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TWO SCIENTISTS FOR EVERY MAN, WOMAN AND DOG IN AMERICA? HOW SUSTAINABLE IS GLOBALISATION?

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In 1957, at a high point in the Cold War, the Russians launched the first satellite – the Sputnik. The fact that the Russians had got into space first came as a great shock to the Americans, who responded with a crash investment programme in the training of scientists and technologists. Jahoda calculated that if this increase in Human Resource investment had been sustained over the decades, by 1992 there would be two scientists for every man, woman and dog in America (Jahoda, 1973).

The first decade of the 21st century feels a little like 1957. To many it appears as if the momentum of globalisation is unstoppable. But a moments reflection suggests that a more cautionary attitude is in order. For one thing, the spread of globalisation is uneven. It is true that there has been an accelerating removal of barriers to trade (especially in manufactures) and the cross-border flow of capital and that this has been associated with a deepening in the breadth and intensity of economic integration. However, many barriers to cross-border integration persist, not least in controls over the flow of people, especially those with little education and skills. There is also little sign of the withering away of the nation state, although its functions and purview are nevertheless in a state of flux (Weiss, 2002). For another thing, the idea that globalisation is unstoppable fails to take on board the experience of history. The last decades of the nineteenth century represented a similar phase of rapidly deepening global integration which also seemed unstoppable to many. Yet it came to an end in an abrupt and brutal form, with the loss of many millions of lives, and it was only half a century later that we entered a new phase of global integration (Kaplinsky, 2005).

In this chapter we will address four factors which caution against the triumphalism of the contemporary globalisation agenda. In each case, these represent countervailing forces which are endogenous to the system, that is, which arise out of the very success and extension of the global economy. The first of these factors is the disruptive potential of China and India; the second reflects the environmental sustainability of continued globalisation; the third focuses on insecurity and the sustainability of the logistical arteries of globalisation; and the fourth addresses the countervailing political forces unleashed by the patterns of inequality which result from the extension of globalisation.

The disruptive impact of the Asian Drivers

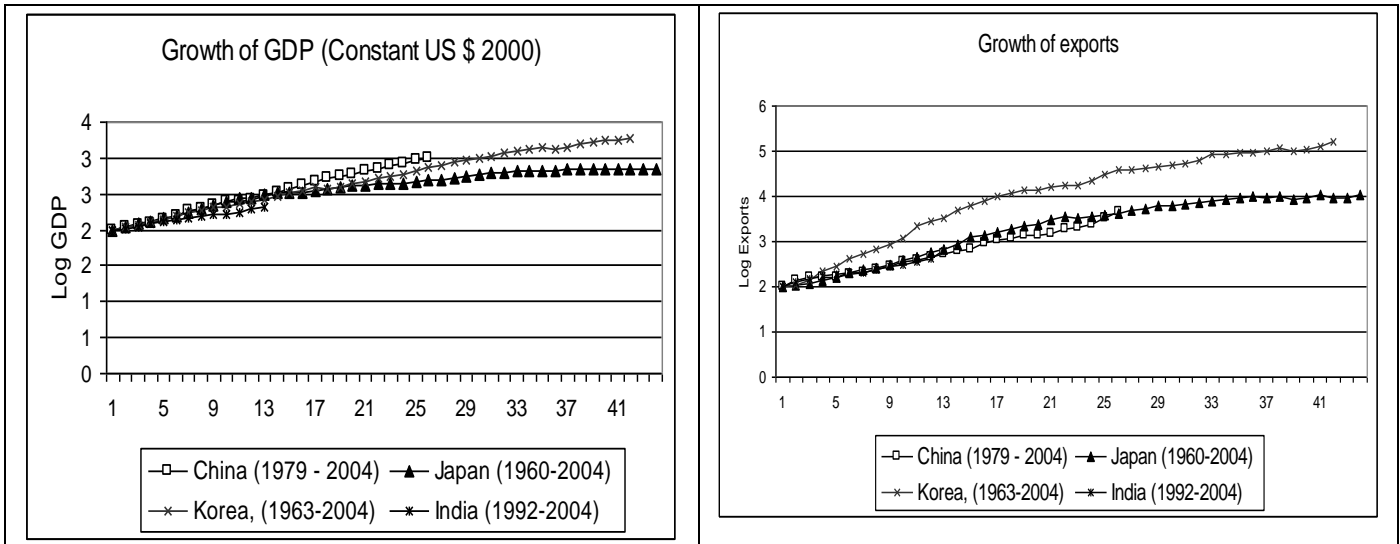
On current trends, China will be the second biggest economy in the world by 2016, and India the third largest by 2035. A cluster of other countries in the Asian region, such as Thailand and Vietnam, are also growing rapidly. These newly dynamic Asian economies can collectively be characterised as the 'Asian Drivers' of global change. The economic processes they engender are likely to radically transform regional and global economic, political and social interactions and to have a major impact on the environment. This is a critical disruption to the global economic and political order that has held sway for the past five decades.

