures from the old canons of sound finance and monetary order. The state played a more interventionist role in stimulating recovery. In Germany the autarkic policy mix was successful in restoring output growth and employment, but an increasing share of resources was devoted to military purposes and preparation for war.

Latin America veered sharply towards import substitution with the help of debt default, exchange controls, quantitative restrictions and discriminatory practices. There was an abandonment of fiscal and monetary orthodoxy, and moves towards government intervention and state ownership.

In the USA, where the financial collapse and its deeply depressive consequences were a predominant concern of policy, the government created a significant amount of employment through public works policies, but great emphasis was placed on reflating prices, so that the burden of debt would be reduced. Prices were boosted by farm support legislation, trade union power was bolstered in an effort to raise

wages, the dollar was revalued against gold and silver for the same reasons and early New Deal legislation tried to strengthen cartels (until the moves were declared unconstitutional). This mix, which owed more to Irving Fisher than to Keynes, was not successful in pushing America back on a path which exploited its production potential. It took the Second World War to achieve this.

c) 1938-44

Judging by the aggregate regional evidence of Table 3-6, the world economy fared better in 1938-44 than would have been thought possible in years of such widespread and violent conflict. In the Western Offshoots, output more than doubled (a growth rate of nearly 13 per cent a year) as the large slack in the economy was mobilised for war production. Latin American output increased by nearly a quarter, and output was reasonably well sustained in Asia and Western Europe.

The impact of war was very uneven by country. Within Western Europe, the worst affected countries were Belgium, France, the Netherlands and Norway, and there is little doubt of the immense costs of war for Greece, Poland, the USSR, and Yugoslavia for which sharp evidence is poor.

During the war, German economic power increased dramatically and was used to impose a “New Order” on Europe. By 1940, German population was around 93 million, as Austria, the Sudetengau of Czechoslovakia, the Saar, Memel, Danzig, a large part of Poland, Eupen and Malmedy, Alsace and Lorraine and parts of Yugoslavia had been incorporated in the Reich. As a result of its successful *Blitzkrieg*, Germany controlled a large part of the European economy. Belgium, the occupied zone of France and the rump of Poland were under German military government, Norway and the Netherlands were under German commissars. The protectorate of Bohemia and Moravia — a fief of the SS — was a German colony with German currency. Slovakia was a puppet State. Germany had 3 million allied prisoners of war and imported foreign workers on a large scale (7.5 million at the peak). Occupation levies and enforced credits from occupied countries added a further 14 per cent to German disposable income. Bulgaria, Finland, Hungary, Italy and Romania were allies; Spain a highly cooperative neutral; Sweden provided a steady supply of iron ore; Albania, Greece and Yugoslavia were under occupation.

When Germany attacked the USSR in 1941, she controlled a compact area with better armed forces and a collective GDP much bigger than that of the 197 million people in Stalin's newly enlarged Soviet empire. At that time the Wehrmacht had lost only 200 000 men, and it must have seemed that the Russian campaign would be another cheap victory. In fact, it was the beginning of the most destructive phase of a war in which there were 16 million military deaths (including 10 million Soviet and

3.8 million German) as well as a loss of 26 million civilians (of whom 20 million were deliberately murdered in concentration camps or exterminated by *Einsatzgruppen* in Poland and the USSR).

Wartime living standards in Western Europe fell much more relatively than they had in the First World War. In France, the level of output during the occupation averaged less than two-thirds of that in 1938 and occupation levies (for troop support, military construction and transfers to Germany) took a third of this, so French wartime consumption levels were only about 45 per cent of those in 1938.

Belgian and Dutch experience was similar to that in France. Norway was fortunate in that output fell only 13 per cent, but with half a million occupation troops added to its small population, occupation costs took a third of Norwegian income, so wartime standards were less than two-thirds of those in pre-war years. Denmark probably fared best amongst the occupied countries. Experience was worst in Greece, Poland, the USSR and Yugoslavia, because their inhabitants were regarded by the Nazis as subhuman. In these countries wartime living standards fell below subsistence levels and large numbers died from malnutrition. In Germany itself the wartime reduction in living standards was small, because of heavy levies on the rest of Europe and the use of foreign workers to maintain domestic food output. In the UK, per capita consumption levels fell on average by less than 10 per cent, distribution of supplies was more equitable than anywhere else and health standards actually rose during the war. The UK was able to use resources (about \$50 billion) 20 per cent above its GDP by running down foreign assets, accumulating debt and receiving US and Canadian aid. This permitted a very high degree of mobilisation and cushioned the fall in living standards.

