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The World Economy In The 1990s: A Long Run Perspective

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1. Introduction

This paper considers the 1990s in the context of long run economic growth performance. Growth in the context of this paper should be understood to comprise the growth of real living standards as well as real GDP per person. There were a number of new experiences during the decade that were surprising enough to pose the question 'do we now need to rethink the conventional wisdom about economic growth ?'.

The essential background to growth in the 1990s was the unprecedented extension and intensification of globalization in terms of the international integration of capital and product markets sustained both by reductions in transport and communication costs and also by policy choices. Table 1 reports an increase in world merchandise exports relative to world GDP from 12.7 per cent in 1990 to 18.8 per cent in 2000, more than double the ratio reached before the disintegration of the world economy in the interwar years. Even more impressive has been the surge in international capital mobility reflected in Table 1 through the ratio of assets owned by foreign residents to world GDP which has risen from 25.2 per cent in 1980 to 48.6 per cent in 1990 and 92.0 per cent in 2000 about 5 times the peak reached in the early twentieth century.

Obviously, this was facilitated by the more general adoption of policies of trade openness and financial liberalization. But technological progress also played an important role. The public imagination was captured by the notion of the *Death of Distance* (Cairncross, 2001) as new information and communications technologies (ICT) proliferated. Table 2 reports data on the spread of the internet and mobile phones

which highlights both the rapid diffusion in OECD countries and that middle and low income economies were rapidly following suit by the end of the decade. At this point ICT had become established as a general purpose technology deserving to be mentioned in the same breath as steam and electricity (Lipsey et al., 1998).

In this globalizing world economy the other feature which attracted everyone's attention was the rise of China. Table 3 captures this with regard to manufacturing. China's share of world manufacturing production rose from 2.7 per cent in 1990 to 7.0 per cent in 2000 and of world manufacturing exports from 1.9 per cent in 1990 to 4.7 per cent in 2000. This represents the most dramatic arrival on the world scene since that of Japan in the 1960s. At the same time, China's share of the world's stock of foreign direct investment rose from 1.4 per cent in 1990 to 5.8 per cent in 1999 (UNCTAD, 2003). The opposite side of the coin was a pronounced decline in Europe's share of manufactured exports by about 12 percentage points.

Turning to growth rates, the most notable development was the continuation of rapid growth in China and the acceleration of growth in India, the two most populous countries in the world. Their growth rates far outstripped those of the mature OECD economies during the 1990s, as Table 4 reports, and were very encouraging by historical standards. Sadly, there was no sign of the onset of rapid catch-up growth in Africa and the bounce-back of Latin America from the trauma of the debt crisis of the 1980s was disappointingly weak.

Other aspects of the 1990s were also quite remarkable. First, the unexpected collapse of the Soviet empire led to the arrival of some 25 Transition Economies with an opportunity to join the catch-up growth club. Over the course of the decade their experience of recession, recovery and, in some but not all, cases take-off into sustained economic growth offered unique insights into the political economy of growth.

Second, in some parts of the world there was a savage reversal of one of the main achievements of the twentieth century in the growth of living standards, namely, the massive and widespread increase in life expectancy. AIDS hit African countries very hard and by the end of the decade epidemics of the disease were incipient in both China and India. This has implications for the analysis of convergence and divergence that have not yet been fully digested. Third, the general presumption of the post-war years that western European growth would outpace that of the United States no longer seemed to be valid from the mid-1990s onwards; this owed something to European deceleration as well as to American acceleration. Why this should happen is a puzzle that conventional growth theories may struggle to explain given that the new technology was widely available and Europe has continued to invest in all the things that new growth theorists expect will raise the growth rate.

With these aspects of the economic history of the 1990s to the fore, I shall examine their implications for ideas about and policies for growth. This assessment will, of course, be preliminary in many ways. It is as yet 'too soon to tell' what are the implications of the 1990s for the analysis of economic growth. Nevertheless, the effort will be worthwhile if it highlights key issues that can form a menu for further research.

2. Accounting for Growth

Growth accounting is a standard technique for identifying the proximate sources of growth in benchmarking exercises. The estimates reported in Table 5 were designed to facilitate comparisons across countries.[1] In the context of a number of debates in the economic growth

[1] The estimates for 1950-73 derived from Maddison (1996) are not strictly comparable with the remainder which are taken from Bosworth and Collins (2003) and use standardized factor share weights. However, differences in methods between the two studies are not important enough to invalidate their use for the present purpose.

literature, the estimates for TFP growth deserve the most attention. It should be accepted that these are subject to measurement error (both from incorrect price indices in obtaining real output growth and from inappropriate assumptions about the specification of the production function) which can make comparisons over time rather between countries in the same period somewhat unreliable (Crafts, 2003). Nevertheless, the following observations are probably robust to problems of this kind.[2]

First, notwithstanding the advent of ICT, for the industrial countries as a whole there was no resurgence in TFP growth during the 1990s. On the contrary, this decade continued the pattern of modest TFP growth that has characterized the OECD countries since the Golden Age of economic growth that ended in the early 1970s. The lack of responsiveness of OECD TFP growth in the late twentieth century to enhanced investments in human capital and in research and development has been highlighted by Jones (1995) as a challenge to the claims of endogenous growth theory. However, it may also represent a gestation period before the full impact of ICT is realized. In any event, despite the excitement of the 'new economy' in the United States and the international take-up of new electronic age technologies, there was no return to the TFP growth experienced in the Golden Age.[3]

Second, with the possible exception of China, continued rapid Asian catch-up growth owed proportionately less to TFP growth and more to capital-deepening in the 1990s than had been the case for Europe in

[2] Estimates for China present big problems. Those reported in Table 5 almost certainly exaggerate both output growth and TFP growth, possibly very substantially so; see Young (2003) for a detailed discussion and an estimate that during 1978 to 1998 labour productivity growth is overstated by 1.7 percentage points per year and TFP growth in the non-agricultural sector is overstated by 1.6 percentage points per year.