The two key Asian Driver economies are China and India. But they reflect very different growth paths. China is integrated into an outward-oriented regional economy, involving fine divisions of labour predominantly in manufacturing sectors. Its growing global presence is in large part a direct consequence of the extension of the global economy since to a very large extent its export boom reflects the participation by Chinese firms and China-based TNC subsidiaries in global value chains. Nearly 60 per cent of China's exports and more than 70 per cent of its exports of machinery and electronic products are classified for fiscal purposes as 'processing trade', involving the import of intermediates and capital goods (largely from the East Asia region) for the manufacture and assembly of final products for export (Fu, 2003). In the case of India, export earnings are significantly driven by the incorporation of Indian software in global service sector value chains. But India's manufactured exports are beginning to grow rapidly too.

Although incorporated into the global economy in different sectors, China and India pose similar major and distinct challenges for the global and developing economies, for five major reasons.

The first is as a consequence of their size. As Figure 1 shows, from the beginning of their growth spurts (1979 and 1992 respectively), neither GDP or export growth in the two largest Asian Driver economies were unique. In recent years other Asian economies (for example Japan and Korea) have experienced similarly rapid growth paths. However, whilst China accounted for 20 per cent of the world's population and India for 17 per cent in 2002, at no time did the combined population of Japan and Korea's exceed four percent of the global total. So, unlike the case of Korea and Japan, who could grow without severe disruption to the global economy, we have to suspend the 'small-country' assumption in the case of the Asian Drivers. The very high trade intensity of China's growth makes the big-country effect particularly prominent in its case. Between 1985 and 2005, China's exports rose from \$50bn to \$772 billion, transforming China into the world's third largest trading nation.

Figure 1: Growth of GDP and Exports from onset of rapid growth: China, India, Japan and Korea

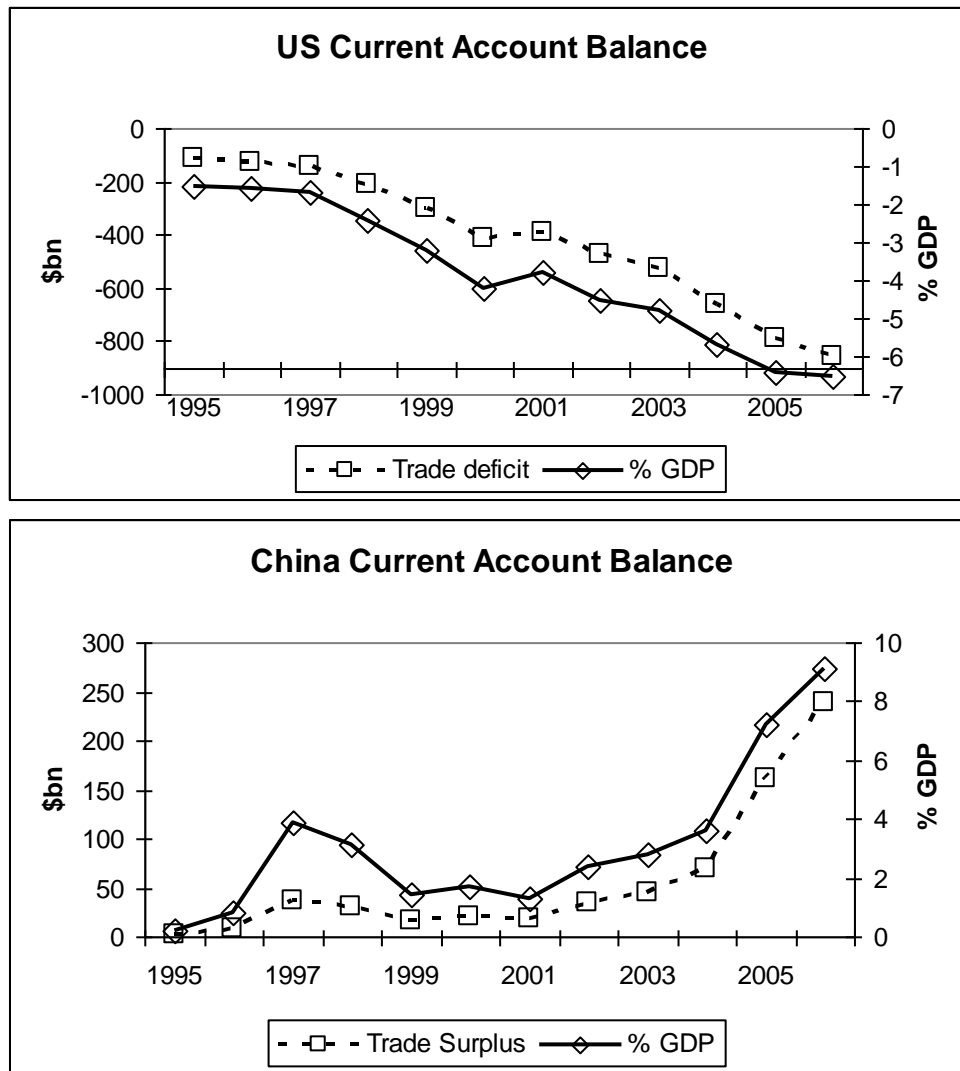


Source: Calculated from World Bank, World Development Indicators, accessed electronically, September 2006.

