

Making the International System Work for the Platinum Age

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IN HONOUR OF ANGUS MADDISON

The most important questions in economics are about why economies grow as fast or slowly as they do, and why some economies grow faster than others. Small differences in economic performance sustained over long periods generate huge differences in the distribution of economic welfare and in economic and, eventually, political power.

These overwhelmingly important questions affecting human economic life. are neglected by the deductive methods which dominate modern economics. The deduction of logical conclusions from narrowly specified assumptions provides few insights into the ultimate sources - the institutions and values - of differences in economic growth between countries and over time. These insights come especially from the careful study of economic history. The importance of particular institutions comes to be understood through the association of differences in economic performance with changes and differences in institutional structures. These associations are identified from careful numerical study of economic performance. The starting point is the careful marshalling of data.

In Maddison's words:

"Without measurement, judgements on why some countries got rich, why others are poor, why some catch up and others fall behind, are bound to be fuzzy. Quantification sharpens scholarly discussion and contributes to the dynamics of the research process" (Maddison 2002, p. 1).

To Angus Maddison, and the large numbers of good scholars in many countries who toiled with him in this demanding but in the end productive soil, we are grateful for much careful measurement of economic performance over long periods. This has been the starting point for his own and others' economic histories that have drawn insights about the wellsprings of superior and inferior performance in economic development.

We at the Australian National University (ANU) have benefited greatly from the regular visits of Angus over many years. This enjoyable personal contact increased

our awareness of the vast scope of Angus' curiosity and work and expanded the knowledge that we have found in his prodigious published output.

Maddison's work tells us amongst other things how ephemeral is the ordering at any point in time of the relative power and wealth of nations. For example, we are much more sensitive now than before Maddison's work to the overwhelming relative size of the large Asian economies of China and India at the beginning of the modern era. We know much more about how the acceleration of economic growth in various parts of Europe and North America from the late 18th and at various times through the 19th century, and from Japan after the Meiji restoration in the 1860s, that led to huge expansion in their relative roles in the global economy. We understand better the extent of the increases over a relatively short period in economic output and living standards in the economies in which growth accelerated at these times. We know from this work that differentials in economic performance, once established, tend to persist over long periods, with huge cumulative effects. We also know that they can abruptly conclude with war, revolution and less dramatic sources of disorder.

Many of the insights in Maddison's work are brought together in his compelling Millennial Report. This begins with an astounding contrast between two sets of facts. In the first millennium after the life of Jesus Christ, the world's economic output increased hardly at all - by one sixth, all contributed by population growth and none from rising per capita output. By contrast, global output increased 300-fold in the second millennium, which concluded half a dozen years ago. Over these one thousand years, world population increased 22 times, and average output 13-fold. The expansion in the second millennium occurred overwhelmingly late in the period. In the eight centuries to 1820, *"the advance in per capita income was a slow crawl - the world average rose about 50 percent. Most of the growth went to accommodate a fourfold increase in population"*. By contrast, world development has been much more dynamic since 1820. Between then and the end of the millennium, per capita income rose more than eight times, and population more than fivefold (Maddison 2001, p.17).

THE BEGINNINGS OF MODERN ECONOMIC GROWTH TO THE GOLDEN AGE

Maddison divides the time of rapid modern economic growth, from the settling down of Europe after the Napoleonic Wars until the present, into five periods. Of these, 1950-1973 was distinctly the strongest for increases in economic activity and living

standards. Maddison and others call this the Golden Age. Second best, which we can call the Silver Age, was from 1973 until the end of last century - a period which people who had lived through the Golden Age thought was problematic. In fact, the late twentieth century was an extraordinary period by historical standards. It saw overall economic growth that was strong by any comparison other than that with the Golden Age. It was more extraordinary because sustained rapid economic growth spread powerfully from its original locus in the North Atlantic economies, their outliers and Japan, to a large part of Asia.

The third strongest period for rapid economic growth was the long boom from 1870-1913 - roughly between the carnage of the North American civil war and the industrial-scale slaughter of the first of the great modern European civil wars. This had been the golden age of global economic growth until the second half of the twentieth century demonstrated that even more was possible.

In this paper, I seek to look forward by standing on Maddison's shoulders. I draw on some of his insights to sketch the possible shape of the world economy as contemporary tendencies work themselves into history - perhaps turning out to be rather more powerful than Maddison has suggested in his published work. I then raise some issues about the nature of the international governance mechanisms that will be necessary to maintain peace and prosperity in the world of the future, in which, at least for a while, four large political entities dominate the global economy.

My starting points are some extrapolations in a paper recently presented by Maddison as a memorial lecture to Heinz Arndt and published in the November 2006 issue of the *Journal of Asian-Pacific Economic Literature* (Maddison 2006). The table is reproduced as Table 1 and Chart 1. The table and chart set out the value of economic output in the world's major economies and the world as a whole from 1300 until 2003, and an estimate for 2030.

Back in 1500, two large Asian economies, India and China - or, rather, two large regions that covered territory later and from time to time largely and today entirely governed as India and China - were of roughly similar economic size, and together represented a bit more than half of global economic output. There had been considerable growth in total economic output in India between 1300 and 1500 during a long period of relative political stability, catching up with a China that was stagnating from the disruption of war, dynastic change and civil disturbance.

After 1500, the dominant trends in the global economy were the restoration of China's earlier relative position over the first one and a half centuries or so of the Qing dynasty, and the acceleration of economic growth in Western Europe - the latter much more powerfully after the Napoleonic wars of the early nineteenth century. In 1820, which in Maddison's table is the beginning of the modern era of rapid economic growth in the North Atlantic, China accounted for almost a third of global economic output. Europe was responsible for something in excess of a quarter. India, through a period of external invasion and disorder, grew reasonably strongly by the standards of earlier times, doubling its size between 1500-1820, but nevertheless fell well back behind both China and Western Europe.

From about 1820, everything changed. The accumulation of conditions that generated an acceleration of productivity growth in Europe began to have powerful effects. The deeper history of these conditions included the establishment for a period under the Mongols of an initially morbid peace across Eurasia in the aftermath of conquest across much of the Eurasian continent. The Mongol hegemony supported the restoration and expansion of trade between China and Europe along the silk route, extending through Persia and into India. The superior technologies of China followed these paths into the European peninsular of Eurasia.

Maddison, Snooks, Jones and, drawing on comparative insights from his intimate knowledge of the long-run economic history of China, Elvin, amongst scholars with whom we at the ANU have had the privilege of interacting on campus, have all contributed to our understanding of the European miracle. That phenomenon began its ascent in the middle of the last millennium and accelerated during the nineteenth century. Myriad geographical and institutional characteristics that generated effective competition between states for productive people and means of conducting business. Successful political systems expanded, without being so successful - like the Chinese or Moghuls - that they entrenched powerful political entities over such large areas that they were able to stamp out economic and intellectual innovation when they threatened the established political and economic orders.