[3] Golden Age TFP growth clearly benefited substantially from a number of transitory components stemming from reorganization and reconstruction of OECD economies and from widespread catch-up of the United States, see Maddison (1996).

the Golden Age.[4] In both East and South Asia this tendency was accentuated in the 1990s compared with the 1980s. By the 1990s the large capital-deepening contribution increasingly relied on very high savings rates as incremental capital to output ratios became less favourable (Crafts, 1999).

Third, during the 1990s TFP growth continued to be negative in sub-Saharan Africa as it had been in both the 1970s and the 1980s. Moreover, in both Latin America and Africa, the contribution of capital-deepening was very weak and, compared with Asia, these continents are inferior in both components of labour productivity growth. This suggests that reforms inspired by the Washington Consensus have done little to transform growth prospects in the late twentieth century.

Recent research has persuaded many economists that differences in income levels across the world owe a great deal to TFP gaps rather than just reflecting shortfalls in physical and human capital per person (Hall and Jones, 1999; Parente and Prescott, 2000). In other words, the pure neoclassical (Solow) model based on universal technology is inapplicable and, as such, its forecast of ultimate convergence in income levels is unreliable. *Prima facie*, the productivity experience of the 1990s appears consistent with this position.

3. Divergence Big Time ?

During the twentieth century the gap between real GDP/person in the poorest and richest countries widened dramatically - the experience has been memorably described as 'divergence big time' (Pritchett, 1997).

[4] The contribution of TFP is understated and that of capital-deepening is overstated, if as is probable, the elasticity of substitution between capital and labour was less than 1. This bias is relatively large when capital to labour ratios grow fast. A correction of up to 0.8 per cent per year to TFP growth might be called for which would still leave the thrust of the argument intact, see Crafts (1999).

This is reflected in Table 6 which shows that whereas Africa was at 20.4 per cent of the United States level in 1870 this had fallen to 9.4 per cent by 1950 and to 5.2 per cent by 2000. Over the same periods the absolute gap had risen from 1945 to 8667 to 26665 $1990GK while the level of real GDP per person in this metric in Africa in 2000 was about $1000 less than in the United States in 1870. The gap continued to widen through the 1990s.

It is also true that income gaps for China and India have widened greatly since 1870. Whereas the gap with the United States then was about 1900 $1990GK then by 2000 it was nearly 25,000 for China and over 26,000 for India. Here, however, the 1990s showed some respite from the divergence experience in that both China and India (together about 37 per cent of the world's population) reduced the percentage gap in income levels with the United States. Even so, this still left them far short of their relative position in 1870.

Nevertheless, the 1990s saw continued progress in terms of a reduction in the incidence of extreme poverty, as Table 7 reports. The number of people living on less than $1 per day fell to 1.09 billion or 21 per cent of the population of the developing world, a reduction of 126 million since 1990 and of 389 million since 1981. This decrease came entirely from growth in East and South Asia, however, while poverty in sub-Saharan Africa intensified. If a $2 per day criterion is adopted, then a striking feature of the data in Table 7 is the marked increase in poverty in Eastern Europe and Central Asia after the collapse of the Soviet Union.

A major qualification to the 'divergence big time' story is that trends in inequality in other important components of living standards have been quite different. Consider the Human Development Index (HDI) which is based on income, longevity and educational standards. Table 8 reports estimates of HDI over the long run and shows that gaps between Africa, China and India and the OECD countries have narrowed since 1950.

Neumayer (2003) showed that the non-income components of HDI have exhibited both $\beta-$ and $\sigma-$convergence from the 1960s to the end of the 1990s.

Becker et al. (2003) used estimates of willingness to pay for reduced risks of mortality to convert gains in life expectancy between 1965 and 1995 into an equivalent in terms of real GDP per person. They found that proportionate gains for poor countries have tended to exceed those of rich countries; thus the value of the fall in mortality for Egypt between 1965 and 1995 was worth over 70 per cent of 1995 GDP whereas for the United States the figure was about 15 per cent. The tendency for convergence in life expectancy then implies unconditional $\beta-$convergence for 'full income', i.e., GDP plus the value of improved mortality per head.

Thus trends in HDI have not exhibited divergence big time. However, the advent of AIDS in the recent past threatens this outcome. If life expectancy has not been affected by this disease, HDI in Africa would have been 0.531 in 2001 and a calculation similar to that of Becker et al. (2003) shows that welfare losses in the worst affected countries (such as Botswana, South Africa, and Zimbabwe) could be equivalent to around 80 per cent of GDP per person (Crafts and Haacker, 2003). Incidence of HIV infection in China and India at the end of the 1990s was similar to that in the worst affected African countries about 12 years earlier; if the problem is allowed to develop into a similar epidemic, the welfare losses in these two huge countries really will entail a phase of 'divergence big time'.