This trade intensity of growth is having a major impact on the terms of trade (Kaplinsky, 2008a). As a consequence of a rapid growth in Asian Driver exports of manufactures, the prices of many manufactures either began to fall after the mid 1990s, or their rate of price-increase slowed considerably. At the same time, the embodied material content of these manufactured exports and their common heavy investments in infrastructure has led to a rapid and probably sustained rise in the demand for, and price of, commodities. The resultant change in the terms of trade challenges not just traditional growth strategies (which have historically favoured a move from the primary sector to industry), but the political coalitions in individual countries supporting this growth path.

Second, the rise of the Asian Drivers has been associated with very significant, and growing, imbalances in the global economy. By 2006 these imbalances were most evident with respect to the US and China. Figure 2 provides data on their respective trade imbalances. The US – the world's second largest trading economy – had sunk from a current account deficit of minus \$113bn (minus 1.5 per cent of GDP) to minus \$857bn (minus 6.5 per cent of GDP) in 2006. By contrast, in the same time-period, Chinas current account surplus had grown from a mere £1.6bn (0.3 per cent of GDP) to \$239bn (9.1 per cent of GDP). A related imbalance concerns financial flows. Arising in large part as a result of its growing current account surplus, by mid-2007 China held foreign exchange reserves in excess of \$1.4trillion. These reserves are large, and compare with the total value of FDI stock in the US of \$1.7trillion. Depending on how these reserves are utilised – for example, to buy up assets of large western firms – there is potential for substantial conflict and the possible impositions of controls over foreign ownership in the large previously dominant industrialised economies, undermining the mobility of global financial flows.

Figure 2: US and China Trade Balances (\$bn and % GDP)



Source:IMF, <http://www.imf.org/external/pubs/ft/weo/2007/01/data/index.aspx>, accessed 20 July 2007.

The third reason why the Asian Drivers may disrupt the global economy is that China (especially) and India embody markedly different combinations of state and capitalist development compared with the industrialised world. Chinese enterprises have their roots in state ownership, usually arising from very large and often regionally-based firms (Nolan, 2005; Shankar, 2005). They reflect a complex and dynamic amalgam of property rights – ‘The ownership of each of China’s large SOEs [state owned enterprises] has spread gradually among a variety of public institutions, each of which has an interest in the firm’s performance... [b]ased on the ‘ownership maze’ and vaguely defined property rights’ (Nolan, 2005: 169). With access to cheap (and often subsidised) long-term capital, these firms operate with distinctive time-horizons and are less risk-averse than their western counterparts (Tull, 2006). Indian firms are probably less distinct from the western model, but often include elements of social commitment which are largely alien to western firms (Humphrey, Kaplinsky and Saraph, 1998). Associated with these complex forms of

ownership and links to regional and central state bodies, Chinese firms often operate abroad as a component of a broader strategic thrust. This is particularly prominent in China's advance in SSA in its search for the energy and commodities required to fuel its industrial advance (Kaplinsky, McCormick and Morris, 2006). What this means is that Asian Driver firms tend to operate with much longer time-horizons and are less averse to risk than their western counterparts. Moreover, their base in low income economies means that they are not subject to the same pressures regarding corporate and environmental social responsibility, fuelling accusations by previously hegemonic western firms of 'unfair practice'.

The fourth reason why the Asian Drivers present a new and significant challenge to the global and developing economies is that they combine low incomes and low wages with significant innovative potential. This means that they are able to compete across the range of factor prices. The oft-stated belief (and hope?) that China will run out of unskilled labour is belied by the size of its reserve army of unemployed, estimated at being in excess of 100m compared to the 83m people employed in formal sector manufacturing in 2002 (Kaplinsky, 2005). As Shenkar observes, 'China's enormous labor reserves, with pay scales radically lower in the hinterland than the coast and in urban areas (the average income on the farm, where more than half of the Chinese population lives, is less than \$25 per month), creates the equivalent of a country within a country; so, instead of Vietnam or Bangladesh replacing China as a labour-intensive haven, Hunan will replace Guangdong' (Shenkar, 2005: 134). Moreover by 2030, India, also with a large reserve army of underemployed, is likely to have a larger – and younger - population than China. But China and India are not content to operate in this world of cheap labour and mature technologies, and are investing heavily in the building of technological capabilities. China, for example, overtook Japan to become the world's second largest investor in R&D in 2006. (Keeley and Wilsdon, 2007; Leadbeater and Wilson; 2007

A fifth disruptive consequence of the rise of the Asian Drivers is their quest for secure supplies of raw materials. In the 2005-7 period this was an agenda largely played out in SSA, and largely in relation to access to energy. China became an active investor in the Sudan and Angola, in both cases in the search for secure oil supplies, and in both cases running against established policy agendas of the hitherto hegemonic western powers, and displacing western energy firms. In Sudan this led to an easing of the pressure over Darfur; in Angola it allowed the government to escape pressure exerted by the Paris Club on transparency in government. In Angola, China and India competed directly for access to the fuel deposits, in other cases (as in West Africa) they concentrated on different countries. But it is not just oil that the Asian Drivers have targeted in SSA. China has become a heavy investor in the Zambian copper fields, and in various mineral sectors in South and West Africa. Similarly, it is not just in SSA or in oil that their resource hunger is likely to be felt as a disruptive factor. A shortage of softwood for the building industry in 2007 was a direct consequence of China's demand for timber, and water, too, has begun to loom on the horizon as a potential source of competitive positioning.