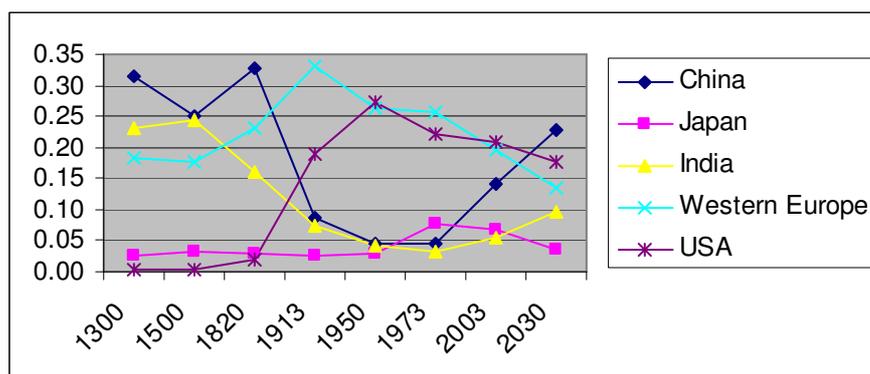
Table 1: China in the world economy, 1300-2030 AD

Year	China	Japan	India	Western		World	China/World
	Population (million)			Europe	USA		
1300	100.0	10.5	88.0	58.4	1.7	360.0	0.28
1500	103.0	15.4	110.0	57.3	2.0	438.4	0.23
1820	381.0	31.0	209.0	133.0	10.0	1,041.8	0.37
1913	437.1	51.7	303.7	261.0	97.6	1,791.1	0.24
1950	546.8	83.8	359.0	304.9	152.3	2,524.3	0.22
1973	881.9	108.7	580.0	358.8	211.9	3,916.5	0.23
2003	1,288.4	127.2	1,049.7	394.6	290.3	6,278.6	0.21
2030	1,458.0	121.0	1,421.0	400.0	364.0	8,175.0	0.18
Per Capita GDP (1990 international \$)							
1300	600	475	500	593	400	530	1.13
1500	600	500	550	771	400	566	1.06
1820	600	669	533	1,204	1,257	667	0.90
1913	552	1,387	673	3,458	5,301	1,526	0.36
1950	439	1,921	619	4,579	9,561	2,111	0.21
1973	839	11,434	852	11,416	16,689	4,091	0.21
2003	4,392	21,218	2,160	19,912	29,037	6,432	0.68
2030	14,416	27,758	6,227	30,566	44,574	11,207	1.29
GDP (billion, 1990 international \$)							
1300	60.0	5.0	44.0	34.6	0.7	190.0	0.32
1500	61.8	7.7	60.5	44.2	0.8	248.3	0.25
1820	228.6	20.7	111.4	160.1	12.5	694.6	0.33
1913	241.3	71.7	204.2	902.3	517.4	2,733.3	0.09
1950	239.9	161.0	222.2	1,396.2	1,455.9	5,331.6	0.04
1973	740.0	1,242.9	494.8	4,096.5	3,536.6	16,023.8	0.05
2003	5,659.2	2,699.0	2,267.1	7,857.4	8,430.8	40,384.6	0.14
2030	21,019.0	3,229.0	8,848.0	12,217.0	16,217.0	91,623.0	0.23

Note: Estimates of GDP levels are adjusted to reflect purchasing power parities in the benchmark year 1990 (see Maddison 1998:149-66). In China the purchasing power of the yuan is much higher than the exchange rate. There is often significant error in comparative economic analysis because ignorance of the pitfalls of exchange rate conversion leads to serious understatement of the level of Chinese GDP. This is true in journalism, political discourse and amongst some economists. Thus newspapers frequently refer to Japan as the world's second largest economy, though its GDP is less than half of the Chinese. It should also be noted that official Chinese statistics exaggerate GDP growth for reasons explained in Maddison (1998), which contains a detailed re-estimation of performance up to 1995. For 1995-2003, I made the same type of downward adjustment to the official estimate of growth in real value added in industry and 'non-productive' services (see Maddison 2006).

Source: Maddison 2006

Chart 1: China and major countries' share in the world economy, 1300-2030 (%)



(Source: Maddison, 2006, Table 5)

The acceleration of economic growth spread rapidly from its original heartland in Britain and adjacent areas on the continent gradually through Europe and North America, the latter especially after the American civil war. It spread as well through immigration from Europe to the countries of recent settlement that Maddison calls European outliers, a category that for him includes the United States.

There was one main special case in the 19th and early 20th centuries, of growth outside Europe and its outliers. This was Japan from the 1860s. The case of Japan demonstrated the possibility of sustained economic growth in countries with a recent history of feudal, inward looking political systems. Not any backward, inward-looking political system, but at least those with traditions of an effective overarching state that could maintain order, enforce property rights and establish the range of public goods that in the right circumstances could be the basis of a market economy.

In Japan, the beginnings of institutional development to support a modern economy could be found a couple of centuries before the Meiji restoration in the 1860s. But the big changes came after what was at first a step back into the feudal past, with strong resistance to opening in response to pressure from the North Atlantic. Japan for many centuries had been governed not by the Emperor but by successive hereditary Shoguns, who maintained some nominal respect for the emperor. The Shoguns' power came to be undercut by division within the country about the appropriate response to the intrusion of the industrialising West, manifested dramatically from the 1840s in the foreigners' capacity to impose a substantial opening to international intercourse upon China, for most of thousands of years the East Asian hegemon.

The Court of the Japanese emperor became a centre of resistance to opening to the foreigners. But the weakening of the authority of the Shogun by dissatisfaction with the diplomatic response to and partial acquiescence in pressure from America and Europe provided opportunity for that same Court. The renewed authority of the new Emperor made possible a decisive opening to the West in contradiction of the policies upon which the restoration of imperial power had been achieved.

Comprehensive opening to the West, acquiescence in many conditions on foreign trade policy and in foreigners' rights to do business and be resident in Japan under their own laws, and Japan's acceptance or embrace of many productive foreign institutions, set the path for a remarkable period of economic growth. As Maddison notes in his Arndt Lecture, the success of the open policies eventually created conditions under which Japan was able to negotiate an end to the main discriminatory treatment against it. (Some aspects of discriminatory treatment continued to rankle into the period after WW1 and became causally important in Japan's disastrous military course of the 1930s). It also fundamentally unhinged the old, Sino-centric political order, liberating and empowering Japan in its fatal emulation of Western imperialism.

Superior economic growth in Europe, and then the US and Japan, underpinned the phenomenon of imperialism. More advanced economies, with a small minority of global population, came to establish sovereignty with various degrees of effectiveness over a very large part of the population as well as surface of the earth.

There were mixed effects of imperialist pressure on economic performance amongst the colonised people. In China, the colonial wars and the domestic instability associated with reaction to the new foreign presence created civil disturbance on a scale that seriously affected capital accumulation and exchange. From 1820 until 1913, China's total economic output hardly increased at all.

The aggregate economic story in India in the early period of intense contact with imperialism was stronger, with output doubling between 1820 and 1913. India had neither the extreme of instability during the period of colonial pressure, nor quite the degree of order of China at the beginning of the period.

The first half of the twentieth century in India was unhappy for economic growth.

In what is now the third most populous developing country, Indonesia, there was considerable economic growth between 1820 and 1913, but with a high proportion of it appropriated by the large numbers of resident Dutch (Maddison, 2006).

Looking at the Maddison numbers, there was a break in the trajectory of global economic growth and its regional distribution with World War Two. In many respects, the break was as decisive as that at the onset of modern economic growth. The Golden Age was a period of exceptionally strong economic growth in the countries that had already become relatively rich, including those whose past economic achievements had been degraded during World War Two. Growth was most rapid in those countries that were able quickly to recover lost ground. Japan was producing at the level of the immediately pre-war period by the mid 1950s and continued growing strongly until the shocks to the international monetary system and global energy market through 1973 and 1974. By then, Japan had entered the frontiers of average productivity levels and incomes of the then advanced industrial countries.