Damage to the European capital stock was much more extensive than in the First World War. There was fighting in France, Germany, Greece, Italy, the Netherlands, Poland, the USSR and Yugoslavia which did extensive damage. The USSR followed a scorched-earth policy to deny resources to Germany. The Allies dropped 2 million tons of bombs on the Continent (mostly on Germany) and the Germans attacked the UK with bombs and rockets. Submarines sank a great deal of merchant shipping, and livestock was destroyed on a large scale. Wartime levels of investment were low, though in both the UK and Germany wartime investment in armaments production turned out later to be useful for civilian production. The biggest losses to capital stock were probably in Poland and Yugoslavia. The second largest were probably in the USSR and UK.

The UK accumulated very large war debts to Commonwealth countries and sold foreign investments during the war. Then in 1946, before Marshall Plan aid started, it borrowed about \$4.6 billion from the USA and another \$1.3 billion from Canada. As a result its net foreign asset position declined from a positive balance of \$21 billion in 1938 to a negative one of \$2 billion in 1947. Unlike the situation after

the First World War these debts were honoured in full and were a very heavy burden for the UK. By 1947 France's pre-war net asset position of \$3.9 billion had been reduced to zero. The Netherlands had lost about half of its pre-war \$4.8 billion assets by 1947 and lost more later. The net foreign assets of Belgium declined only slightly. In 1938 Germany had been a net debtor by about \$2 billion. She acquired assets illegally and accumulated more debt during the war. No service payments were made on pre-war debt until 1953, and in that year German pre-war and post-war debts were scaled down. Germany was therefore a net gainer on foreign account because of the war.

d) 1944-49 (The Aftermath of War)

1950 is a useful starting point for measuring post-war achievements. By then, recovery from war was certainly complete if one uses the level of world GDP as a criterion. One might argue for 1948 as a post-war benchmark because world output was then already higher than in 1938. However, this was not the case for the world outside the Americas, and even in 1950, recovery of pre-war levels was not complete in all countries (Japan and Hungary recovered pre-war levels in 1951, China and Taiwan in 1952, Poland in 1953, Indonesia in 1954, Greece and Korea in 1955, and Burma in 1961).

It seems more legitimate to treat the years 1945 to 1949 as the aftermath of the war rather than the beginning of the post-war golden age. These years were very disturbed in Europe, with frontiers redrawn, millions of displaced persons and refugees in camps, desperate balance-of-payments problems, reallocation of labour from war to peacetime occupations, and a capital stock which had suffered badly from wartime damage and neglect. The future was also overshadowed by the cold war, which led to the incorporation of the East European economies in the Soviet bloc. The shape of the post-war order did not emerge until the Marshall Plan started functioning in 1948.

In Asia, these years saw the collapse of the Japanese empire, civil war in China, the disintegration of the British, Dutch and French Empires. There was a very troubled transition to independence in Indonesia and the different parts of French Indochina and a messy partition of India.

In the USA, the problems of transition from war to peace were of a completely different order, but GDP dropped by a quarter from 1944 to 1947 as the war economy and the troops were demobilised and resources were shifted to more peaceful activity. In 1948, this was followed by military recommitment overseas, and the establishment of Marshall Plan aid to Europe.

The Acceleration of Technical Progress in Phase III

The fact that the major disasters of the twentieth century were concentrated in the period 1913-50 tends to obscure a significant improvement in the pace of technical progress.

Table 2-6 above shows clearly the impressive technical dynamism of the US economy in this period. Labour productivity grew by 2.5 per cent a year, accelerating substantially over the 1.9 per cent of 1870-1913. The new growth rate was more than twice as fast as that of the UK in the century following 1820. Furthermore this acceleration occurred with much more modest growth in the physical capital stock than in the nineteenth century.