As a consequence of these impacts, the Asian Drivers are beginning to disrupt the 'political compact' which has underwritten the extension of globalisation in the post WW2 era. China and India are increasingly active in global institutions, demanding greater say in the regulation and shaping of the global economy. Their own experience belies the efficacy of the Washington Consensus policy agenda, and China and India provide a different policy role-model for many developing economies, with the possible rise of a 'Beijing Consensus' to rival the Washington Consensus (Ramo, 2004). These dynamics represent a transition from a quasi-unilateral US-dominated world order to a multipolar power constellation. This is likely to lead to new turbulences and conflicts between the rising and the declining powers within the global governance system (Humphrey and Messner, 2006).

None of these Asian Driver related factors – the large country effect on the terms of trade; trade and fiscal imbalances; the distinctive nature of Asian Driver firms; competition across the range of technology-intensity in trade and innovation; and the quest for resources – are in themselves likely to undermine the extension of the global economy. But, and largely as a consequence of their size, together they make up a significant disruptive challenge to the global order. In this context it is worth bearing in mind the lesson from history, since one of the primary reasons for the descent of the global economy into war in the early years of the twentieth century was the failure of the old imperial powers to allow a new entrant – Germany – to play a key role in the forming of global architecture. A similar challenge faces the global regime now that dynamic new entrants from the East are rising in the economic league and will soon be seeking to have this reflected in the role they play in the fashioning of the global political and institutional architecture.

The environmental sustainability of globalisation

Writing in the first half of 19th century Ricardo built his theory of rent on the variable quality and diminishing marginal productivity of land. He argued that in the context of limited land in the UK, land-rents would become increasingly important and skew incomes towards unproductive landlords. This led him to oppose the Corn Laws which between 1815 and 1846 protected UK agriculture by placing tariffs on food imports. The abolition of barriers to food imports – that is, deepening globalisation - meant that the land frontier could be stretched, allowing economic growth in the UK (and elsewhere) to proceed without being constrained by a Malthusian squeeze on resources.

In 1972, almost 150 years after Ricardo's *Principles of Political Economy* (1817), and 175 years after Malthus's 1798 *Essay on the Principles of Population*, a group of scientists published a book entitled *The Limits to Growth* (Meadows et al, 1972). *The Limits to Growth* revisited Malthusian principles and challenged Ricardo's assumption of an unconstrained land frontier. It argued that natural resources are finite and that their shortage would ultimately undermine the sustainability of global growth. *The Limits to Growth* provoked a stormy response. It was accused of mindless projection

(‘Malthus with a computer’), being too pessimistic about technological change and failing to recognise the importance of the price mechanism in fostering technical substitution away from scarce resources (Cole et al, 1973).

But, by the new millennium, the easy dismissal of the Limits to Growth was being revisited, and as numerous authors point out (for example, Sachs and Santarius, 2005), there are indeed physical limits to the sustainability of growth. These physical limits include both the exhaustion of resources, and the negative environmental spillovers which result from sustained growth. As a consequence there is an increasing crescendo of normative calls for economic slowdown and for the contraction of consumption, especially in high income economies (Sachs and Santarius, 2005).

Much of this recent literature fails to root environmental exhaustion and degradation in an analytical understanding of the nature of the accumulation process. The key to this is to be found in the works of Schumpeter, Smith and Ricardo (Schumpeter, 1961; Smith 1776; Ricardo, 1817). Schumpeter showed how the very breathing of the capitalist economy requires innovation – entrepreneurs, confronted by the intensity of competition which undermines profitability, escape these competitive pressures by introducing new products and processes. Innovation and expansion are the basis of the capitalist system, they are its internal motor.

Writing some centuries before Schumpeter, Smith provided the key to understand how this accumulating motor of capitalism fuels a *globalising* economy. Using an example of a pin factory, Smith showed how the division of labour led to an increase in productivity. Moreover, he argued, ‘the division of labour depends on the extent of the market’ – that is, the bigger the market, the greater the division of labour, the greater the gains in productivity, and the higher the profit to the innovating capitalist. Ricardo’s contribution to this analytical story concerns the role played by differing national economies in this process of specialisation. His theory of comparative advantage provided the intellectual underpinning to globalisation by showing how if countries specialise in areas of relative advantage, there would be extensive mutual gains from global exchange and integration.