EXTENSION OF MODERN ECONOMIC GROWTH TO ASIA IN THE GOLDEN AGE

1950-1973 was a period of strong growth centred in the countries that were or had been rich, but extending to most countries. Global output increased by an average of 4.9% per annum on the Maddison figures. The spillovers from prosperity in the advanced economies were important in most developing countries. Many newly independent economies, especially those with pre- or non-colonial traditions of an overarching State, received some impetus to growth from independence itself. A few others, including some which were later to experience stagnation or decline, benefited from a lingering legacy of colonial institutions, rendered more productive for as long as they survived in the post-colonial environment.

In China, the Second World War established the conditions for the success of communist revolution. The new Communist Party Government quickly restored order over the whole country, for the first time in more than a hundred years. This alone was instrumental in restoring economic growth after a long period of stagnation. Twists and turns in Communist Party policy over the subsequent twenty nine years led to some periods of disastrously poor performance. The gyrations in policy and performance occurred within a trajectory that on the whole was upwards, but less powerfully so than in Japan and its East Asian immediate neighbours.

India had experienced some decline in economic output between the onset of World War One and Independence. The new priorities of a national government, concerned for the wider participation of its people in the economic life of the country, brought continuous and reasonably strong economic growth over a long period to India for the first time. The new policies included better and more widespread although still limited modern education, easing of constraints on human talent moving to its most productive applications, and removal of discrimination against indigenous investment. Although India's growth was superior to that in any previous extended period, it suffered by comparison with the market economies of East Asia, and to a lesser extent China, and was routinely denigrated inside and outside the country as an inadequate "*Hindu rate of growth*".

The historically distinctive change in the Golden Age was the appearance of the new phenomena of sustained rapid economic growth in many parts of East Asia. It emerged first in Japan. Japan grew so rapidly in the sixties that its audacious plan to double output in a decade was achieved a couple of years ahead of schedule. More remarkably, the process of sustained rapid internationally-oriented growth was established in both Hong Kong and Taiwan. Those initially poor economies' comparative advantage lay in commodities that used intensively abundant labour. Outward-looking policies allowed this to become the basis for rapid export expansion, as management capacity and capital became available from mainland China after the success of the revolution. Korea's internationally oriented policies and development framework from the early 1960s were built around an objective of rapid growth. Rapid growth continued in each Northeast Asian economy once it was established, until it reached the frontiers of the developed countries in average productivity and incomes, first of all in Japan.

Singapore launched itself on a rapid growth path following the separation from Malaysia in the mid 1960's, and grew more rapidly even than the Northeast Asian developing market economies.

During the Golden Age, growth in Japan, Taiwan, Hong Kong and in the second half of the period, Singapore and Korea, was stronger for longer than anything that had been previously known in the history of humanity. Sustained economic growth in these economies was essentially catching up with the capital intensity and productivity of the world's advanced economies, within societies that had accepted the primacy of an economic growth objective. The starting point in all cases was the

overthrow of priorities and cultural inhibitions associated with old ways of life whenever they were widely recognised as being in clear conflict with the imperatives of economic growth. The challenge from the economically and technologically powerful West in the 19th and early 20th centuries had in many cases generated an initially negative reaction which lasted for varying periods. The ultimate reaction - so far everywhere except North Korea, but that is changing - was one of realisation that maintenance of national sovereignty in any sense demanded economic modernisation, involving opening up to the international economy and absorbing the technological and many aspects of the institutional framework of economies that were already successful.. For the smaller countries of East Asia, strategic vulnerability in relation to neighbours was a powerful additional impetus to change in economic strategy.

Sustained rapid economic growth in East Asia was associated with high levels of investment, supported by high and rising levels of savings, including private and public investment in education. It occurred within a range of approaches to utilisation of direct foreign investment and of official intervention in the conditions under which international trade was conducted. The common features were relatively even-handed approaches to export promotion and import substitution, and openness to foreign technology and business ideas, the latter through alternative mechanisms where there were inhibitions on foreign ownership of business.

SILVER AGE ACCELERATION OF GROWTH IN THE ASIAN HEARTLAND

The second most successful period of global economic growth in the modern era in Maddison's calculation - from 1973 until the end of the twentieth century - contained another important turning point in the locus of global economic activity. It saw the establishment of sustained rapid economic growth, along the lines of the Northeast Asian market economies and Singapore in the Golden Age, in the world's most populous countries and regions - China, India, and less decisively most of Southeast Asia, it will turn out to be a more important point of departure for growth in global economic output than either the period after the Napoleonic wars in Western Europe, or the Golden Age. It laid the basis of what may turn out to be the strongest period of growth of all - a Platinum Age in the first third of the twenty first century. Sustained rapid growth was established in major countries which had previously experienced only moderate growth, with the most populous Asian economies joining a process of rapid movement towards the global frontiers of capital intensity and productivity.

The first of the new movers were in Southeast Asia - Thailand and Malaysia from the early to mid 70's. The most important change came with the new leadership that emerged in China following the death of the founding leader of the communist regime – Mao Zedong. Mao died in 1976 after a long period of inhibited capacity and after the disastrous decade of political instability that was the Cultural Revolution. His death led to two years of indecisive policy as the tiller was contested by two main (and various subsidiary) groups within the upper echelons of the Communist Party, with contrasting approaches to economic development strategy. The first main group comprised surviving victims of the Cultural Revolution, who thought that the future of China lay with moving decisively away from Maoism towards a modernising policy. The other was made up of leaders who had been close to Mao during the Cultural Revolution, and who continued to hanker after continuous revolution, autarky, the dominance of the Peoples Communes in the countryside and politically directed state owned corporation in the cities.

The victims of the Cultural Revolution amongst the leaders of the late 1970s, coalescing around Deng Xiaoping, established control of the Central Committee of the Communist Party in December 1978. China embarked on a policy of market-oriented economic reform and opening to the outside world from which it has not looked back.

The new Communist Party leadership had no blueprint for economic reform - no more than the leadership of Taiwan in the 1950s or of Korea through the 1960s, or for that matter of Japan in the 1860s. What Deng and leaders close to him did have was recognition that there would be huge gains from China opening up to foreign economic ideas, technology, ways of approaching business and economic institutions. They recognised the success that widespread use of markets for domestic allocation of resources and exchange of goods and services and opening to the international economy had brought for their neighbours and for their compatriots in Taiwan and Hong Kong. They recognised that allowing a substantial role for markets in domestic allocation of resources had some inevitable consequences for widening dispersion in the distribution of income. They saw acceptance of change as being necessary to maintain long-term stability in China and to maintain China's position relative to the rest of the world including in relation to what most in the Chinese leadership had come to see as a threat to its sovereignty from the Soviet Union.

The success of East Asian economic reform in lifting the rate of productivity and incomes growth, reinforced over time by the beginnings of China's emulation of the success of other East Asian countries, became a highly influential model for development in much of the rest of the world. It was the model to which Indonesia reached in the mid-nineteen eighties, as a large fall in the oil price came to require new sources of export expansion. It was the natural model to which Vietnam gravitated after the collapse between 1989 and the early nineteen nineties of the Soviet Union and the Comecon trade structures.