In 1913-50, US total factor productivity grew at 1.6 per cent a year, almost 5 times as fast as in 1870-1913. The rate of progress accelerated further in 1950-73. Thus there was a 60-year boom in technical potential which was to be of tremendous significance for the performance of the world economy in the twentieth century.

The influence of the lead country in diffusing technical progress depends partly on its size, and partly on its degree of integration in the world economy. The American economy was already bigger than that of Britain and Germany combined in 1913. By 1950 it was larger than that of Western Europe as a whole. However, the US role as a diffusionist was very limited during most of Phase III, because of the disturbances in the world economy, the limited American role in international trade and investment, the disastrous collapse of its economy and its international economic policy in the 1930s.<T>

The improvement in US productivity performance in 1913-50 occurred for four main reasons:

a) from 1820 to 1913 the US had made a massive investment in the infrastructure which was needed to exploit its prodigious natural resource endowment and provide its booming population with urban facilities. By 1913, its stock of non-residential structures was already five times as high per person employed and more than four times as high relative to GDP as in the UK (which had devoted a large part of its savings to foreign investment in railways and other infrastructure development in Latin America, Europe and Australasia). Between 1913 and 1950, a much smaller proportionate expansion of American capital was necessary to sustain a growth less dependent on exploiting the US natural resource advantage. The capital-output ratio for structures fell quite dramatically as one can see in Table 2-1 above;

b) a much bigger proportion of new investment went into machinery and equipment in 1913-50 than in 1820-1913. This kind of investment embodied technical change more rapidly than did structures. One strong indicator of this is the fact that machinery and equipment is scrapped much earlier because of technical obsolescence. In 1950 the average age of the machinery and equipment in the capital stock was 6.4 years, whereas the average age for structures was 19.3 years;

c) the research and development effort was greatly intensified. The driving forces of innovation changed from the nineteenth century, with less emphasis on individual action and more on corporate and government efforts. Anti-trust legislation drove US firms to invest in research for survival, whereas European cartels, and governmental tolerance or encouragement of collusive business practices made for a less dynamic situation. Around 1913, there were about 370 research units in US manufacturing employing around 3 500 people. By 1946, there were 2 303 research units employing nearly 118 000 people. In 1946 there were 4 scientific workers in US manufacturing per 1 000 wage earners, 5 times the ratio in the UK. US government-sponsored research played a much more important role in agriculture and mining than in the UK. The link between business firms and universities was closer⁶;

d) there were substantial economies of scale of a new kind. It was not only that US economy had grown so large relative to Europe, nor was it only the growth in the average size of plants. The most striking feature was the increased role of very large enterprises which played an active role in standardising and enlarging markets. Giant firms played a strategic role by controlling large numbers of plants at different stages of production and distribution [see Chandler (1977 and 1990)]. They required a new form of business management, whose professional education was pioneered in the USA. Multiunit enterprises coordinated advertising, packaging, transport, sales, and marketing. They handled the allocation of large amounts of capital, spread risks and increased productivity over a very large range of new industries, such as breakfast cereals, canned soup, cigarettes, sewing machines, photographic equipment, refrigerators, washing machines, vacuum cleaners, cinemas and automobiles. In the case of cars, Rostas (1948) showed that US production in 1935 was above 4 million, well over ten times that of the UK. The number of American engine types was much smaller, the number of assembly plants only little higher and labour productivity was five times as high. In the same year US automobile output was 16 times that of Germany and 23 times that of France. Table 3.9 gives some idea of the extent to which US car ownership had moved ahead of that in other countries by 1950. By that time the USA had 80 per cent of the car stock in the 44 countries. By 1973 the share had dropped to 46 per cent and fell further thereafter.

Phase IV (1950-73)

The years 1950 to 1973 were a golden age of unparalleled prosperity. World per capita GDP grew by 2.9 per cent a year — more than three times as fast as in Phase III. World GDP rose 4.9 per cent a year, and world exports 7 per cent. This dynamism could be observed in all regions. In all of them, GDP per capita grew faster than in any other phase. The acceleration was greatest in Europe and Asia.