A major reason for divergence in income levels is that during the twentieth century there have been big rewards for countries with good institutions and policy; the penalties for getting it wrong have been much higher since World War II when the prize of rapid catch-up growth has been on offer more widely than ever before. The evidence of the growth

regressions literature points firmly in this direction and identifies reasons for differences in growth performance between East Asia and Africa or Latin America (Bleaney and Nishiyama, 2002).

Dollar and Kraay (2004) found that in the 1980s, and even more so the 1990s, countries that they classified as 'globalizers' enjoyed a far superior growth performance to that of 'non-globalizers', as Table 9 reports. Their classification is based on expansion of trade relative to GDP and includes in the former category China and India along with 22 other countries. This might be taken to show that globalization was good for growth in the late twentieth century and that a full embrace of globalization throughout the third world might be an antidote to divergence.

On balance, the evidence does suggest that openness to trade is good for growth partly directly and partly through its association with improved institutional quality (Winters, 2004). The effects of increased international capital mobility are much more debatable. Broadly speaking, in the absence of a subsequent financial crisis and in the presence of good institutions a positive effect of financial liberalization of up to one percentage point is predicted (Edison et al., 2002) but in the 1980s and 1990s globalization seems to have led to a much greater incidence of financial crises (notably in Asia in 1997/8) (Bordo et al., 2001) and this has undermined the advantages that might otherwise have ensued (Eichengreen and Leblang, 2002).

In this context, it is noteworthy that China, although pursuing outwardly orientated policies, is still much more a 'developmental state' than a fully-paid up member of the globalization club. Indeed, it surely avoided the 1997 crisis only because it had not liberalized the capital account of the balance of payments. Similarly, the Asian Tigers with the exception of Hong Kong also fall into this category. The growth of these countries seems to be that of a modern-day Gerschenkronian latecomer

as the well-known accounts by Amsden (1989) and Wade (1990) of growth in Korea and Taiwan underline. The success of the 'globalizers' does not detract from the point that institutional diversity is potentially valuable in the early stages of development in the context of high transactions costs and market failures. The evidence of the 1990s is that globalization continues to have dangers, especially in the form of financial crises, as well as rewards for developing countries.

4. Some Implications of the ICT Revolution

The 'death of distance' and its close cousin the 'weightless economy' were popular ideas in the 1990s and were sometimes thought to be coming to pass as a result of the revolution in ICT. The implications would be dramatic as is stressed by the New Economic Geography. When transport and communication costs are either very high or very low economic activity is widely dispersed and there is no penalty to being far away from the centre. When transport costs are 'intermediate' industrial location decisions feel the pull of centrality through linkage effects and firms find it desirable to be near their suppliers or their industrial customers as market access is a key advantage (Venables, 1996). Thus, if breakthroughs in ICT meant the death of distance, we would expect a huge migration of economic activity to hitherto low wage parts of the world. The rise of China might seem to support this hypothesis to some extent as would the growing practice of off-shoring business services.

In fact, the evidence suggests that distance was very much still alive in the 1990s and mattered a great deal for economic interactions, as Table 10 reports. Add to this econometric evidence that the pull of centrality through linkage effects was steadily increasing in Europe during the 1990s (Midelfart-Knarvik et al., 2000), that distance from markets and suppliers 'explained' about 70 per cent of the variance in world income

levels (Redding and Venables, 2000) and that world market access was highly unequal across the world, as is set out in Table 10. The implication is that during the 1990s the traditional pattern of the concentration of industrial activity was basically sustained, although with some shifts in the balance between regions as is suggested by Table 3.

Of course, ICT clearly had some novel effects. Both off-shoring and outsourcing were encouraged. McKinsey Global Institute (2003) estimated that by 2001 off-shored business services amounted to about $26 billion (skewed heavily to India and Ireland) initially focusing on call-centres, data processing, accounting etc. and were growing at the rate of 30 to 40 per cent per year. A notable development during the 1990s was the divestment by General Motors of its parts division (the reverse of what happened in the 1920s) as outsourcing advanced (Lucking Reiley and Spulber, 2001). In general, insofar as the internet has increased the range of potential suppliers of inputs it has reduced the scope for opportunistic behaviour and thus the advantages of vertical integration and has encouraged American companies to import more. But at the same time as the complexity of the production and design process has also been enhanced, the advantages of proximity for just-in-time production and for transactions that require 'handshakes' as opposed to mere 'conversations' has also been increased (Leamer and Storper, 2000). Thus during the 1990s, ICT was changing the role that geography plays in location decisions but not abolishing it. the weightless proportion of GDP was still fairly small.

Although it did not imply the death of distance, technological progress in ICT was a very important aspect of economic growth the 1990s with the benefits quite widely spread across the world, contrary to the inferences sometimes drawn from growth accounting exercises. This is best appreciated by recognising that because, driven by Moore's Law, the price of ICT equipment fell so fast that the gains from technological

progress in the ICT producing countries were transferred to a wide array of users across the world, as is shown by the estimates of 'social savings' from ICT in Bayoumi and Haacker (2002).[5]

5. After the Golden Age: European Sclerosis ?

Throughout the years from the early 1950s to the mid-1990s labour productivity grew more rapidly in western Europe than in the United States. In the early post-war period, the United States had a large productivity lead but this was quickly reduced by rapid European catch-up growth during the Golden Age which ended in the early 1970s. In the next 20 years, both the United States and western Europe experienced a productivity growth slowdown but here too Europe had the faster growth and by the mid-1990s the leading European countries had overtaken the United States in terms of (purchasing power parity adjusted) real GDP per hour worked. At the same time, however, the gap in terms of real GDP per person between Europe and the United States has stayed much the same over the last 30 years as reductions in hours worked and labour force participation have offset the differential productivity performance, as Table 11 reports.