The Philippines had been hesitantly groping towards an internationally--orientated growth strategy from time to time from the 70s. There had been a long detour during the unsuccessful military administration of Marcos. Then under the second President of the Democratic restoration, the Philippines took decisive steps towards opening the economy through the mid 1990s, with positive effects on economic growth.

The decisive economic event of the late twentieth century, after Chinese economic reform and opening to the international economy, was the change of economic strategy in India by degrees from the mid 1980s and decisively from 1991. India, like China, had adopted inward - looking approaches to economic development in the early years of Independence. A large economy like India could have aspirations for self-sufficiency in a wide range of goods and services. This was one source of vulnerability to the appeal of inward-looking policies. The antidote of East Asian developing economies' demonstration of the huge potential benefits from deep integration with the international economy had yet to be developed when initial independent India's development strategy was shaped in the 1950s. The international political developments that led India into the close strategic and economic embrace of the Soviet Union through the 60s and 70s reinforced those tendencies. The inward looking ideas about economic policy that had been influential in Britain and to some extent in parts of Western Europe in the immediate post-war years had been absorbed by members of the post-Independence political elite, and survived better than in their original European homes. India's economic and political experience had not been so disastrous as to shake confidence in the old approaches in a decisive way. In this distorted sense, India was at a disadvantage relative to China, where the Cultural Revolution had been an important spur to fundamental change.

Internationally aware Indians, resident abroad and at home, became increasingly concerned at the relative under-performance of their economy as one after another of the East Asian economies did much better. Bhagwati has described one of the origins of Indian reform in 1991 as the disagreeable position of having a superiority complex and an inferior status. In the end, the poor performance relative to China was such a challenge to Indian pride, and also potentially a challenge to Indian sovereignty, that its influence was decisive.

The Indian changes came more gradually than the Chinese, as they must in a democratic polity. Some analysts see clear signs of what was later to come in the Rajiv Gandhi reforms of the mid 1980s. But there is no doubting that the changes in response to difficult macroeconomic circumstances in 1991 were of larger dimension and had more important effects. As in China, and in smaller East Asian economies, as indeed in Japan at an earlier stage in history, the early success of economic reform helped to establish its economic and political credentials. There was always a question in India whether initially unpopular and counter-intuitive policies of more open trade (not at that stage anything like free trade), more open approaches to investment, and greater utilisation of market mechanisms for allocation of resources, would survive for long. That doubt has been significantly assuaged by the survival of the policy now through two changes in government, the second bringing in as Prime Minister economist Manmohan Singh, who as Finance Minister had played a leading role in the initial reforms in 1991.

One other feature of economic growth in the Golden and Silver Ages is worthy of remark. The period since the Second World War has seen relatively strong growth in smaller countries. By contrast, in ancient times, there were mostly economic advantages in large scale national organisation - or at least of strategic alignment with a large country. A large country was less vulnerable to serious intrusion from neighbours. There was a certain institutional Darwinism in the tendency for states which had mastered the arts of good governance to expand at the expense of others. In the days when free exchange across large distances and between regions with disparate resource endowments required integration within a single political order, the division of labour depended on the extent of the State. For these and other reasons, the conditions for economic growth were more likely to be present in large political communities.

Smaller entities prospered more easily in the Golden and Silver Ages, partly because the more open trade of this era allowed them to achieve economies of scale in many areas of production alongside a relatively small domestic market. They were assisted as well by opportunities for catching up with the capital intensity and technological and institutional quality of more advanced economies by the general conditions of stability and order. They were also helped by the more ready international transmission of ideas about government and economic policy which reduced some of the advantage that had accrued disproportionately to larger entities.

THE FIRST THIRD OF THE TWENTY FIRST CENTURY: HARVEST TIME IN POPULOUS ASIA AND THE PLATINUM AGE

How will things look in future? Angus Maddison gives us a start in our thinking with the projections to the year 2030. He notes in the Arndt Lecture that his projections are not the result of some econometric exercise. Rather they seek to incorporate judgements about the momentum of growth and the extent to which this is likely to be retarded, accelerated or maintained in various parts of the world economy. He is cautious on the future growth of China, with his projections embodying a sharp deceleration of the average growth rate from something like 8% in the reform period (Maddison's adjusted data), and 9-10% in the early twenty first century, to five percent per annum expecting some slowdown from the first quarter century of reform.

Maddison's projections for 2030 embody expectations of continued strong growth in India at a rate a bit above China but well below the average so far for the shorter reform period in that country, and even below that of the Silver Age. They envisage low growth in Japan (an average of about two thirds of one percent) - continuing the pattern of the 1990s and early twenty first century. They anticipate slow, positive growth in Western Europe (1.65%), and somewhat more rapid growth in the US (2.45%) than in other established developed countries because of the more favourable demographics created by much higher rates of immigration. The rest of the world - the other developed outliers; the smaller success stories of Northeast Asia; Southeast and South Asia beyond India; other West Asia and the "Middle East"; Russia and its old empire in Central Asia and Eastern Europe; Latin America; and Africa - is expected to expand at a touch above the low average rate of the Silver Age (3% compared with 2.8%) and below the Golden Age.

The upshot is a very large change in the distribution of economic activity around the globe by the year 2030. The notable feature of the projections is that China becomes by far the world's largest economy by 2030 - nearly one third larger than the United States - despite the cutting of the average growth rate to half that of recent years. India emerges decisively as the world's fourth largest economy - two thirds the size of Western Europe and approaching three times the size of Japan - despite growth slumping to the average rate of the Silver Age. The Chinese and Indian shares of the global economy rise over the next several decades to something approaching one third by 2030. This is still a long way short of the ratios prior to the modern era. However, there is a considerable partial restoration of the decline in the relative standing of the Chinese and Indian economies through the one and half centuries of accelerated economic growth in Europe. The four largest entities, China, the US, Western Europe, India stand out way ahead of the next echelon, led by Japan. The big four account for nearly two thirds of world economic activity.

The remainder of this paper does two things. First, it digs a little deeper into Maddison's projections and asks whether it is likely that outcomes along these lines will emerge over the next several decades. Secondly, and at greater length, it explores some implications of this historic shift in the locus of global economic activity for the governance of the international economy and polity.

The perception lags in identifying requirements for new institutional arrangements to accommodate new global economic and power realities are long, and the implementation lags after recognition of the need for change even longer. If we are to be ready for a world with a very different distribution of power by 2030, then we need to be thinking through the institutional requirements right now and moving soon towards building the required institutional order.

HOW GOOD ARE THE MADDISON NUMBERS?

So how good are the numbers in the Maddison histories and projections? Let me jump forward first to my conclusions. It is likely that the Maddison projections will turn out to be far below the realities, for the global economy and especially for China. With two qualifications, the next several decades, embodying the harvest times of rapid economic growth in the most populous Asian countries, are likely to experience much stronger economic growth than the Silver Age, and may take the world into a new Platinum Age in which the average growth rates of the Golden Age are

exceeded. One qualification relates to the maintenance of domestic political stability in China and India through the stress of sustained rapid economic growth. The second and more challenging qualification relates to the building of an international institutional order that provides the international public goods for peace and prosperity in a deeply a hugely expanded and deeply integrated global economy dominated by four entities.