There were several reasons for unusually favourable performance in the golden age⁷. In the first place,

the Western economies created a functioning international order with explicit and rational codes of behaviour, and strong and flexible institutions for cooperation (OEEC, OECD, IMF, World Bank) which had not existed before. There was a very serious East-West split from 1948 onwards and the area covered by communist rule was much bigger than before, but the split reinforced the harmony of interest between capitalist economies, so the quarrels and beggar-your-neighbour behaviour of pre-war years did not recur. The US played its leadership role in a responsible and generous fashion, providing a substantial flow of aid for Europe when it was most needed, fostering procedures for articulate cooperation and liberal trading policies. Until the 1970s it also provided the world with a strong anchor for international monetary stability. North-South relations were transformed from the colonial tutelage of pre-war years to a situation where much more emphasis was placed on action to stimulate development by providing trade opportunities and financial aid. Here again, East-West rivalry reinforced the Western commitment. There was a huge expansion of trade in the advanced capitalist economies which transmitted a dynamic influence throughout the world economy.

The second new element of strength was the character of domestic policies which were self-consciously devoted to promotion of high levels of demand and employment in the advanced countries. The growth path was not only faster than ever before, but the business cycle virtually disappeared. Investment rose to unprecedented levels and expectations became euphoric. Until the 1970s, there was also much milder inflationary pressure than could have been expected in conditions of secular boom.

The third element in this virtuous circle situation was the potential for growth on the supply side. Throughout Europe and Asia there was still substantial scope for “normal” elements of “recovery” from the years of depression and war. Additionally and more importantly, was the continued acceleration of technical progress in the lead country. Furthermore, the USA played a very active diffusionist role in the golden age. For this reason, the supply response to improved international and domestic policy was much more positive than could have been anticipated.

Table 3-10 shows the great acceleration in international trade which went with the creation of the new liberal order. The biggest benefits accrued to Western Europe, Southern Europe and Asia, where growth averaged 8.6, 7.6 and 8 per cent a year respectively. Latin America was rather strongly resistant to trade liberalisation, so it benefitted only mildly from the new order. For Africa the expansion was not as buoyant as in Europe and Asia, but better on average than in Latin America.

Ultimately, there was also a restoration of private international capital flows, but until the 1960s, the major item sustaining development was official aid.

During the golden age, there was a very marked upsurge in rates of domestic investment in European countries and in Asia (see Figure 3-2). This was a response to opportunities offered by technical progress. As the Asian and European countries were starting from a lower level, and recovering from productivity levels depressed by long years of adversity, they could push their rates of investment well above those in the USA, without running into diminishing returns. As a result Europe and Japan were able to bring their capital stock much closer to American levels. In many respects, these follower countries were replicating the consumption patterns, technology, and organisational methods which had been developed in the United States when it built up standardised markets for new consumer goods such as cars and household durables.

Another important condition for successful catch-up was the fact that most of Western Europe and Japan already had relatively high levels of skill and education (see Table 3-12). Their endowment in human capital was just as close to US levels in 1950 as it is today, even though their physical capital stocks were much lower. These reserves of skill were very important in permitting the vast accumulation of capital to take place efficiently.

The productivity gains in this process of catch up are shown in Tables 3-13a and 3-13b. Between 1950 and 1973, all the West European countries had much faster labour productivity growth than the USA. In 1950, after eight decades of falling further behind, their average productivity was less than half the US level, but by 1973 they had moved much closer to the frontiers of technology, and were to continue further on this virtuous path after 1973. The proportional gains in Japan were even more spectacular, though Japanese labour productivity levels still remained below those of Europe (see Figure 2-2).

In Southern Europe, growth performance in 1950-73 was even better than in Western Europe in all significant respects (growth of GDP, GDP per capita and labour productivity). The new international order offered particularly favourable opportunities for these countries to be reintegrated in the flow of international trade, investment, tourist earnings and emigrants' remittances. They were greatly helped by their close propinquity to markets which were growing fast.

In terms of total factor productivity the performance of the European follower countries vis-à-vis the USA was less spectacular, because they were increasing their capital stock a good deal faster. Nevertheless they did a good deal better than ever before. In Japan, the 1950-73 total factor productivity performance was extraordinarily favourable, because of the much lower starting point, the huge reserves of skill, education and organisational experience, and the improvements in resource allocation in moving from what had been a highly militarised economy to one which could devote all its energies and resources to economic

growth.<F14P10.5W1C1>

In the Western Offshoots, there was significant improvement in performance in the golden age. Per capita GDP grew faster than ever before and productivity growth also accelerated, but the pace of advance was more modest than in Europe.