Since 1995, however, the United States has experienced a productivity growth revival whilst in much of western Europe productivity growth has weakened markedly such that in recent years the United States has outperformed, cf., Table 11. This reversal of relative growth outcomes has coincided with the disappearance of the Solow Productivity Paradox in the United States and is clearly related to greater American success in exploiting the productivity potential of information and

[5] 'Social savings' can be thought of as consumer surplus gains. In a closed economy this would approximate to the growth accounting contribution of TFP growth in ICT production but where ICT products are exported some of this accrues to foreign consumers.

communications technology (ICT). This raises the question whether the old pattern of faster productivity growth in Europe will reassert itself or whether we have entered a new era where American productivity growth will permanently be the faster of the two.

There are several possibilities:

i) European incentive structures have become less favourable to catch-up growth;

ii) a European productivity surge is just around the corner following an ICT diffusion lag;

iii) ICT fits less well than earlier technologies with European social capability.

The period between 1950 and 1973 is conventionally known as the Golden Age of European economic growth. Growth rates of real GDP per hour worked were in excess of 4 per cent per year for most western European countries with the fastest growth experienced by countries with the lowest initial income levels, i.e., the most scope for catch-up growth. The productivity slowdown after 1973 resulted largely from the exhaustion of transitory aspects of rapid catch-up growth (Temin, 2002).

Catch-up in early post-war Europe was by no means automatic. It was based on having 'social capability' (Abramovitz, 1986), that is, incentive structures that encouraged innovation and investment. A key feature of the period was that in many countries post-war settlements developed 'social contracts' that facilitated wage moderation in return for high investment in a corporatist setting accompanied by trade liberalization (Eichengreen, 1996). The quid pro quo for greater exposure to the risks of international economy was enhanced social insurance (Rodrik, 1997).

The legacy of the European post-war settlements as they encountered the turbulent 1970s was a substantial increase in public

spending relative to GDP and strengthened regulation of labour and product markets. This had adverse effects on incentive structures notably through raising taxes and employment protection while undermining competition. Prescott (2004) noted that the divergence in hours worked between Europe and the United States seems to reflect growing disparities in taxation of labour incomes. By the 1990s, restrictions in the supply of goods and of labour resulting from weaker competition may have accounted for about 40 per cent of the real GDP per person gap between the EU and the United States (Bayoumi et al., 2004).

However, these adverse effects applied to levels of GDP per person rather than labour productivity growth and did not constitute an obstacle to continued productivity catch-up of the United States by the EU through the mid-1990s even though the unfortunate policy stance was already in place, as Table 12 reports. Whereas the TFP gap between the EU and the United States was 20 per cent in 1979 by 1995 this had halved to 10 per cent (O'Mahony, 2002). Indeed, since the 1980s European countries have moved towards deregulation of labour and product markets. Given the existence of agency problems in firms, this could have been expected to speed up the adoption of new technologies (Aghion et al., 1997), a prediction which is borne out by the econometric evidence (Nicoletti and Scarpetta, 2003).

The acceleration in American productivity growth has been much discussed and it is generally accepted that it owed a good deal to ICT notwithstanding the misdirected investments and excessive optimism of the bubble years. The episode has been analyzed by several authors using variants of growth accounting techniques. They show a distinct change of pace in the mid-1990s and attribute this mainly to the impact of ICT (see for example, Oliner and Sichel, 2002). A growth accounting comparison found that the contribution of ICT to labour productivity

growth in 1995-2000 in the United States, 1.2 compared with 0.6 per cent per year, was twice that in the EU (van Ark et al., 2003).

Both macro and micro level analysis suggests that there were substantial lags in obtaining the productivity payoffs from investments in ICT. This has been the experience in the United States where strong TFP growth after 1995 is positively related to ICT investment in the same sector in the 1980s but negatively related to ICT investment in the 1990s (Basu et al. 2003). The much higher returns in the long term compared with the short term reported by Brynjolfsson and Hitt (2000), reflect the time that it takes to follow up investment in ICT with changes in organizational structures and to learn about the capabilities of ICT in specific business settings. Moving to new work practices such as operating with fewer layers of management, introducing flexible job responsibilities, decentralization of work structures and greater use of teamwork has been fundamental to high productivity outcomes (OECD, 2001).

This has proved more difficult for Europe in the 1990s both because of a slow start in ICT investment in the 1980s seemingly related to market imperfections that raised the price of ICT equipment substantially above the American level (de Serres, 2003) and because labour market regulation acted as an inhibiting factor. EU investment expenditures on ICT rose from 2.2 per cent of GDP in 1990 to 2.9 per cent of GDP in 2000, about what the United States was already spending in 1980 (van Ark et al., 2003).

The relative weakness of investment in ICT in Europe seems also to be related to regulation. Gust and Marquez (2002) showed that ICT investment –but not investment in general – is negatively related to employment protection legislation. The rationale is that employment protection legislation, which raises firing costs, is an obstacle to the upgrading the labour force and the reorganizing of work practices which

are central to obtaining the payoff from ICT. This may also help to explain why the UK, with very weak employment protection by European standards, has a relatively strong ICT capital deepening growth contribution (van Ark et al., 2003). Although Europe moved in the direction of reducing employment protection during the 1990s, as Table 12 reports, at the end of the decade firing costs were still much higher than in the United States.