In the latter decades of the twentieth century, new forms of corporate organisation and interchange developed to facilitate the reaping of specialisation and scale at a global level. In particular, elaborate global value chains were constructed to allow for the production of ‘world products’ through the manufacture and assembly of components produced in very large numbers in globally dispersed plants (Gereffi, 2005; Kaplinsky and Morris, 2001). These global value chains include the geographical specialisation not just of discrete physical processes, but increasingly also of the knowledge-intensive and service components of the design, production and delivery of an increasing range of diversified goods and services.

The environmental challenge confronting the global economy in the 21st century thus takes two forms. The first is a reflection of physical aggregates. There are a growing number of mouths to feed, bodies to clothe and wants to

satisfy. These place physical limits on the capacity of the biosphere to meet these needs. This has very little to do with the extension of globalisation itself other than the possibility that globalisation fosters growth, and growth fosters consumption. However, secondly, some of the demands placed on the biosphere not only reflect the physical aggregates of consumption (tonnes of food, steel, etc.), but also the manner in which these demands are met. Here, *increasingly global* value chains which make up modern production systems place enormous pressures on the environment.

Take as an example, the issue of foodmiles in the retail sector. Global sourcing has become increasingly widespread. Typically, the fresh fruit and vegetable section of a supermarket in the UK contains a selection of products from Brazil, Costa Rica, the Dominican Republic, Guatemala and Peru in Latin America; Kenya, South Africa, Zambia, and Zimbabwe in SSA; India, Israel, Thailand and Turkey from Asia, and from a range of other countries as well. In so doing supermarkets have been able to abolish seasonality in our food consumption, with a range of attractive, (over-) packaged (and often tasteless) products available 364 days a year. But this tells only part of the foodmiles story. How much of the packaging, the print and inks, the components of the supermarket trolley, the lorries which deliver the products, the building materials in the chain and so on similarly depend on global supply chains? In each case, the different components of the chain have to be transported (and some times re-transported) over extensive distances.

All of this global sourcing is at a cost to the environment. Some of this is a direct outcome of global transport, as in the case of the Exxon Valdez oil-spillage in Alaska during the 1990s. But the bulk of this negative environmental impact, is indirect, particularly through the link between increased energy consumption and global warming. For much of this intricate system of global production depends on the low price of energy which makes it profitable to ship low-value added commodities and components around the world. Despite the claims of the hydrocarbon-lobby to the contrary, we now know that there is growing evidence of global warming, and that this is predominantly a consequence of increased carbon-emissions. We also are beginning to realise that one consequence of climate change is its disproportionate negative impact on poor people and low-income economies (Yamin, 2004).

If we are to respond appropriately to global warming, then carbon-based energy will have to be priced at its true environmental cost.¹ But, if so, what will be the impact of this on the profitability of globalised production systems? How many activities which are currently profitable will be unattractive should energy prices be increased significantly? On the other hand, it is possible (and perhaps even depressingly probable) that despite the logic of forcing energy prices to a level which reflects its true environmental cost, consumer resistance and the power of the hydrocarbon lobbies to block an increase in prices makes this an unlikely outcome. In this case, energy-intensive global

¹ No realistic assessment of non-carbon based energy technologies suggests that they will arrest the carbon emissions of sustained global growth significantly.

value chains are likely to worsen global warming and hence exacerbate global poverty and inequality. This outcome, as we will see below, also challenges the sustainability of globalisation. So, either way – be it through higher energy prices or through the impact on poverty and inequality – the energy-intensity of globalised production systems poses a threat to the continued expansion of the globalised economy.

Insecurity and logistics

The onset and deepening of industrialisation witnessed the systematic application of science and technology to production. It has been an era of rationality, where *status* has been achieved rather than ascribed (Wilson and Wilson, 1945). The expansion of industry coincided with the general weakening of religions and other *belief systems* built on the assumption of divine creation and the absoluteness of good and evil. For much of its history, the *politics* of industrialisation was built around class – organised labour and its political representations pitching itself against organised capital with the state either being an instrument of the dominant class, or an arena for the contestation of class power. The *geography* of industry was the geography of cities, the place of residence of the working class which had either been expelled from rural areas and agriculture or had voluntarily left the rural areas in the search of higher incomes and better life-chances..

The second half of the twentieth century saw an explosion in the number and size of cities in the world. In 1950 there were 86 cities with a population exceeding one million. By the turn of the millennium there were more than 400 cities with a population exceeding one million, and it is likely that by 2015 that number will have increased to more than 550 (Davis, 2006). But the cities of the 21st century are very different to those beasts of the post industrial revolution period extending up to the last decades of the 20th Century. Contemporary cities are no longer primarily places of residence for industrial employees and their families. They now account for more than half of the world's population (UN-Habitat, 2003) and are increasingly populated by very many unemployed people, who have been displaced from agriculture in the rural areas, displaced from industrial employment due to import competition or, more likely, just failed to find any form of productive employment.