In Eastern Europe, the years 1950-73 also saw growth rates very much faster than in the past. As indicated in Appendix B, the measures we have used probably exaggerate performance in Bulgaria and Romania, but for the other countries and for Eastern Europe as a whole, there is no doubt that there was substantial growth acceleration. The costs were higher than in the West, because investment rates and labour inputs were proportionately higher and resource allocation was less efficient in the command economies. Military commitments were also proportionately higher than in the West, so that consumption grew a good deal more slowly than GDP.

Latin America had done better than any other part of the world economy in Phase III, and was operating much nearer to its potential in 1950 than Europe or Asia. Partly as a consequence of this, its performance in the golden age improved rather modestly. In per capita terms, it was similar to that of the Western Offshoots. It could probably have done somewhat better by adopting more open trade policies, less dirigisme in resource allocation, and a greater commitment to social change and improvement in its human capital, but Latin America did not have the same incentives to change its policy mix, which European countries got from Marshall Plan aid.

In all Asian countries in our sample, except Bangladesh, the most notable feature was the general acceleration of growth. Japan had the best performance, but South Korea and Taiwan also did extremely well. In the other Asian countries, the rate of progress in the golden age was more modest than in Europe.

Because of the variety of Asian experience it is difficult to summarise the characteristics of the Asian “model”. However, one can discern the following elements making for the great acceleration in post-war growth in countries which had been colonies or virtual colonies before the Second World War:

- a) the end of colonial rule and the advent to power of new national elites capable of mounting a very large increase in capital formation, and increasing the educational levels of their populations;
- b) the absence of the extreme inequalities in income and wealth which characterise Latin America. This made for greater socio-political coherence, and probably helped to ensure that Asian countries were less subject to short-term vagaries in policy of a populist kind;
- c) the colonial drain was replaced by a net inflow of foreign capital and foreign aid. Generally speaking,

Asian countries were cautious in their foreign borrowing and fiscal policies, and did not suffer from the domestic capital flight that plagued Latin America;

d) the period after 1950 was one of buoyant world trade, thanks to the acceleration of growth in the capitalist core, and the reduction of trade barriers. A good many Asian countries, and in particular those with super-growth, took advantage of these new trade outlets by remaining competitive and aggressively seeking new markets. The opening up of their economies improved their efficiency and facilitated their growth;

e) many Asian countries have high labour inputs, with much longer working hours than in other parts of the world;

f) Asian countries were able to get a large catch-up bonus because their post-war starting levels of productivity were so low, and they were so far from the productivity frontier.

The African countries started in 1950 with an average per capita GDP somewhat higher than in Asia. Africa was the last area to emerge from colonialism. Education, health and infrastructure were very poor, and many countries continued to have a heavy reliance on foreign cadres. Their population growth was extremely rapid but per capita GDP increased less than any other region. Their newness as nation-states led many of their rulers to try to forge national unity by creating one-party regimes. This reinforced a tendency towards dirigisme that led to market distortions, artificial exchange rates and policies harmful to agriculture. Nevertheless, in the golden age, African per capita income grew by an average of 1.8 per cent a year.

Phase V (1973-94)

In the early 1970s, the world economy was overheating. Governments had to cope with strong inflationary pressure, a breakdown in the Bretton Woods fixed exchange rate system and the OPEC oil shock. There was a sharp reduction in the pace of economic growth throughout the world in 1974-5, and the momentum of the golden age has never been regained except in Asia. To some extent the slowdown is due to a retardation of technical progress, but 1973-94 has been an era of chequered performance, in which most of the world economy has operated below potential.

The biggest setback occurred in Eastern Europe, where total output is now well below 1973 levels, and per capita GDP has fallen by a third after faltering for a decade. The economic system is in a messy process of transition to capitalism. National frontiers have changed drastically, with the former USSR split into 15 countries, Yugoslavia into six, Czechoslovakia into two. East Germany has been incorporated into the Federal Republic. The COMECON trade and payments system disintegrated, and it was necessary to change the direction, price and commodity structure of international trade.