Thus there is some reason to think that ICT is less compatible with European incentive structures than investment in other types of capital. Nonetheless, it is important not to exaggerate this. The coefficient on employment protection estimated by Gust and Marquez (2002) suggests that if the EU were as laissez faire as the United States rather less than half of the gap in the ICT investment/GDP ratio would be eliminated.

Prior to the mid-1990s Europe had a strong record of faster productivity growth than the United States. Of itself, this implies that simplistic arguments about European sclerosis are inadequate. The taxation and regulation that was imposed in the 1960s and 1970s was not so out of line with the United States as to preclude productivity catch-up, although there probably was a cost in lower growth of labour inputs and of real GDP. More nuanced hypotheses concerning regulation do, however, have some validity. In particular, it appears that employment protection regulation and the high price of ICT capital goods held back investment in ICT capital deepening in the 1980s. Given the long lags that appear to characterize the realization of productivity gains from this new general purpose technology the adverse implications relative to the United States were probably felt more in the 1990s than the 1980s.

ICT investment seems to have been unusually sensitive to these factors and thus European policies exacted a price in the context of a new technological era that would not have been paid previously. The message is that social capability depends not only institutional

arrangements and policy choices but on the nature of the technological opportunities that are available.

6. Convergence Not Divergence in the 21st Century ?

In a pure neoclassical model, in which all countries have access to the same technology and institutions and adopt market-friendly policies while capital is fully mobile internationally, international economic inequalities should be rapidly reduced as capital flows from rich to poor countries and a process of economic catch-up and convergence ensues.

Lucas (2000) argues that in the globalized world economy of the twenty-first century this vision will start to become more and more relevant as countries increasingly learn the lessons of history and reject failed (non-market-friendly) policies, adopt institutions that underpin efficient markets and avail themselves of elastic supplies of foreign capital and technology that eliminate the domestic savings and knowledge constraints on growth. The 'Lucas Paradox' (Lucas, 1990) that capital has generally not flowed from rich to poor countries will evaporate. Countries which join the catch-up club will be able to grow at rates way above those enjoyed by the Asian Tigers. A calibrated version of the model has the interesting property that it produces a long-run trend in world income inequality much like that reported by Boltho and Toniolo (1999) with a peak in the third quarter of the twentieth century and then goes on in future to exhibit massive declines in inequality throughout the next hundred years. So does the experience of the 1990s suggest that Lucas's prediction will come true ?

The first obvious difficulty with the argument is that it takes no account of geography. In section 4, it was shown that distance still mattered a lot in the 1990s and that its death has been greatly exaggerated. The prospect that this offers is one of various convergence clubs with different steady state levels of income rather than a full equalization of income per head across the world. The income levels that

different locations will support seems at present to exhibit a high variance (Redding and Venables, 2004). Nevertheless, the evidence of growth regressions suggests that the direct influence of geography on growth is weak relative to that of institutions and policy (Gallup et al., 1999).

The second big problem is identified by new institutional economic history (North, 1990). This school of thought would certainly stress the key role that institutions play in informing decisions to invest and/or to innovate. In the absence of well-defined property rights, enforceable contracts and government that is credibly committed to non-predatory behaviour, the neoclassical catch-up process will be aborted. At the same time, this tradition stresses both that bad institutions are frequently persistent and, once in place, can be virtually impossible to depose and also that 'informal' institutions (rules of the game based on social norms) are important and generally not amenable to top down reform.

There is substantial empirical evidence in favour of the claim that property rights institutions matter and that strong but limited government is the cornerstone of sustaining long run growth (Acemoglu and Johnson, 2003). Moreover, the same paper supports the proposition that institutions are persistent by stressing the long run implications of different strategies of colonization contingent on the disease environment. If this perspective is correct, it is important to note that there is still a huge variation in the extent to which the rule of law applies around the world and that, in general, there has been little sign of recent improvement in the least well-governed countries of the world, as Table 13 reports.

The experience of the Transition Economies in the 1990s offers some further support to this pessimistic view but also provides quite an important corrective. Table 13 reports that Russia has a depressingly low score for Rule of Law, as in fact do all the CIS countries. This seems to illustrate a case where a bad equilibrium has been established from which escape will be difficult. By contrast the Central European and

Baltic countries which acceded to the EU in 2004 experienced a rapid improvement in institutions during the 1990s which is reflected in Table 13. This represents a successful use of conditionality in that institutional reform was a sine qua non for membership of the EU, a prize which was perceived as valuable enough to sustain pro-reform coalitions.

Table 14 reports long term growth projections based on a modification of the IMF growth regressions methodology (Fischer et al., 1998) which takes account of institutional quality. Three important points stand out. First, that the CIS countries, which have not successfully reformed their institutions, have very poor growth prospects bearing in mind that their initial income levels are very low and growth could be very rapid if circumstances were propitious. Second, the accession candidates have rather better prospects thanks to the institutional reforms that they have accomplished. Third, even so, it is hard to envisage the double-digit growth that Lucas (2000) supposes is on the cards for countries joining the catch-up growth club. Crafts and Kaiser (2004) using a growth accounting framework note that unless the accession candidates achieve unprecedented TFP growth they are most unlikely to emulate the growth performance of the Asian Tigers simply because their demographics are much less favourable.

In sum, the vision that Lucas offers of a world in which convergence takes over and international income inequality is ultimately vanquished still seemed a long way off at the end of the 1990s. In particular, it is very hard to be optimistic about growth prospects either in Africa or much of the former Soviet Union.