The strongest growth momentum the world has ever known is now well established in China—with its population more than half as big again as all of the contemporary world's developed countries together. In my assessment of the economic factors, and abstracting for the moment from the possibility of fundamental domestic or external political dislocation, China's growth over the period to 2020 will exceed that of the 28 years of reform so far. Beyond that, there is of course a wider range of uncertainty. By then, if US growth proceeded at the average rate estimated by Maddison, the Chinese economy would be more than twice as large as the American. Its per capita output would be about 70 percent of the Western European—a proportion at which opportunities for rapid growth through "*catching up*" were diminishing considerably, generating the usual deceleration out of sustained rapid growth at about that time.

There is no necessary or likely economic reason why growth rates will ease at all until average Chinese labour productivity is much closer to the average of the developed economies than it will be through the period to 2020. I will come back to the reasons.

Considerable and accelerating momentum has been achieved in Indian economic growth since 1991. Growth momentum is accelerating, not decelerating, so it would take a major disturbance to push average growth rates 2003-30 back to the levels of the Silver Age. Growth is becoming more securely based politically and economically. A demographic structure that is more favourable than China's for sustaining growth, and the large gap between Chinese and Indian productivity levels that emerged in the thirteen years between the commenced in the two countries, and which has widened since, suggest that rapid growth in India will be maintained after China approaches the frontiers of global productivity and slows down. Again excepting fundamental domestic or external political dislocation, India's share of global output will rise strongly most strongly after China slows, perhaps from the early 2020s.

Sustained rapid growth in China and India will keep terms of trade historically high for commodity exporting countries, and create opportunities for others in global markets for labour-intensive manufactures as Chinese labour rapidly becomes more scarce and valuable. It seems unlikely that the economies outside the big four and Japan - the rest of the world in Table 1 and Chart 1 - will experience an average growth as low as 3 percent. The more populous Southeast Asian countries, first of all Vietnam, and probably Indonesia as its political leaders learn and apply the art of growth-oriented economic management in a democratic polity, have laid a base for doing much better in the period ahead than through the political transitions and Asian financial crisis of the 1990s. The improved performers now seems likely to include Russia and several of the economies that once formed part of the Soviet Union and its empire in Eastern Europe, after the appalling stagnation and then collapse of the late twentieth century. They may include the more populous economies of Latin America, spurred by historic rises in terms of trade of commodities exporters and application of the lessons of sad development experience - but with major questions about continuity of economic strategy.

Maddison's projections for Japan seem low, after the clear evidence that it has worked off the overhang from the investment boom of the late 1980s and beginning of the 1990s that was the source of a decade of stagnation. The estimates for Western Europe and the US seem reasonable, although there will be opportunities to do better in a buoyant global economy.

I have followed with interest and admiration the careful work over more than a decade of Maddison and Harry Wu on China's economic statistics. They have concluded that the established official data, accepted by the international agencies, have underestimated Chinese GDP but modestly overstated the rate of output growth on average over the reform period.

In the early 1990s, with Guonan Ma (Garnaut and Ma 1993), and later Yiping Huang (Garnaut and Huang 1994), I sought indirectly to estimate the level of Chinese GDP by reference to per capita consumption of a wide range of foodstuffs and inputs into industrial activity. Ma, Huang and I compared then contemporary Chinese per capita consumption, with that of other East Asian economies, at various times past. Taiwan was our prime comparator. Our conclusion then was that the measures of GDP per capita derived from taking standard national accounts data and converting them to dollars at prevailing exchange rates, underestimated China's GDP relative to other

developing economies at times when their announced GDP was similar to China's in the early 1990s, by a factor of about 3. The common underestimation for countries at China's level of development and incomes, relative to the advanced economies, was commonly in the vicinity of three. So conventional measures of GDP tended in the early 1990s to underestimate Chinese GDP relative to developed countries by a factor of 9, and PPP estimates by three.

Gradually, in the years since then, we have seen the removal of some of that part of this underestimation that was particular to China, beyond the general tendency for the national accounts data to understate the purchasing power of low income economies. There has been restatement of Chinese national accounts on several occasions, most recently late in 2005. There has been some appreciation of the real effective exchange rate, through rapid growth in nominal GDP, and since July 2005 the beginnings of what is likely to be sustained and in sum considerable nominal appreciation of the Chinese currency.

I am broadly comfortable with the Maddison and Wu historical estimates, both on levels and on rates of growth of Chinese GDP. I would make two points about the future. First, the sources of modest overestimation of Chinese growth rates in the reform era are less important now than in the late 1990s. Indeed, similarly careful assessment of recent Chinese growth data suggests no grounds for downward adjustment to the strong numbers in the vicinity of 9 and 10%. Second, there is considerable doubt about whether we should expect a deceleration in Chinese growth over the next decade or even over the next several decades. Chinese investment levels are now much higher than the average in the reform period when growth has been so high. There is no economic reason why these levels of investment need to fall. Investment shares of GDP in the vicinity of 40-45% are quite sustainable in an economy which is tending to save one half of total incomes (Garnaut and Huang 2005). Indeed there is room for domestic demand expansion and somewhat higher rates of growth without risking either domestic inflation or external instability so long as other aspects of macroeconomic policy are adjusted accordingly. The crucial adjustment is the faster appreciation of the real exchange rate which in a country with a recent low inflation, will have to be achieved through nominal appreciation of the renminbi.

China will reach a turning point in economic development in the years immediately ahead. Previously apparently unlimited supplies of labour will dry up, labour scarcity

become the norm and real wages begin to rise rapidly (see Garnaut and Song 2006, especially Chapters One and Two). This process has already begun in coastal China. There are several reasons why the turning point in economic development has come relatively early in the development process in China, and why the Chinese economy will move through the structural change associated with the turning point relatively quickly. One is the exceptionally rapid rate of growth in total output and demand for labour. The second is the sharp decline in fertility which occurred about the time of the reform policies, which has led to sharply lower rates of total population and now labour force growth. This has been going on for long enough for the number of new entrants into the labour force each year to be declining absolutely. The third reason for expecting a sharp adjustment in the labour market is that total levels of investment in education have been rising strongly, from reasonably high levels by developing countries standards despite the tragic gap of the Cultural Revolution years. This rising total amount of investment has been focussed on smaller and smaller numbers of Chinese students in the school ages, so that the level of education being made available to each young Chinese is rising sharply. That adds to the market squeeze on unskilled labour in the period ahead and is contributing to rapid increases in real wage rates. This will accelerate China's loss of competitiveness in simple labour intensive manufactures and force transition into technologically more sophisticated and more capital intensive export industries.

As a result, appreciation of the real exchange rate will be achieved through nominal appreciation or domestic inflation. China through these processes will gradually remove the gap between GDP as measured by purchasing power methods and estimated by converting national accounts data into international dollars at prevailing exchange rates - but purchasing power-based estimates of GDP, as applied by Maddison, will not be affected.

There is no necessary reason why this major transition in China will be associated with any slowing of economic growth. Of course, certain conditions must be met if rapid growth is to continue through and beyond the turning point. The most important of these is a high degree of flexibility in domestic resource allocation. This requires acceptance of far-reaching change in the structure of industry as labour-intensive industries decline and technologically more sophisticated industries take their place. China is in a good position to accept changes of this kind. On the whole, they will be supportive of political stability around rapid growth processes because of the rapid increases in real wages in urban and rural areas with which they will be associated.