In African countries, total GDP has been better sustained than in Eastern Europe, but population growth was eight times greater, so average per capita GDP fell about 8 per cent from 1973 to 1992, and virtually the whole period since 1973 has been marked by faltering per capita performance.

Latin American performance since 1973 has also been poor. All the sample countries reacted with insouciance to the OPEC oil shock of 1973 and the world-wide explosion of prices. Governments felt they could accommodate to high rates of inflation, and were able to borrow on a large scale at negative real interest rates to cover external deficits incurred as a result of expansionary policies. After the Mexican debt moratorium in 1982, their supply of private foreign funds dried up and the service costs of existing debt soared because of rising interest rates. Most countries were then forced into desperate measures to curtail domestic demand, in the attempt to achieve internal financial equilibrium and external balance. Latin American per capita income peaked in 1980. In 1994, it was still about 3 per cent below what it had been fourteen years earlier.

After a number of experiments with unsuccessful heterodox approaches, most Latin American governments eventually adopted the neoliberal policy mix pioneered by Chile, which involved a return to orthodox fiscal and monetary restraint, more modest levels of demand, privatisation and a reopening of the economies to international trade. This switch in the conventional policy wisdom involved painful transitions and some disappointing setbacks, of which the most spectacular was that in Mexico at the end of 1994.

Asia has been the brightest spot in the world economy since 1973. This is all the more encouraging as it contains 58 per cent of the world's population. Average GDP growth has been the same as in the golden age, but per capita growth accelerated, whilst population growth slowed down. Since 1973, average per capita product has risen by 80 per cent. Japan experienced a sharp deceleration of growth. As it now has a level of income higher than the West European average, its performance is more comparable with (though rather better than) theirs, rather than with the Asian norm. If one looks at Asian performance excluding Japan, it has been better since 1973 than in the golden age.

Although Asian performance has been brilliant, it is not appropriate to describe it as a miracle. It is not difficult to explain in purely economic terms. It was the area with the lowest productivity level in 1950. Economic theory suggests that if countries with a low initial level of productivity can increase their investment rate, build up their human capital, and open up their economies to transmission of foreign technology, they should benefit from opportunities of backwardness. They are borrowing and adapting technology to economies operating well beneath the frontier of knowledge, so that when they mount a big push, they are unlikely to move into diminishing returns until they get much nearer to the level of the

advanced countries. Most Asian countries seem to have overcome or mitigated the institutional barriers to growth which hindered their progress before 1950. Table 2.7b gives a crude idea of where Asia stands in the hierarchy of productivity levels. It is clear that (except for Japan) it is at a level where opportunities of backwardness are likely to be promising.

There has been a wide variety of economic policy approaches in Asian countries, and it is difficult to distil clear lessons for application in the rest of the world. However, it is clear that the Asian model has been different from the neoliberal approach which has been popular in Western Europe and has been recommended to Eastern Europe and Latin America. The Asian countries have been more significantly influenced by Japanese policy with its substantial and continuing elements of corporatism and dirigisme.⁸

Western European countries had much slower growth in 1973-94 than in the golden age. In all the twelve countries the deceleration in GDP, per capita GDP and labour productivity was quite sharp. However, the results were in most cases superior to anything they had experienced before the postwar golden age, and the degree of instability in the growth path was also quite modest by such standards. Furthermore, all the West European countries moved closer to the frontier of technology by continuing their catch-up on American productivity. This is something they had conspicuously failed to do between 1870 and 1950. In fact, France, Belgium and the Netherlands have now drawn level with US productivity. The West European countries can hardly be faulted for their productivity performance. A substantial deceleration was to be expected as the once-for-all opportunities for catch-up were eroded, and their productivity slowdown was much less marked than in Japan.

The scope for further trade liberalisation was limited in this period compared with the golden age, but West European countries continued to increase the openness of their economies after 1973, and the ratio of trade to GDP increased substantially (see Table 2.4). In 1994 further liberalisation was agreed on a world-wide basis when the Uruguay round of the GATT was finally ratified. On the trade front, the main disappointments were the failure to dismantle the complex structure of agricultural protection, and the less than generous opening of markets to East European countries after the Comecon trade bloc collapsed in the 1990s.