7. Conclusions

The 1990s saw unprecedented developments in the extent of globalization partly connected with the blossoming of a new General

Purpose Technology, ICT, that bears comparison with electricity and steam. The continuation of very rapid growth in China, and to a lesser extent, India has opened up quite new prospects for the balance of world economic activity and for the world distribution of income over the next decades.

Nevertheless, some aspects of economic growth in the 1990s were seriously oversold in the popular media. It is apparent that the Death of Distance was greatly exaggerated and that the impact of reductions in communication and transport costs on the location of industry was modified a bit rather than abolished entirely. Similarly, although the impact of ICT on growth performance on productivity growth was significant, especially in the United States where even sceptics believe that trend growth has risen by over half a percentage point (Gordon, 2003), the New Economy was not the miraculous transformation of growth prospects that its boosters on Wall Street claimed.

Seen in terms of Human Development rather than the national accounts concept of economic growth, the most disturbing aspect of the 1990s was the catastrophic fall in life expectancy in countries that succumbed to the HIV/AIDS epidemic with the threat that it might spread to other parts of the world. This threatens to reverse at a stroke one of the most remarkable achievements of the twentieth century, namely, the massive reduction of mortality risks in poor countries.

So what are the lessons of the 1990s for growth economics and for policymaking in the twenty-first century ?

First, it is clear that globalization potentially challenges conventional generalizations about catch-up and convergence. If transport and communications costs tend to zero and capital is much more internationally mobile than hitherto, then it might be reasonable to suppose that the neoclassical predictions will, after all, become valid. This is the vision offered by Lucas (2000). If this seems implausible, then

it is important to pin down the reasons why globalization will not deliver this outcome.

Second, it is surely desirable to think about convergence and divergence in terms of living standards rather than GDP per person. Taking increases in life expectancy into account challenges standard claims about divergence big time in the past. However, the effects of AIDS in Africa together with the threat of epidemics in China and India could result in a new type of divergence in future. This suggests that Nordhaus (2000) is right to push us to think more about concepts of national income that are utility-based and that international policy initiatives to promote economic development should stress disease control and eradication more than hitherto.

Third, the puzzle of European productivity growth performance in the 1990s suggests that social capability is both more important and more complex than is often recognized. The requirements of a new technological epoch may require reform. Aspects of the post-war settlements that were helpful in promoting rapid catch-up growth during the Golden Age may subsequently have become liabilities. This indicates that we need to find out more about how yesterday's solutions become tomorrow's problems.

Finally, the encouraging progress in institutional reform made by the Transition Economies who are now about to join the EU offers a positive experience of conditionality in substantially improving growth prospects. It would be nice to work out ways in which aspects of this could be replicated.

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Table 1. International Trade and Foreign Investment Compared with World GDP

a) World Merchandise Exports/World GDP (%)

1820	1.0
1870	4.6
1913	7.9
1929	9.0
1950	5.5
1973	10.5
1990	12.7
2000	18.8

Source: Maddison (2001) updated using WTO (2001).

b) Foreign Assets/World GDP (%)

1870	6.9
1913	17.5
1930	8.4
1945	4.9
1960	6.4
1980	25.2
1985	36.2
1990	48.6
1995	62.0
2000	92.0

Source: Obstfeld and Taylor (2004).

Table 2. Diffusion of Information and Communications Technology

	Internet Hosts/1000		Mobile Phones/1000	
	1995	***2000***	***1990***	***1999***
Finland	42.2	200.2	52	651
United States	21.1	179.1	21	312
Singapore	7.4	72.3	17	419
Germany	6.3	41.2	4	286
Spain	1.8	21.0	1	312
Hungary	1.6	21.6	0	162
South Africa	1.2	8.4	0	132
Brazil	0.2	7.2	0	89
Swaziland	0	1.4	0	14

Source: UNDP (2001).

Table 3. Shares of World Manufactured Production and Exports (%)

a) Production

	1880	***1913***	***1953***	***1973***	***1990***	***2000***
UK	22.9	13.6	8.4	4.9	3.8	3.5
Rest W. Europe	30.8	34.8	17.7	19.6	29.1	26.9
North America	15.1	32.9	46.9	35.1	23.4	26.4
Japan	2.4	2.7	2.9	8.8	16.8	13.8
Other East Asia	n.a	n.a	0.8	3.1	4.7	6.4
"British India"	2.8	1.4	1.7	2.1	1.7	1.7
China	12.5	3.6	2.3	3.9	2.7	7.0
Rest of World	13.5	11.0	19.3	22.5	17.8	14.3

b) Exports

	1876/80	***1913***	***1955***	***1973***	***1990***	***2000***
UK	37.8	26.9	17.9	7.1	6.1	5.0
Rest W. Europe	51.3	50.3	36.3	49.5	48.1	37.3
North America	4.4	11.1	26.1	16.1	15.2	17.8
Japan	n.a	2.4	3.9	10.0	11.5	9.7
Rest Asia	<1.5	3.8				
South & SE. Asia			2.8	4.6	12.0	15.6
China			0.6	0.7	1.9	4.7
Rest of World	<6.5	5.5	12.4	12.0	5.2	9.9

Sources:
Production: Bairoch (1982), United Nations (1965) and UNIDO (2002).
Exports:Yates (1959), UNCTAD (1983) and WTO (2001).