Beyond the increased rate of capital intensification of production in China, the second reason for expecting the continuation of high growth is the continuing deepening of integration into the international economy. Chinese import shares of consumption and export shares of production continue to rise at extraordinary rates. China is already the world's third largest export market and, within a few years, will soon occupy a similar status in global import markets. In a few years, it will be the world's largest trading economy. China is by far the largest recipient of direct foreign investment amongst developing countries. These huge direct foreign investment flows with their associated contributions to technological improvement can be expected to continue. These factors and continued reform of the market economy can be expected to lead to high rates of productivity growth for some time, until China is much closer to average productivity levels of the developed countries.

The Chinese authorities have been announcing an objective of reducing the rate of growth now for most of the years of the twenty first century. They have been supported in this by the international financial institutions and the global investment banks. The basis of this has been a feeling that the investment shares are unsustainably high and that bringing them down will lower growth.

However, this view of Chinese growth potential is based on a misjudgement. The current account surplus at 7% of GDP in such a large economy is not consistent with long-term international acceptance of open trade with China and is inevitably a focus of international protectionist pressures unless corrected. Currency appreciation alone would not generate an optimal adjustment path. The continuation of at least the current levels of investment and, probably some increase in them, will be a necessary part of the overall adjustment through which China must go in its macroeconomic structure.

The story of Indian growth is currently less familiar to economists in the West. After a long period of growth fluctuating around 4%, the "*Hindu rate of growth*", the reforms of the late 80s and, especially 1991, led to significant and sustained lift in average growth rates. Over recent years, we have seen 7-8% growth rates, in the range that was once familiar only as sustained growth rates in East Asian countries. The economically reputed Prime Minister has announced a medium term objective closer to 10%.

One remarkable feature of recent Indian growth has been that, as in East Asia, the savings rate has risen endogenously with rapid growth in incomes. Having languished in the high teens in earlier years, the Indian savings rate rose to 23% a few years ago, and is 30% in the latest data. This was the rate in Japan at the beginning of the 60s. Continued high incomes growth saw the savings rate in Japan rise beyond 30% through the 60s just as continued strong growth over a long period of time led to continued increases in the Korean and Chinese savings rates. Continued incomes growth will see yet higher proportions of income allocated to savings and this will support higher levels of investment in both the private and public sectors without risking macroeconomic instability. This is going to be an important fly wheel for higher growth into the foreseeable future.

The second likely source of an acceleration of Indian economic growth is the recent and short history of reform which means that many of the productivity raising structural changes with which they were associated are still coming through. In a democratic polity, every reform step is contested, but the outcomes have been favourable enough to increase political commitment to going further. The continuation of the current trajectory of reform will lead to continued increases in productivity growth for some time. As a result of this and capital intensification, there is no reason why emerging Indian government hopes and aspirations for sustained growth in the region of 8-10% cannot be achieved. The higher end of this range - and this ambition might not be realised in full - would be well in advance of India's growth rates in the reform era so far. It would be twice the rate presumed in the Maddison projections. It would be in line with recent Chinese growth.

The bottom line of these assessments is that Maddison's projections for both the relative and absolute Chinese and Indian economies in the year 2030 are likely to be underestimates - and Maddison himself stresses the caution of his China estimates. The realisation of the outlook that I have suggested is most likely would cause global growth rates 2003-2020 to exceed those of the Golden Age. The extension of sustained rapid growth to the populous Asian countries and their increasing scale would make the early twenty first century a superior Platinum Age.

I have mentioned the qualifications about my suggestion that the Maddison estimates are likely to underestimate growth. As we see from Maddison's work, while growth momentum is commonly maintained over long periods, with sustained rapid "*catch-up*" growth easing only when economies enter the range of productivity and average

incomes of developed countries, the economic trajectories can be altered fundamentally by international and domestic political events. Failure of domestic political systems to adjust in a timely way to changes in the economic structures could lead to political instability that knocked the growth process off course. I will not now undertake a detailed assessment of the possibilities of domestic political failure. Suffice to say that they are greatest in China, but that even in China, the most likely outcome is continued strong growth at rates in excess of those indicated by Maddison and Wu for the reform period so far.

India is subject to a different range of uncertainties. My own judgement is that the purely domestic political risks to Indian growth are now very much less than at the beginning of the reform era and, in fact, small. That judgement depends on a view that the current Congress Party Government will find and implement mechanisms to directly improve the incomes of Indians in rural areas, a large proportion of whom so far have received little benefit from the acceleration of growth and who are influential in the democratic process. Considerable thought and priority is being given to these matters in India today.

The world that is created by the extension of sustained, rapid economic growth to the populous countries of Asia is vastly different in the distribution of power across the international community, and in its demands on international public goods to maintain political stability and prosperity. The Golden Age occurred in a bipolar international order, with the US exercising hegemonic influence and being prepared to accept high leadership costs in maintaining favourable international conditions for economic growth in its (majority) part of the world system. This structure gave way late in the Silver Age to a uni-polar world, in which the idea took root in influential parts of the US that international public goods could be supplied by the exercise of power by one dominant country. Hopes that US hegemonic leadership could maintain a stable international economic and political order have been undermined by the demonstration of the limits of US power in Iraq in particular, at a time when there is growing awareness of the need for cooperation to internalise within policy-making states the external security, environmental, economic and developmental costs of their decisions.

The greatest risks to the world experiencing a Platinum Age are around the challenge to build a suitable institutional framework to accommodate the emerging reality of the world economy being dominated by four great entities, of which the US is no longer

the largest. Maddison's work tells us that rebuilding the international framework is a matter of great urgency. The implication of the huge changes is that a failure of timely institutional development could be destructive of both peace and prosperity. My own additional thoughts do not change this outlook; they just reduce the time in which changes must be made, and increase the costs of failure.

MANAGING INTERNATIONAL PUBLIC GOODS IN THE PLATINUM AGE

Maddison's 2030 world will be much more deeply integrated in many ways than it is today. The international trade share of output and expenditure will have continued to rise mainly because of continued technological improvement, which is reducing the costs of international transport and communications. Hopefully, there will also be contributions from the liberalisation of trade in many countries, with India having more potential for change than the other major economies.

There will be immense challenges to stability in relations among states in at least five areas. New mechanisms will need to be developed for the delivery of international public goods for the maintenance of security in a conventional sense, for promoting development in poor countries and regions so as to reduce the external costs of poverty and State failure, for the avoidance of global environmental failure on a scale that threatens global prosperity, for the redistribution of global savings amongst economies, and for maintenance of an open international trading system.

First, in the security sphere, technological advance, the spread of knowledge across humanity, and rising incomes will have greatly expanded the range, power and availability of weapons of mass destruction.

Second, falling international transport and communications costs and rising incomes will at once have increased concern for international poverty in a prosperous world (because of increased awareness of external poverty and because compassion backed by financial assistance is a superior good), and increased the costs and risks of failures of order and development in parts of the world (through transmission of public health, crime and environmental problems amongst other things).

Third, there will be an increase in the importance of and awareness about the external environmental costs of economic growth that is not modified to take environmental considerations into account.

Fourth, it is likely that, in the absence of fundamental change in consumer behaviour (which is likely to occur only over long periods of time), world savings, and over time probably world wealth, will be concentrated much more than world production and income in the rapidly growing Asian economies. This will pose a challenge to international financial intermediation and to political attitudes to foreign investment in the countries that became rich before others.