The real evidence that the economic performance of these countries was unsatisfactory can be seen in their rising rates of unemployment (Table 3.19) and the rise in their capital-output ratios (Table 2.1). These suggest that the economies were operating below potential. The average unemployment rate in 1984-93 was 6.8 per cent compared with the 2.4 per cent in the golden age. In spite of costly programmes to promote early retirement, to classify marginal workers as handicapped, and to promote

work sharing, high rates of unemployment persisted for well over a decade. Governments tolerated this situation because their main objectives were no longer economic growth and full employment.

There were several reasons for the profound switch away from the macroeconomic goals and policy weaponry of the golden age. The first of these was the great acceleration in inflation in 1973-83. This was due to a variety of causes (see Maddison 1991), but was worsened by the two OPEC oil shocks of 1973 and 1979-80. These caused massive price increases, as well as terms-of-trade losses and balance-of-payments problems. The third feature, which had much longer term repercussions, was the collapse of the post-war fixed exchange rate system in 1971. This had been a major anchor for economic policy in the golden age.

On any reasonable accounting, the most sophisticated governments could have been expected to lose output in dealing with the threefold interactive shocks that occurred in the 1973-83 period. The new challenges were unavoidable, and it was widely felt that the threat of hyperinflation required policy to concentrate on the restoration of price stability. Economic growth and full employment became secondary considerations.

After 1983, there was a change in the situation these countries faced. They had squeezed the abnormal inflationary pressures out of their economies. The rate of price increase was pushed below that which had obtained in the golden age, and below that in most other parts of the world. The power of the OPEC cartel was broken by energy economy and development of new oil resources. In 1992 oil prices were one third lower than in 1983, whereas 1983 prices had been nine times as high as in 1973. A more or less workable set of monetary arrangements had emerged by 1983. The continental European countries had created a new zone of monetary stability with fixed but adjustable pegs in the European Monetary System. Japan, the USA, and the UK (except in 1990-2) had opted for floating rates. These arrangements were not as convenient as the Bretton Woods system, but they were not a serious menace to economic growth. However, the European Commission pushed its Member countries to maintain very narrow exchange rate margins and to aim at exchange rate fixity, as a prelude to monetary union. This required countries to bring their rates of inflation down towards those prevailing in Germany (as the D-mark was the effective monetary anchor), rather than being content to return to the golden age norm. Pursuit of this new policy objective meant that economic policy had to be more deflationary than it would otherwise have been. The goal was all the more difficult to achieve because of the concurrent deregulation of financial markets and abandonment of remaining exchange controls. Official reserves were now small in relation to the potential for private speculation. There were very serious setbacks to these ambitious policy aspirations. In 1992 Italy and the UK went back to floating rates. In 1993 the currency margins had to be widened from 2.25 to 15 per cent, and in 1995 the Portuguese and Spanish

currencies dropped below the 15 per cent margin and had to be devalued.

The other reason for the persistence of high unemployment was the fact that West European countries had developed advanced welfare states and job security systems in the golden age when the economic climate was different. When large scale unemployment emerged, these arrangements mitigated the social impact of recession and sustained demand, but they proved an obstacle to reemployment. Social charges add about 85 per cent to wage costs on average for manufacturing workers in Belgium, France, Germany, Italy and the Netherlands, and social legislation provides job security on such an extensive scale that employers are reluctant to take on new people, particularly if their skills have been eroded by long-term unemployment.

In the Southern European countries, experience since 1973 has had a strong resemblance to that in Western Europe to which they have become very closely linked through trade and capital movements, the operation of European Community transfers and fashions in economic policy. They also experienced a sharp deceleration in the growth of GDP, per capita GDP and labour productivity, compared to the golden age but they substantially reduced the gap between their productivity levels and those of the United States (see Table 2.7b). Ireland was the most remarkable performer in this respect, and Portugal made the slowest progress. The growth of trade was more rapid than in Western Europe, and was also faster than it had been in the golden age.