These urban slum-based communities are very different in character from the 19th and early 20th century cities of the industrial world. As a consequence in the change in material basis of global cities, the social and political character of cities is altering. Belief systems are changing, and there has been an explosion of millenarian religions throughout the world – Pentecostal churches in Latin America, Africa and parts of the US, Islamic fundamentalism in the middle east and parts of Asia and Hindu fundamentalism in South Asia. These are belief systems which believe in 'magic' solutions, and are built around moral absolutes. The political systems which they foster are less class-based institutions locked in verbal discourse and peaceful civil action, and more prone to the violent expression of needs, backed by millenarian belief systems.

How does this demographic and political transition relate to the growth and sustainability of globalisation? First, in many respects they are the outcome of the very success of the global economy. The combination of marked differentials in productivity between the leading and lagging production systems and the openness of global borders has meant that globalisation has been the major cause of the marginalisation of much of the world's population (see below). The urban slums are not so much made up of people left behind by globalisation, but those displaced by the efficiency of the leading producers. This drama is currently being played out both between economies and within economies. On the one hand, the efficiency of Asian Driver producers is squeezing competitors in other countries. For example, Chinese exports to Africa are, for example, displacing African workers from the clothing, footwear and furniture industries (Kaplinsky 2008b); and Chinese exports to the US are undermining Latin American and Caribbean exporters of manufactures to the US (Jenkins, Peters and Moreira, 2008). On the other hand, similar processes are occurring within large countries, especially in the two major Asian Driver economies. In both China and India, the gap in incomes between the urban and rural areas are growing, with a massive overhang of un- and underemployed labour.

There is another link between the changing nature of global demographics and the associated political processes, although this link is more contentious, It is one which sees a direct link between the hegemonic success of globalisation and the rise of global terrorism.² The argument goes as follows.³ Through its 'cultural' extension of TV, films, printed media and especially advertising, globalisation has spread a pattern of behaviour and values which has become increasingly offensive to many 'traditional' belief systems. They also promote 'wants' which cannot be satisfied in their economic contexts, leading to frustration and crises of expectations. This has provided fertile soil for pre-modern and millenarian fundamentalist faiths. The response of some of these has been to attack the many manifestations of globalisation - the 'World Trade Center' (the name itself evokes the hegemony of global processes), tourist centres associated with western values (night clubs in Bali), airports and civil aircraft. It is true that the early generations of fundamental terrorism were led by and often populated by educated people, but the 'sea' in which they swam, and the subsequent generations of activists have increasingly included the marginalised masses living in these urban- and peri-urban slums.

The question is what impact these oppositional groups will have on the sustainability of globalisation? The issue here is the extent to which the current waves of terrorism continue and/or intensify, and the degree to which

² I use the word 'terror' here in the particular sense of acts of violence which target non-combatant civilians. This definition includes both state-organised terror (for example, the bombing of civilians) and the acts of non-state terrorist cells. For many decades state-based military actions have been used to promote the spread of globalisation. The new factor is the use of non-state based terror to oppose its spread.

³ As in the discussion of the rise of millenarian religions (see above), I am here informed by Davis (2004).

they will target the manifestations of global interchange. We are in unknown territory here and it is a judgement call on both counts. My own conclusions are that in both cases the likely outcome will be inimicable to the sustained expansion of the global economy. That is, the incidence of terrorist actions are likely to grow rather than to subside, and secondly, that they will continue to target the logistical arteries of globalisation and the ideological manifestations of the globalising capitalist economy. The consequence will be to harden some of the arteries of the global system and to hamper the ease with which people, products and capital flow across national borders.

Unequalisation and countervailing political forces.

Globalisation forces alterations in economic specialisation. The result is frequent and significant change in employment patterns, in work-organisation and institutional design. Perhaps more importantly, it has also led to significant changes in the pattern of income distribution. There are two key consequences of these related changes, both of which impinge on the sustainability of globalisation.

The first is that life has become more insecure for many, including for articulate professionals in the high-income economies. Robert Reich, a sometime Secretary of State for Labor in the Clinton administration, wrote insightfully on this issue (Reich, 1991). He observed that the US had a large and growing 'underclass'; on top of this underclass, by definition, was an 'overclass'. This, said Reich was not new, But what was new was the character of the in-between category – 'the anxious class'. To a significant extent this growing anxiety and unease is a direct consequence of the imperative for continual 're-invention' forced by global competition. Jack Welch, former CEO of General Electric (GE) in the US, was widely considered to be one of the select number of truly influential management innovators during the 1990s. His philosophy was to force a regular turnover of staff in all GE subsidiaries, however well they were performing. Managers were expected to evaluate and 'weed-out' the least-well-performing group of employees on an annual basis however competent they were in performing their allocated tasks. In the early years of the millennium, GE promoted a '70:70:70 policy' – 70 percent of activities to be outsourced; 70 percent of this outsourcing to be offshored (that is, sent abroad); and 70 percent of this offshoring to go to low-wage economies. It is an agenda of uncertainty, distrust and fear. This is echoed in the world-view of the head of Intel, Andy Groves, who wrote a best-seller entitled 'Only the paranoid survive' (Groves, 1996). In each case the prognosis was change – 'reinvention', 'reorganisation', 'business process engineering' in order to survive the pressures of international competition. It is a world of insecurity, fear and anxiety, and one which threatens to engender opposition to globalisation, the more so as the professional classes in the high-income economies are now being threatened by the offshoring of their own jobs to India and other lower-wage economies.