Finally, in future, as now and in the past, there will be domestic political economy pressures for individual States to raise protectionist barriers, and where these are not resisted effectively, to impose costs on others. In the worst of circumstances, as in the 1930s, this could lead to cumulative protectionist responses that reduce the gains from trade and threaten sustained rapid growth. This was the reality which lay behind the establishment of the GATT (from 1995, the WTO) in the post-war period.

Last time the world sought to come to consider comprehensively the need for an international institutions to internalise international externalities from the actions of single States was more than half century ago, in the aftermath of the second world war. Out of those discussions emerged the UN system, including the Washington based development (World Bank) and international macro-economic stabilisation (the International Monetary Fund) financial institutions, and the GATT (the latter at first as a compromise, following the failure to establish the WTO originally envisaged by the founders of the post war trading system). These institutions were established when international externalities of State action in the five spheres discussed above were much less important than today. The Nuclear Proliferation Treaty (NPT) came later. The danger of catastrophe from nuclear proliferation is closer than it has ever been (O'Neil, 2006). The links between international development and various threats to national well being has become much clearer and much stronger in the intervening years of deepening integration in the international economy. The biggest of all changes in the perception as well as the reality of international externalities affecting international relations over these past 60years has been in the environmental area, especially related to climate change. Over these past decades, humanity has been placing increasing stress on the atmospheric commons upon which life depends. As with the exhaustion of other resources which had once been available to humanity in common, the destruction of the atmospheric commons requires a system of property rights that has the effect of internalising to individual economies and ultimately enterprises the external costs of actions that damage the earth's atmosphere in

various ways. The recent Stern Report to the UK Government highlights the growing concern (Stern, 2006). If my own view of the likely growth output for the global economy has merit, the contribution of growth to factors affecting global climate, and so the urgency of corrective measures, is greater than suggested by Stern.

Let me say a little about each of these five challenges, to demonstrate the difficulty of the task that lies ahead.

I. International Security

The post war international system embodying the United Nations (UN) was built around the initial military supremacy of the victorious powers of WW2. It gave privileged status to the largest of the allies - US, Britain, France, Soviet Union and China, through their permanent representation with veto power in the UN Security Council. This recognised a simple reality of the early post-war period. These were the strongest States - although the presence of China at the time depended on particular historical circumstances that looked to past and future rather than to present strategic weight - whose support for collective UN action would ensure that that action would not become a cause of global conflict.

The reality of the international distribution of power turned out to be very different from the premise of 1945. Through the 1950s and 1960s it became clear that two superpowers in reality dominated the international system. The operation of the UN had to adjust. In circumstances in which the interests of the two superpowers were in permanent conflict, the UN was hardly ever able to take collective action. International security depended on the maintenance of a balance of power - or of nuclear terror - between the US and the USSR.

This world ended with the collapse of the Soviet Union at the beginning of the 1990s. Without an automatic veto by one superpower of actions proposed by another, there was widely supported UN action against Iraq after the invasion of Kuwait, against the Taliban in Afghanistan after the terrorist attacks on the US in 2001, and in a number of other areas, including in Timor to restore order after the separation from Indonesia in 1999. The failure to take collective action under the auspices of the UN in some other situations was controversial. At least in the most important of these cases to

the international system, on the 2003 military action against Iraq, majority US opinion today suggests that there was wisdom in the UN's caution.

Recent developments in Iraq, Afghanistan, Iran and Korea then have shattered US confidence in unilateral military action, before the anticipated shift in the international distribution of economic weight has gone far, and without the rebuilding of faith in collective action.

The post-war security system built around the Security Council and the veto of great powers is, ironically, more suitable to the quadrilateral world that is emerging than to either the bipolar or unipolar worlds of the past half century. None of the great powers will be able to achieve its security interests alone. Collective action by the four overwhelming powers will be able to achieve a great deal.

But the 1945 arrangements are not tidily suited for the emerging world. India is not represented in the Security Council. Western Europe is over-represented; but rationalisation is not possible unless the European Union develops an integrated defence structure (see Clunies Ross 2005, for a rich analytic treatment of future international roles for the European Union). This may happen, but not yet. And its eventual achievement may inhibit a desirable broadening of membership, most importantly to Turkey. Russia is not an economic great power and is unlikely to become one. But the immense military capacity inherited from the Soviet Union will give it a special place for some time, justifying a continuing role in the Security Council.

The NPT is well designed to manage the risk of nuclear proliferation if it has the unambiguous support of the great powers. The problem is that the genie has already escaped, with a number of minor and second rung powers having nuclear weapons and one or more being on the verge of joining them. There was some inevitability in India joining the nuclear club given its emerging status, but the manner of its joining damaged the international control framework.

It will be tempting for the US polity to pretend that nothing has changed; that it can continue to pursue the Neo-conservative dream of permanent military superiority. Any attempt to do so would accelerate the relative economic decline of the US. The US needs early adjustment to a quadrilateral international security framework, while it still has the economic and military capacity disproportionately to shape events. Every

action of the US leadership over recent years has been in an opposite direction. It will not be easy for the US political community to adjust to the rapidly changing power realities. A failure to do so would be damaging to global including US security.

Technological improvement, rising incomes and the spread of knowledge have greatly reduced entry barriers to the nuclear club. Strong and early support by all of the emerging great powers for reform and enforcement of the NPT would seem to be a condition for avoidance of nuclear catastrophe before the Platinum Age has delivered on its promise.

II. International Development

International externalities from failures of development and government, and awareness of their importance, have been increasing in recent times. Terrorism, health and the environment have joined traditional economic and social reasons for concern.

The extent to which cooperation across the whole international community is necessary for the correction of these externalities requires analysis. Most development assistance is provided on a bilateral basis, and governed by donors' perceptions of their own interests as shaped by geography and geo-strategy. Most recently, China has become an immense source of bilateral international development assistance, with the geographic dispersion of the assistance strongly influenced by its interests in expanded global supplies of natural resource-based commodities. China and India have become donors through the multilateral organisations - for example, on a modest scale, to the International Agricultural Research Centres from the work of which they have been large beneficiaries.

The principle of subsidiarity is as relevant in this sphere as in many others. Much development assistance can be delivered most effectively by donors who have special knowledge and interest in a recipient country, and this work is best left to them. But multilateral action can be helpful to the debate and transmission of ideas about development, to provide assistance to those which miss out in the geostrategic interest race, and to establish rules to constrain the use of aid for non-development purposes that can generate problems for political stability and the trading system. On the whole, the structure of existing institutions provides a good starting point for this work - although the quality of the work of established institutions leaves much to be

desired. The necessary adjustment to the emerging global power realities involves improvement of performance, and induction of the emerging powers into leadership and over time financial support for the multilateral effort, rather than radical institutional change.

III. International Environmental Externalities

Industrial growth in one country, especially a large economy, imposes external environmental costs on its cross-border and regional neighbours. Within the principle of subsidiarity, these are best managed through bilateral and regional mechanisms. The main external environmental costs of economic growth on a global scale relate to global warming.

It is now widely accepted that the avoidance of risks of hugely damaging costs from global warming will require an international regime for discouraging the emission and encouraging sequestration of greenhouse gases. An international regime in which limited rights to emit greenhouse gases are traded globally is now widely understood to be part of the eventual necessary response to the problem. The Kyoto Treaty under UN auspices has expanded practical knowledge in member countries - developing and developed - of the operation of a carbon trading system. The associated expansion of knowledge will allow improvements, as the regime is extended to controls on emissions (and not just participation in trading) in developing countries.