The unemployment and inflation experience of Southern Europe has been the most disappointing feature of the situation since 1973. It has been much worse than that of Western Europe. Inflation averaged 18.4 per cent a year in 1973-83. It fell in 1983-93, but was very much higher than in the golden age or in Western Europe. Unemployment averaged 12.2 per cent in 1983-93, more than three times its level in the golden age (see Table 3.19).

Within the Western offshoots, there was also a slowdown in growth after 1973, an acceleration in inflation and a rise in unemployment rates. The US situation was the most markedly different from that in the West European countries.

In the golden age, when the dollar was the world's monetary anchor, the American rate of inflation was lower than that in all other OECD countries except Germany. Inflation accelerated in 1973-83, and dropped back thereafter, but the United States did not try so hard as Europe to squeeze inflation back to or below the levels of the golden age. For most of the time it treated the exchange rate with benign neglect. From 1950 to 1973, the United States had operated with unemployment rates about twice the West European level, partly because its labour market had higher turnover rates with much better

opportunities for part-time or casual work. Since 1973, there has been some increase, but proportionately much less than in European countries. In 1984-93, unemployment was actually below the European average. The labour market has continued to be flexible with a very much smaller proportion of long-term unemployed than in Europe. As a result, the deceleration in the growth of US per capita income in 1973-94 was smaller than in European countries.

The most striking change in the USA after 1973, was the marked slowdown in the rate of growth of labour and total factor productivity. Performance in these respects has been worse than at any time since 1870. This is all the more surprising as the European countries are now also operating near the productivity frontier. One might have expected some acceleration of technical progress, as the collective R and D effort of the advanced capitalist countries is much bigger than when most of the burden was borne by the USA.

Although the evidence is not very firm, it is worth considering what could have caused the slowdown in US productivity, because of its long-term world-wide implications.

The first possibility is that US output growth has been mismeasured. There have been suspicious falls in US construction productivity, and the US output measure may be misleading for this activity. There have also been problems with measuring output in computers. However, the measure of US output I have used incorporates a new weighting procedure and new deflators for computers, and it does not seem likely that future measurement revisions are likely to be large.

A second consideration is the erosion of the American natural resource advantage. This is reflected in the substantial fall in US mining productivity since 1973.

A third factor is the changing structure of the economy. There has been a very significant movement towards service sectors, where measured productivity growth is slow. This move has obviously played a role in the slowdown, and is characteristic of all Western economies.

A fourth consideration which seems to have some validity, is that this has been a period when the fruits of investment could only be plucked with some delay, which was also true of the huge US investment in railways before 1913. Paul David (1991) has argued that computers and information technology have been hard to digest, and once digested will lead the United States to a productivity rebound. Although one need not agree with the precise historical parallel with electric motors which David draws, he has provided some grounds for hoping that the US total factor productivity slowdown since 1973 may turn out to be temporary. If the pay-off on investment has simply been retarded, then there may ultimately be

some rebound in productivity growth.

The most gloomy possibility is the one which Julius Wolf evoked in 1912, and which Kuznets reiterated in the 1930s and 1940s (Kuznets, 1953), i.e. we may have reached a point where technical progress is slower because we have exploited the easier inventions, there is less left to discover and the unknown has been harder to penetrate. One can be sceptical about this proposition, but it certainly cannot be ignored.

Notes

1. See Rostow (1960), Schumpeter (1939) and Maddison (1991), for a discussion of the stage and long-wave approaches.
2. See Douglass North (1968).
3. Maddison (1992) for the denominator (included in an unpublished appendix available from the author).
4. See Fogel (1964) and Coatsworth (1981) for differing assessments of the importance of railways in the USA and Mexico.
5. See Maddison (1989) for a more detailed survey of policy developments in this period; Maddison (1976) for an analysis of the impact of the two world wars; and Maddison (1985) for experience in 1929-38.
6. See Mowery and Rosenberg (1989) for an excellent and detailed survey of the British and American research effort.
7. See Maddison (1989 and 1991) for a more detailed policy analysis and growth accounts for different regions. See Maddison (1985) for a detailed narrative of developments in 1973-83 in Latin America and Asia.
8. See World Bank (1993). for an analysis of Asian policy approaches.