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LONG TERM ECONOMIC DEVELOPMENT

by

Irma Adelman

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California Agricultural Experiment Station
Giannini Foundation of Agricultural Economics
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The present paper analyzes the main features of long term economic performance of developed and developing countries since industrial revolution. It is divided into epochs, distinguished by the global trade and payments regime and by common general characteristics of the process of long term economic growth.

The Industrial Revolution Period, 1820-1914

Currently Developed Countries.

Prior to the industrial revolution, sustained economic growth was virtually nonexistent. The average annual rate of growth of real per capita GNP in the current OECD countries between 1700 and 1820 was only .2%. Through the application of science to technology, the industrial revolution made sustained long term economic growth possible for the first time in economic history. The industrial revolution was brought about by a sharp increase in the price of timber at the end of the eighteenth century, which necessitated a switch in energy source. Over a period of forty years, the cluster of inventions required to enable a shift to steam-power was introduced. It revolutionized the technology of long distance transport, iron and steel production, and led to an eventual transformation of the domestic and global economy, society and institutions.

The major difference between the period of merchant capitalism up to 1820 and the era of modern economic growth starting in 1820 has been a tremendous acceleration in technical progress. The average rate of increase of labor productivity of the OECD countries for the period 1820 to 1913 was 6.65 times greater than during 1700-1820. It resulted in an average annual rate of economic growth of real per capita GNP six times higher than in the earlier period. From 1820 to 1913, per capita income in the OECD countries more than trebled; the volume of world exports grew more than thirty fold; a global economy and a global financial system were created; substantial intercontinental capital and population movements took place linking overseas territories to the European economy; and international patterns of specialization in production and trade emerged.

Institutions and institutional change were critical to the emergence and diffusion of the industrial revolution. In theory, the application of science to technology was open to all countries. But, in practice, the countries that were able to take advantage of the possibilities for long term economic growth opened up by the industrial revolution were those whose political and economic institutions were either already propitious or those who could adapt their institutions to enable modern economic growth to take place. The few countries with modern factories in 1800 and widespread industrialization by the end of the century started with institutions better equipped for technical change than the overwhelming majority of underdeveloped countries in the 1950s. They started with governments that protected private property, enforced private contracts, and acted to remove legal bottlenecks to the expansion of factor and commodity markets; and with agricultural institutions that gave cultivators reasonable incentives and provided for a wide sharing of the benefits from agricultural improvements. The institutions of modern capitalism were essential to the diffusion of the industrial revolution and to the long term economic growth which it enabled.

A liberal global economic order has always characterized eras of high growth in the world economy. The period 1820-1913 was one of very free international trade, with no quantitative restrictions and low but rising tariffs after 1870, extremely free international movements of labor and capital, and a fixed nominal exchange rate under a gold-sterling-standard. Weak labor unions and the absence of concerns about unemployment permitted changes in the real exchange rate. Similarly, the high growth era between 1950 and 1973 was one of very strong movement towards a free-trade global regime, the introduction of customs unions, a fixed dollar-based nominal exchange rate, international credit arrangements imparting some flexibility, and priority given to the maintenance of full employment, leading to expansionary policies and mild inflationary pressures. By the same token, world recessions have been associated with more inward-looking global international trade and payments regimes. The slow growth period of 1913-1950 was characterized by quantitative restrictions, tariffs and overvalued exchange rates posing substantial barriers to trade, as well as by severe controls on both capital and labor mobility. The slow growth period of 1700-1820 was characterized by beggar-thy-neighbor mercantilist

policies.

Economic policy, especially with regard to international trade, agriculture and investment, has always been important in determining growth patterns within countries. Economic policy explains differences in the pace of development among countries broadly similar in their institutional structure and resources.

In trade policy, appropriate exchange rates and tariff levels were critical; overvalued exchange rates could choke off economic growth. While nominal exchange rates were fixed, through the gold standard, real exchange rates changed over time in response to changes in domestic wages and in the domestic price level. The overall trade regime was liberal, with mostly low or no tariffs on raw material and food imports and varying degrees of industrial protection. It should be noted, however, that nowhere outside Great Britain did initial factory-based industrialization take place without some tariff protection (Bairoch, 1976). The large latecomers to the industrial revolution-- Germany, Italy, Japan and Russia--all adopted an import substitution industrialization strategy. However, the extent of tariffs varied greatly across countries and, during this period, was not systematically associated with the rate of economic growth. For example, Japan had quite low industrial tariffs throughout its industrialization period while Russia had prohibitive tariffs that sheltered it from international competition and combined with unfavorable institutions to prevent sustained industrialization. Germany industrialized with substantial tariff protection, and the periods of highest industrial expansion were also the periods of highest tariffs. Free trade in grains in Switzerland and Denmark, that exposed farmers to competition from the influx of low-priced grain imports from overseas, accelerated the shift to highly productive farming in specialized crops and mixed farming. Eventually, tariff protection had to become negligible for competitive manufacturing to develop.

