When nations play leapfrog

If South Korea and Taiwan continue to grow as fast as they have over the past decade, then they could overtake America's income-per-head within the next quarter-century or so. A remarkable idea, but can they sustain these high rates of growth over such a long period?

History provides some clues. Today people take for granted annual growth rates in GDP per head of 2-3% in industrial economies and 6-7% in the newly industrialising countries (NICs). But it hasn't always been thus. Britain led the industrial revolution with growth in GDP per head of a mere 1.2% a year between 1830 and 1910. At the time this was hailed as miraculous. So it must have seemed after the meagre 0.3% a year growth over the previous century. But compared with today's standards it looks pathetic.

America's growth in income per head was only slightly faster, at an annual 1.6% in the 80 years to 1910. Its total GDP expanded much faster, by 4.2% a year, while its population was growing rapidly. This was enough to allow America to overtake Britain as the world's richest country (measured by GDP per head) in the 1890s. But it was unimpressive stuff compared with the speed with which Japan and the Asian NICs began gaining on America in the 1950s and 1960s.

The pace of economic development has accelerated. World Bank figures show that from 1780 it took Britain 58 years to double its real income per head; America took 47 years from 1839; Japan did it in 34 years in the late 19th century (after the Meiji reforms)--and even more quickly, of course, during its recovery after the second world war; and South Korea took 11 years from 1966.

Thus, the later a country has industrialised, the faster it has done so. Britain's industrial "revolution" was a slow process. Catching up has been easier. One reason why the Asian NICs seem to be closing the gap more quickly is because they started from further behind. In 1820, before its industrial expansion, America's GDP per head was already 75% of Britain's. But in 1950 income per head in South Korea and Taiwan was only about 10% of America's (all figures at purchasing-power parity). The more backward a country the greater its scope for fast growth by copying the leaders. As the NICs catch up, their growth rates will slow.

Does America's catching up of Britain 100 years ago shed any light on the future prospects for the East Asian economies? Although America pioneered mass production, it was primarily a technological follower for much of the 19th century, borrowing know-how heavily from Britain. East Asian economies have repeated this trick in recent decades. America's successful adoption of new technologies was linked to two essential factors: heavy investment in both physical capital and in education.

Between 1870 and 1910, America's gross fixed investment averaged 21% of its GDP, well ahead of Britain's 13%. Likewise, in recent decades, East Asia has sustained substantially higher investment than today's leaders. South Korea, for example, invests 35% of its GDP--more than double America's capital spending.

Education is crucial in developing the skills to master new technologies. America was an early proponent of literacy and universal primary education. Similarly, much of East Asia's recent economic success has been based on investment in human capital. Indeed, these countries' standards of education are not that far behind those of the rich industrial economies. The average American adult has 17 years of education. South Koreans already have an average of 13 years.

In addition to its technological prowess, America benefited from the massive expansion of its

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1 The figures in this article are taken mainly from "Dynamic Forces in Capitalist Development: a Long-Run Comparative View", by Angus Maddison.
domestic market. South Korea and Taiwan may lack that advantage, but the global market is today far bigger, and growing much faster. Exports account for about 30% of South Korea's GDP and 40% of Taiwan's.

Moreover, thanks to the huge growth in world trade and international communications, technology is today diffused more quickly than in the past--another reason why the growth of the NICs over the past 30 years has been faster than anyone has ever achieved before. Combine this with their historically high investment in physical and human capital, and assume that the world does not lapse into protectionism, and these countries should be able to catch up with the most advanced industrial countries in the near future. Whether they will be able to overtake them, however, is much harder to say.

Taking the lead requires something else. America's leadership in the 20th century was no doubt partly due to the misfortunes, in the shape of wars and protectionist barriers, confronting its closest competitors. But it was also due to America's ability to forge ahead as a technological leader, rather than a copy-cat. This took heavy spending on R&D and pure science. Besides, the possibility of East Asia taking the lead presupposes the inability of today's richest countries to adapt to changing economic and technological conditions.

Indeed, it can be argued that in a world where technological innovations are easily disseminated internationally, income per head will simply converge across developed countries over time--though there is not a shred of evidence for that so far. No other country may enjoy the lead America once had. That, of course, does not rule out the possibility that the East Asian economies may excel in particular industries. After all, small countries can only become rich ones through successful specialisation.
Periods during which GDP per head doubled

Britain (1780-1838) 58 years
United States (1839-86) 47 years
Japan (1885-1919) 34 years
South Korea (1966-77) 11 years

GDP per head
1985 $ and prices

United States

Britain = 100

Japan

South Korea

Sources: Angus Maddison; World Bank