There are two major barriers to the adoption of the necessary carbon trading system. One is acceptance of participation by all major economies. One of the two non-participants among developed countries, Australia, has recently accepted at Government level that it will need to do so, albeit on conditions that will take considerable time to fulfil. Unfortunately, the remaining outsider is particularly important - but there are signs that the turning of the political wheel will open the way for US participation.

The second barrier is the inherent difficulty of reaching agreement on a system for allocating initial emissions rights within a global trading system. The Kyoto agreement so far has restricted emissions only of developed countries, as a first step towards universal restrictions. For developed countries, with high established per capita emissions, it was a relatively easy matter to agree that the initial allocation

should be based on established levels of emissions. This would not be an acceptable basis for allocating emissions rights in a regime that placed restrictions on developing countries.

I recall a conversation with leading environmental officials in China in the early 1990s, in which my Chinese interlocutors stated that anthropomorphic global warming was a substantial problem that required a global response. They said then that China would accept controls on levels of greenhouse emissions and be ready to join a global system for trading emissions rights, so long as the starting point was equal per capita initial rights. This is not in itself an unreasonable position; but it would provide no basis for agreement with developed countries.

Eventual agreement must be sought somewhere between the “*established levels*” and the “*equal per capita*” bases for initial allocations. My suggestion would be to commence a universal emissions control and trading system with rights allocated on the basis of established emissions, with some additional restriction on developed countries and headroom for developing countries. Over a long transition period, there would be a shift towards equal per capita allocations. If the time when the transition to equal per capita emissions extended a long way into the future - some time before 2030 on the Maddison perspective and before 2020 on mine - China would have crossed the boundary into above average emissions per capita on a global scale. Such a system would involve large transfers of income to countries whose per capita incomes and emissions remained well below global average levels. It would be important for continued international support for the system that these transfers be embedded into a framework of international cooperation on development that made them productive for development.

The possibility that the period ahead will see the most rapid growth ever in the global economy makes the establishment of an effective international regime for greenhouse emissions more urgent than is recognised by the global warning pessimists.

IV. International Financial Intermediation

Exceptionally high and rising savings rates have been a feature of sustained rapid growth in East Asia and now in India. This contrasts with low and falling savings, especially household savings, in the English speaking developed countries. Although

investment rates have been exceptionally high in the rich (Japan) and the rapidly growing Asian economies, they have not been high enough to absorb domestic savings. The result has been persistent large current payments surpluses, which have existed alongside persistent deficits in the English speaking countries, first of all the United States.

The largest contemporary imbalances are China's current account surplus and the United States' deficit—each amounting to about 7 percent of GDP and trending upwards in recent times. While there are potential external costs in the domestic decisions in each country that have contributed to the imbalances, this, wisely, has not been seen as an appropriate subject for multilateral cooperation. Interaction of domestic policy-making with bilateral discussions have seen tensions contained to tolerable levels. The intermediation of global, mostly US-domiciled financial institutions has been effective.

The larger questions for the international community relate to the longer term implications of huge differences in savings rates across countries, accompanied by exceptionally high growth rates in large, high-savings countries. By 2020 on my Platinum Age projections, the real value of per capita savings, and all other things equal the annual increment in per capita wealth, will be substantially higher in China than the United States. The gap will increase beyond 2020 as Chinese average productivity and income continue their movement towards the global frontier.

This would be challenging for international economic stability if it became a source of systematic competitive advantage of Asian over Western enterprises in access to and cost of capital, leading to compensating intervention against the activities of foreign enterprises in low-savings countries. However, the skills and adaptability of European and especially American financial institutions have maintained their positions as favoured intermediaries, including China. In the process, the institutions have been losing their national identities, becoming genuinely multinational enterprises. The effective operation of the market has avoided the need for international cooperation amongst States to internalise external costs of decisions taken in single countries.

V. The International Trading System

The international public good of the open global trading system may be more difficult to maintain in the future than it was through the Golden and Silver Ages.. The gains from maintaining open trade are larger than ever, because technological developments have made finer and finer specialisation possible across a wide range of goods and services. This may not be obvious to observers who simply look at the total scale of contemporary markets and compare it with earlier years. After all, the projected size of the Chinese economy in 2030 in Maddison's projections is larger than that of the world economy at the end of the Golden Age. But it is evident in the changing patterns of international trade.

The global trading system which was established for economies outside the Communist systems after the Second World War was well designed to promote the emergence of the deeply integrated global trading patterns that generated the Golden and Silver Ages. In important sense, that system reached its apogee with the opening up of the Chinese, Vietnamese and recently Russian economies to the international economy and acceptance of their membership of the World Trade Organisation (WTO). But there are awful signs that the system is in decline.

The decline has its origin in a paradox at the heart of the trading system. There is a sense that there are no external costs to domestic trade policy decisions that one State might take in its own national interest. A country damages itself as much or more than others from restricting imports. A country pursuing its own national interest would do the same, thus enhancing the value of the first country's decision to pursue free trade.

The political reality is sometimes different. The difference is encouraged by negotiations between States, whether on a bilateral or multilateral basis, to liberalise trade on a reciprocal basis. Trade negotiations to liberalise trade become the enemy of free trade. It is instructive that the richest period of trade liberalisation in the Western Pacific region, extending from China through Southeast Asia to Australia and New Zealand from the mid-eighties to the Asian financial crisis of 1997-98, involved almost no reciprocal bargaining.

For a range of reasons that I have analysed elsewhere, reciprocity has come to rule trade liberalisation discussion everywhere in the early twenty first century. Frustration at lack of progress in multilateral trade negotiations has been one factor encouraging the proliferation of preferential trading areas. These have involved little or no net

liberalisation, have increased transactions costs with their complex and restrictive rules of origin, and have completed the removal of trade liberalisation discussion from calculation of genuine national interest. There is a danger that extension of this trend into formation of restrictive regional trading blocks could seriously inhibit the globalisation of production that has been at the heart of accelerated economic growth since the middle of the twentieth century.

We need the WTO for its rules on the conduct of trade and its processes for disputes settlement. But the time may have passed when reciprocal negotiations in the WTO, much less bilateral and regional fora, were a useful part of the trade liberalisation process. The relevant international public good in the emerging international trading system is understanding in each country that liberal trade serves its own interest. The role of international organisations in trade liberalisation would be usefully refocussed on providing the knowledge and analysis that makes unilateral trade liberalisation possible.

The simple listing and commencement of analysis of the international institutional arrangements that are necessary in the emerging quadrilateral raises serious questions about the international community's capacity to deliver a satisfactory response. In recent years, the world has mostly been heading in the wrong direction (security, the international trading system) or making negligible progress (development assistance and the environment regime). If there is no early change in trajectory on international institutional arrangements, the probability is uncomfortably high that the prospects for a Platinum Age will recede under mushroom or dust clouds, or in a Mad Max world of broken order in unsuccessful developing countries.

Under the clouds or in the Mad Max world, the Maddison projections on global economic output would be optimistic. Some economies would do better than others, and the rapidly expanding new economic powers with the flexibility provided by their stage of development would probably be damaged less than either established developed or poor developing countries. But none would do well. Maddison's work encourages us to think through the big issues before it is too late.

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