Agricultural productivity played a critical role in the success of industrialization in Western Europe and Japan (Jones and Woolf, 1969). The industrial revolution in these countries was preceded by three centuries of slow but steady agricultural progress. During the preceding centuries, market-oriented farming had emerged from the disintegration of medieval farming systems; biological innovations, such as crop rotation replacing fallow, were adopted; the growth in agricultural productivity had

exceeded the growth of population, giving rise to a continuing and rising agricultural surplus over subsistence; and a market for simple standardized manufacturing goods had been created. In Great Britain, France, Germany, the United States, Canada and Japan the agricultural sector played an important role in providing raw materials, markets for industrial products, and labor and/or capital as industrialization continued. Nowhere did industrialization proceed without a highly productive agriculture combined with institutions favorable to a wide sharing of the agricultural surplus. Where these conditions did not already exist by 1820, the industrial revolution could not generate sustained economic growth unless they were created.

Policy and institution-induced differences in national investment rates have been closely associated with the rate of diffusion of the industrial revolution technology within and across countries. Among countries with broadly similar institutions, the rate and structure of investment has also been associated with intercountry differences in rates of economic growth. When domestic investment rates in the lead countries slowed down, their technological leadership diminished, and they were eventually taken over by more dynamic countries.

Since countries differed in their initial conditions and in the speed with which they could adopt the economic and political institutions of modern capitalism, the result of the industrial revolution was a substantial increase in economic differentiation among nations. The current OECD countries include five European and three overseas countries that were then underdeveloped. The lag in the spread of the industrial revolution to some OECD countries (Japan, Italy) was as long as three generations. At the eve of the industrial revolution, the ratio of the per capita income of the average most advanced country to the per capita income of the average least advanced traditional society, in 1960 US dollars adjusted for purchasing power parity differences, was 2.8 to 1. (Bairoch, 1987). By 1913, this ratio had almost quadrupled, to 10.4. By 1950, it had mushroomed to 17.9. This differentiation ultimately led to the bifurcation of the world into a set of developed industrial countries and a set of raw-material, agricultural-staple based, developing countries.

The growth of the world economy has always been fueled by the growth of a lead country that provided the engine of growth. In the commercial capitalist era,

from 1700 to 1820, Netherlands was the lead country. Its per capita income in 1700 was about 50% higher than that of its nearest rival, the United Kingdom. Great Britain became the lead country during the industrial revolution era, between 1820 and 1890. It initiated the industrial revolution, and competition with Great Britain and the diffusion of British technology gave the major impetus to the industrialization efforts of the follower countries. Since 1890, the lead country became the United States (Maddison, 1982). The lead countries were all characterized by favorable institutions, appropriate to their development strategies, good transport enhanced by revolutions in transport technologies, appropriate exchange rates, high rates of change of productivity and, except for Great Britain, high rates of domestic investment for their periods. All lead countries had highly productive agricultures, agrarian institutions favorable to responsiveness to incentives, and parliamentary political systems responsive to the interests of modernizing groups. All lead countries eventually lost their competitive edge. Overvalued exchange rates, slowdown in investment, innovation and technical change, and the emergence of greater dynamism in other economies led to a decline in their dominant position.

Governments have always taken the lead role in generating the conditions for modern economic growth in the countries that were able to achieve it. Governments set the economic policy framework in a country. During the period of the industrial revolution, the governments of the follower countries responded to the economic and political challenges of the early industrializers outside their borders by unifying their countries politically. They created the institutional framework for capitalism by removing the remaining institutional barriers to the growth of market systems. In the latecomers to the industrial revolution, government investment, government demand, and government finance also played a leading role during the early stages of industrialization. During the industrial revolution period, neoclassical models of economic growth were fully appropriate only for the class of early successful industrializers, in which parliamentary governments had seen to it earlier that institutions supporting the effective functioning of markets already existed. Political institutions, particularly those that determine which economic interests the state reflects and the degree of autonomy of the state, have therefore been critical to economic development and to the distribution of its benefits.