It is not just that the changes induced by globalisation have led to widespread fear and anxiety (including amongst the articulate professional classes in high-income economies), but it has also resulted in growing inequality. There is a clear link between the extension of the global economy and patterns of income distribution, and in order to understand this we need to draw on three related sets of theory in economics – on rents, on the reserve army of labour and on the factor price equalisation theorem. We begin with Ricardo and Schumpeter on rent.

As pointed out above, Ricardo and Schumpeter both placed considerable emphasis on rent in explaining the distribution of income. For Ricardo, rent was the charge which arose from the differential quality of land. It led to income being accrued by those owning more productive land, with the rent reflecting the differential in productivity between the productive and the marginal parcels of land. Those owning marginal land would, he argued, be driven down to Malthusian levels of subsistence. Schumpeter expanded this concept of differential access by throwing light on gaps arising from unequal access to constructed 'innovation rents'. In both cases, rent-rich super-profits arose as a consequence of barriers to entry. In the case of land, there are limits to the availability of productive land. In the Schumpeterian framework, there are barriers to the ability to command the highest levels of technology, the most effective entrepreneurial capabilities, the most effective forms of organisation, and the most well-known products. The higher these barriers and the greater the differential in productivity, the greater the incomes accruing to those who are protected from competition.

The contribution of Marx to this story is that he focused on the income recipients who are not able to hide behind these barriers (Marx, 1876). Marx was concerned with returns to labour, and he argued that unemployment is a structural feature of capitalist development. Rising capital intensity – he referred to it as the organic composition of capital – displaced labour and created a reserve army of labour which ensured that wages were held down. Whether this process of wage compression occurs depends on the rates of investment, the rate of increase in capital intensity (usually reflected in productivity growth) and the growth in the labour force. As an observed reality, it is commonly believed that Marx got the numbers wrong, since most of the advanced capitalist economies were able to sustain both near-full employment and rising wages through the 18th, 19th and 20th centuries. His 'error' was largely due to his overestimating the growth of the labour force.

The final plank of this explanation of the link between globalisation and inequality is known as the Heckscher-Ohlin-Samuelson factor price equalisation theorem in mainstream economic trade theory (Heckscher, 1919; Ohlin, 1933; Samuelson, 1948). It argues that free trade will lead to an equalisation of wages (and indeed returns to capital) as the forces of competition work through the system. Global competition drives out high cost producers and, indirectly, thus high-cost factors. This outcome occurs as a consequence of free trade, and irrespective of the mobility of factors.

Now if we put these various strands together we can understand how it is that globalisation leads to growing inequality, and why levels of unequalisation have risen in recent decades. The argument goes as follows. Rising investments in innovation have led to increased differentials in productivity. 'Productivity' is to be understood not just in relation to physical output in relation to physical input, but also in processes, relations between firms and in returns to brandnames (Coca Cola) and celebrity identities (the David Beckham effect). These rising investments in innovation are protected by tightened intellectual property rights and are promoted by heavy investments in marketing (again, the David Beckham effect). The income recipients who are able to protect themselves from competition are, in a globalised world, able to reap enormous economies of scale, on a global level, and to garner significant incomes. They include skilled people and celebrities in both high-income and low-income countries. The flip side of this is that those who are unable to hide behind effective barriers to entry similarly find themselves in a large global pool, but in this case they are having to compete with a very large reservoir of similarly 'rent-deprived' actors. This is the reserve army of labour which Marx referred to.⁴ But whereas in Marx's time and in the period before the late 20th century the pool of labour was artificially constrained by restrictions on migration and on trade in final products, in recent decades these barriers have fallen and the rent-poor income recipients (essentially the unskilled and the semi-skilled) have become increasingly subject to global competition. This is directly analogous to the removal of the corn laws in 19th century England which led to a fall in the incomes of agricultural landlords.

A recent paper by Dew-Becker and Gordon highlights some astonishing trends in this distributional pattern. Focusing on the US between 1966 and 2001, they calculate that the median real wage grew by only 11 per cent in real terms, rising at 0.3 per cent per annum. This compares with an increase of productivity growth of 1.57 per cent per annum, and a growth in real incomes of the top one-tenth of the top one per cent (ie the 99.9th percentile) of 5.6 per cent per annum. They conclude that ' [m]ore of the income change [between 1966 and 2001] accrued to the top one percent than the entire lower 50 percent, and more accrued to the top 1/100 percent than to the top 20 percent' (Dew-Becker and Gordon, 2005: 36). They identify two drivers of this inequality - the high incomes of 'superstar' celebrities, and the rapidly growing incomes of the senior management benefiting not just from high salaries, but also from incentive schemes. To this we must add a third component, but at the bottom end of the income spectrum. That is the compression of wages due to rising pressure from imports and, in some cases, immigrants flowing into the US from Mexico and elsewhere. Similar patterns of unequalisation have been experienced in almost every country of the world, including especially in China (which has moved from being one of the most equal to one of the most unequal countries) and the Anglo-Saxon economies of Australia, Canada, New Zealand and the UK which have embraced globalisation enthusiastically (Milanovic, 2003; Kaplinsky, 2005). The IMF's World Economic Outlook in 2007 documented the fall in the share of labour in