Table 4. Growth Rates of Real GDP/Person (% per year)

	1870-1913	***1913-50***	***1950-73***	***1973-90***	***1990-2000***
Africa	0.57	0.92	2.00	0.14	0.14
Asian Tigers	0.79	0.29	5.98	6.13	4.83
China	0.10	–0.62	2.86	4.77	6.31
India	0.54	–0.22	1.40	2.60	3.87
Latin America	1.82	1.43	2.58	0.69	1.46
Western Europe	1.33	0.76	4.05	2.00	1.76
United States	1.82	1.61	2.45	1.96	1.95

Source: Maddison (2003)

Table 5. Sources of Labour Productivity Growth (% per year).

	TFP	Education	Capital -Deepening	Labour Productivity
1950-73				
France	3.2	0.4	1.4	5.0
Japan	4.1	0.5	2.8	7.4
UK	1.4	0.2	1.5	3.1
USA	1.6	0.5	1.0	3.1
West Germany	3.6	0.3	1.8	5.7
1970-80				
Industrial Countries	0.3	0.5	0.9	1.7
China	0.8	0.4	1.6	2.8
East Asia	1.0	0.6	2.7	4.3
Latin America	1.2	0.3	1.2	2.7
South Asia	–0.2	0.3	0.6	0.7
Africa	–0.4	0.1	1.3	1.0
1980-90				
Industrial Countries	0.9	0.2	0.7	1.8
China	4.3	0.4	2.1	6.8
East Asia	1.4	0.6	2.4	4.4
Latin America	–2.3	0.5	0.0	–1.8
South Asia	2.3	0.4	1.0	3.7
Africa	–1.4	0.4	–0.1	–1.1
1990-2000				
Industrial Countries	0.5	0.2	0.8	1.5
China	5.3	0.3	3.2	8.8
East Asia	0.6	0.5	2.3	3.4
Latin America	0.4	0.3	0.2	0.9
South Asia	1.2	0.4	1.2	2.8
Africa	–0.5	0.4	–0.1	–0.2

Note: East Asia comprises Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. Africa is Sub-Saharan Africa.

Sources: 1950-73: Maddison (1996); 1970-80, 1980-90 and 1990-2000: Bosworth and Collins (2003).

Table 6. Levels of GDP/Person in $1990 Geary-Khamis (% United States)

	1870	***1913***	***1950***	***1973***	***1990***	***2000***
Africa	500	637	894	1410	1444	1464
	(20.4%)	(12.0%)	(9.4%)	(8.4%)	(6.2%)	(5.2%)
Asian Tigers	595	828	955	3631	9975	16010
	(24.3%)	(15.6%)	(10.0%)	(21.8%)	(43.0%)	(56.9%)
China	530	552	439	839	1858	3425
	(21.7%)	(10.4%)	(4.6%)	(5.0%)	(8.0%)	(12.2%)
India	533	673	619	853	1309	1910
	(21.8%)	(12.7%)	(6.5%)	(5.1%)	(5.6%)	(6.8%)
Latin America	681	1481	2506	4504	5053	5838
	(27.9%)	(27.9%)	(26.2%)	(27.0%)	(21.8%)	(20.8%)
Western Europe	1960	3458	4579	11416	15966	19002
	(80.2%)	(65.2%)	(47.9%)	(68.4%)	(68.8%)	(67.6%)
United States	2445	5301	9561	16689	23201	28129

Note: Asian Tigers comprise Hong Kong, Singapore, South Korea, and Taiwan.

Source: Maddison (2003).

Table 7. Population Living on $1 and $2 per day (millions)

	1981	*1990*	*2001*
$1 per day			
China	633.7 (63.8)	374.8 (33.0)	211.6 (16.6)
Rest of East Asia	162.1 (42.0)	97.4 (21.2)	60.3 (11.0)
Eastern Europe and Central Asia	3.1 (0.7)	2.3 (0.5)	17.6 (3.7)
Latin America and Caribbean	35.6 (9.7)	49.3 (11.3)	49.8 (9.5)
Middle East and North Africa	9.1 (5.1)	5.5 (2.3)	7.1 (2.4)
India	382.4 (54.4)	357.4 (42.1)	358.6 (34.7)
Rest of South Asia	92.4 (42.2)	104.9 (38.9)	72.5 (21.1)
Sub-Saharan Africa	163.6 (41.6)	218.6 (44.6)	315.8 (46.9)
Total	***1481.8 (40.4)***	***1218.5 (27.9)***	***1092.7 (21.1)***
$2 per day			
China	875.8 (88.1)	824.6 (72.6)	593.6 (46.7)
Rest of East Asia	294.0 (76.2)	291.7 (63.6)	270.7 (49.2)
Eastern Europe and Central Asia	20.2 (4.7)	22.9 (4.9)	93.5 (19.7)
Latin America and Caribbean	98.9 (26.9)	124.6 (28.4)	128.2 (24.5)
Middle East and North Africa	51.9 (28.9)	50.9 (21.4)	69.8 (23.2)
India	630.0 (89.6)	731.4 (86.1)	826.0 (79.9)
Rest of South Asia	191.1 (87.3)	226.1 (83.7)	237.7 (69.1)
Sub-Saharan Africa	287.9 (73.3)	381.6 (75.0)	516.0 (76.6)
Total	***2450.0 (66.7)***	***2653.8 (60.8)***	***2735.6 (52.9)***

Note: $1 ($2) per day is $1.08 ($2.15) at 1993 purchasing power parity prices; figures in parenthesis are percentage of population.