⁴ It is also reflected in the writings of W. A. Lewis on the labour surplus economy (W. A. Lewis, 1954)

total incomes in all of the major high income economies and explained this as an outcome of competition from labour-rich low wage economies in the emerging world, particularly China and India (IMF, 2007: Chapter 5)..

Whether these distributional trends last depends on the size and growth of the global labour pool. Mainstream economic analysis suggests that it will be a self-correcting problem. It argues that as the labour market in China, India and elsewhere in the emerging economy world tightens due to their rapid economic growth, wages will rise around the world. But, given the numbers involved, even if Marx's rising organic composition of labour does not lead to a *growing* structural surplus of labour, the numbers involved suggest that this tightening labour market will take some time to manifest itself. To repeat the numbers cited earlier. China's formal sector manufacturing labour force is less than 85 million, whilst that of the 14 largest OECD economies is less than 80 million. This contrasts with estimates of China's reserve army of labour of over 100 million, with even larger numbers of labour entrants waiting to join the global economy in India. The IMF estimates that 'the effective global labor supply quadrupled between 1980 and 2005, with most of the increase taking place after 1990' (IMF, 2007: 162)

What does all this have to do with the sustainability of globalisation? The point is that the rich are increasingly confident and bold, with a widespread tendency to flaunt their wealth. We know from previous eras in economic and political history that the impetus for social change comes not so much from changes in absolute deprivation, but from relative deprivation (Runciman, 1966), and it is this which perhaps above all threatens the sustainability of globalisation.

The lessons of the nineteenth century provide an important backdrop in understanding these possible developments in the early twenty-first century (Williamson, 1998). After five to six decades of growing global integration, the world economy turned inwards after 1914, and the outward momentum was only regained in the decades after 1950. In between saw a period of inward focus, and a reduction in economic integration. This reversal of global processes followed directly from the political consequences of very success of late-nineteenth century integration. Cheap grain imports into continental Europe led to a decline in agricultural profits. This resulted in the imposition of tariffs against agricultural imports in much of Europe. The mass migration of unskilled Europeans into the US as 60 million people, often literally walking across Europe, made their way to the US between 1820 and 1914 forced down relative wages in North America, and led to growing controls against migration. At the same time the competitiveness of European manufactures threatened the survival of the US's nascent manufacturing sector. This resulted in the imposition of beggar-my-neighbour tariffs against manufactures during the 1930s.

Conclusions

Both individual and institutional agency count in the shaping of history. In other words, no outcomes to historical processes can be predicted with any great sense of certainty since in large part history results from social action. Underlying forces may be at work, but how these play out, and over what time-period, may reflect a variety of factors. Some of these factors may be internal to the system, others may be exogenous in nature.

Despite this inherent uncertainty, it is possible to point to some outcomes as being relatively likely, and others as being less so. The argument in this chapter has been that it is unlikely that globalisation will proceed along the unfettered trajectory of the last decades of the twentieth century. This is because of a number of factors which threaten this trajectory, each of which is internal to the unfolding of globalisation itself. These can be grouped into four categories – the disruptive impact of the rise of the Asian Driver economies; the environmental unsustainability of energy-intensive global value chains; the global insecurity arising out of the spread of global production and value systems; and the countervailing forces arising as a consequence of the unequalisation which is inherent in an globalising economy.

Each of these four factors holds the potential to not just disrupt the trajectory of the last decades of the twentieth century, but to reverse it or to push it into new directions (for example, limiting the globalisation of trade, but not of finance). Together, either because some of these factors are causally inter-related, or because they just happen to occur conjuncturally, they make the likelihood of a challenge to unfettered global integration even more likely. The possibility that there may be other factors external to the system - such as an environmental calamity or the mass spread of disease – only makes the likelihood of disruption more likely.

Although we may have some measure of confidence in the prediction of these developments, we have much less confidence in what might spark such a change in direction, or how rapid and far-reaching these changes might be. For example, with hindsight, it is clear that the spread of internationalisation in the 19th century would be interrupted. But it was much less clear that this interruption would take the form of a four-year war which would result in the death of more than 20 million people, and even less that this war would be sparked by an assassination in Sarajevo. Similarly, it is difficult to predict what event, or what confluence of events might act to shift the trajectory and pace of globalisation.

But, just as it was not possible for the Americans to produce two scientists for every man, woman and dog in America (even if some of them were children!), or that 19th century internationalisation would proceed without hindrance, so it is unlikely that the drive to ever-deepening globalisation in the 21st century will proceed without significant interruption.

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