Source: Chen and Ravallion (2004)

Table 8. Human Development Index Averages

	1870	***1913***	***1950***	***1990***	***2001***
North America	0.504	0.643	0.774	0.912	0.937
Oceania	0.516	0.708	0.784	0.883	0.935
Western Europe	0.421	0.580	0.707	0.888	0.927
Africa			0.271	0.456	0.478
China			0.225	0.624	0.721
India		0.143	0.247	0.519	0.590

Sources: Crafts (2002) and UNDP (2003)

Table 9. Growth of Real GDP/Person (% per year)

	Globalizers	Non-Globalizers
1960s	1.4	2.4
1970s	2.9	3.3
1980s	3.5	0.8
1990s	5.0	1.4

Source: Dollar and Kraay (2004).

Table 10. Distance, Economic Interactions and World Market Access

a) Economic Interactions and Distance (flows relative to their magnitude at 1000km)

	Trade	Equity Finance	FDI	Technology
1000km	100	100	100	100
2000km	42	55	75	65
4000km	18	31	56	28
8000km	7	17	42	5

Source: Venables (2001) based on estimated gravity models.

b) World Market Access (North America = 100)

North America	100
Western Europe	92
Eastern Europe	87
South East Asia	52
Other Asia	40
Latin America	35
Sub-Saharan Africa	34
Oceania	21

Source: Redding and Venables (2002)

Table 11. Relationship between Real GDP and Labour Productivity in EU and USA

a)Sources of the Real GDP/Person Gap (% USA)

	Labour Productivity	***Hours Worked***	***Employment***	***Real GDP/ Person***
1973				
Germany	–25	0	+ 4	–21
Ireland	–58	+ 5	– 6	–59
Sweden	–22	– 5	+ 8	–19
UK	–35	+ 3	+ 4	–28
EU15	–31	0	+ 2	–29
1990				
Germany	– 1	–16	– 3	–20
Ireland	–30	– 4	–15	–49
Sweden	–19	–10	+ 5	–24
UK	–22	– 6	– 1	–29
EU15	–12	–12	– 6	–30
2003				
Germany	+ 4	–24	– 7	–27
Ireland	+ 8	–11	– 6	– 9
Sweden	–12	–13	+ 1	–24
UK	–15	–10	– 2	–27
EU15	– 8	–14	– 7	–29

b) Growth (% per year)

	Labour Productivity	***Hours Worked***	***Real GDP***
1973-90			
EU15	2.6	–0.2	2.4
USA	1.2	1.8	3.0
1990-95			
EU15	2.5	–1.0	1.5
USA	1.0	1.4	2.4
1995-2000			
EU15	1.6	1.1	2.7
USA	1.9	2.2	4.1
2000-03			
EU15	0.9	0.3	1.2
USA	1.9	0.1	2.0

Source: derived from Groningen Growth and Development Centre (2004); estimates up to and including 1990 are for West Germany.

Table 12. Supply-Side Policy Stances

a) Distortionary Tax Revenues (%GDP).

	1955	***1980***	***1990***	***2000***
Germany	20.2	27.6	27.0	27.3
Ireland	11.8	21.3	19.3	19.5
Sweden	18.2	38.5	40.2	43.0
UK	19.6	26.2	25.6	25.3
EU Median	17.1	27.0	27.8	29.8
USA	19.1	26.3	22.1	24.9

b) Employment Protection Index (0-2)

	1960-4	***1973-9***	***1980-7***	***1998***
Germany	0.45	1.65	1.65	1.30
Ireland	0.02	0.45	0.50	0.50
Sweden	0.00	1.46	1.80	1.10
UK	0.16	0.33	0.35	0.35
EU Median	0.65	1.35	1.35	1.10
USA	0.10	0.10	0.10	0.10

c) Product Market Regulatory Reform (0-6)

	1978	***1988***	***1993***	***1998***
Germany	5.2	4.7	3.8	2.4
Ireland	5.7	5.1	4.8	4.0
Sweden	4.5	4.2	3.5	2.2
UK	4.3	3.5	1.9	1.0
EU Median	5.6	5.0	4.2	3.2
USA	4.0	2.5	2.0	1.4

Sources:

Tax revenues: OECD (1981) (2002); distortionary taxes are defined as in Kneller et al. (1999).
Employment Protection: Nickell (2003).
Regulatory reform: Nicoletti et al. (2001).

Table 13. Rule of Law Governance Indicator (–2.5 to + 2.5)

	1996	***2002***
OECD Europe	1.63	1.65
Asian Tigers	1.34	1.22
EU Accession Candidates	0.33	0.68
Latin America	–0.12	–0.35
Africa	–0.60	–0.71
Russia	–0.80	–0.78

Source: Kaufmann et al. (2003).

Table 14. Projections for Long Run Growth of Real GDP/Head in Transition Economies (% per year)

Bulgaria	2.16	Armenia	2.34
Czech Republic	4.64	Azerbeijan	3.66
Estonia	4.48	Belarus	2.54
Hungary	4.38	Georgia	1.11
Latvia	3.58	Kazachstan	1.44
Lithuania	3.93	Kyrgyz Republic	2.52
Poland	4.09	Russia	1.78
Romania	3.19	Tajikistan	2.75
Slovakia	5.32	Ukraine	2.49
Slovenia	3.37	Uzbekistan	3.16
Average	3.91	Average	2.38

Source: Crafts and Kaiser (2004)

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