

Unpacking globalisation and new technology in Britain

by

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Tuesday 16 November 1999

When the Secretary of State Stephen Byers earlier this morning spoke of globalisation and worldwide developments, that seemed to me exactly the right perspective to take, i.e., a global one. My remit this morning is narrower; I hope it turns out not to be internally inconsistent. I want to talk about “Unpacking globalisation and new technology in Britain.”

This is the month that observers remarked on a Wal-Mart effect lowering UK supermarket prices; that, from the US, MIT agreed to a joint venture with Cambridge University on the academics of entrepreneurship and productivity; that NASDAQ announced expanding its operations into a market for high-tech stocks in Europe, in competition with domestic stock markets already here; that Europe’s first Internet-based buying cooperative described a mechanism to force down consumer prices across Europe by Internet arbitrage, pooling UK and other consumers’ purchasing power; that a judge in the US concluded monopoly practice in Microsoft’s bundling operation systems and internet browsers, with the EU watching closely to see what actions it too might take, all in the interests of the consumer.

These developments are not atypical—one could have picked *any* month in the last three years, and similar events would have presented themselves. They all share an important common feature: Each brings global forces and frontier new technologies together, to the direct use by and attention of regular people—not rocket scientists, not assembly line workers and middle managers, not ivory-tower academics. Instead, it is consumers who are caught in the dynamics of globalisation and who are pushed hard against the chalkface of

technical progress.

It might be that hundreds of millions of people in the world are still so poor that they do not yet have the means to make a telephone call. But hi-tech Internet businesses, running off current and building new telecommunications infrastructure, in Britain, continental Europe, and the US garner popular attention, draw financial interest, push back the frontiers of technological application, and seamlessly distort the political boundaries of nation-states.

These events drive home how in Britain society and economy are now profoundly shaped by twin engines of change in global forces and in new technologies.

Three enduring concerns come to the fore when we look at these developments. First, do these changes enrich or impoverish the UK as a nation? Or, put more positively, what do we need to be competitive economically, what organisational structures enhance productivity and sustain economic growth? (Are hi-tech clusters necessary and worthwhile? Do nimble knowledge consultancies and small knowledge-based businesses require special dispensation at their beginnings to create wealth in the long run? Are they the way ahead for the rest of the economy?)

Second, even should UK economic performance in the aggregate be successful, what implications follow for income and wealth inequality and social exclusion? How do circumstances change across individuals and families *within* the UK as globalisation proceeds and technology advances?

Third, how do the instruments, powers, and goals of government and nation-states evolve as these developments unfold?

No one has definitive answers to these questions. What we have are reasoned conjectures, extrapolated from a little bit of identifying the essential forces at work in these large-scale changes, a little theoretical analysis based on maintained economic hypotheses, a little empirical knowledge of conceptually-similar developments in past history.

1 Growth and development: Just the facts

Given fears about where Britain stands in the globalised technology-driven world, it is easy to forget the central role each has played for the other in world history.

At the beginning of the 20th century, Britain stood alone among economies in being relatively industrialised. It was here after all that the Industrial Revolution began, here that abolition of the Corn Laws precipitated the world's move towards lower trade barriers and brought about the explosion of merchant trade across national boundaries. Towards the end of the 19th century, a hundred years after the Industrial Revolution, most other countries still employed over 30% of their workforce in agriculture. In Britain, by contrast, cotton from abroad provided the raw inputs on which fed the textile machines and hydraulic power that we associate with leading-edge, frontier technologies then. Other countries were better at producing raw material inputs; the British better at processing them. This international division of labour—a then-new organisation of production on that panoramic a scale—made sense, and provided the foundations for high and growing economic prosperity in Britain. Some economic historians estimate that, taking into consideration spillover effects, cotton imports might have accounted for between 15% and 60% of overall British economic growth over the first half of the 19th century. No one then lamented the British economy would not survive locating cotton production offshore—or at least if anyone did, I'm glad their arguments failed to carry the day.

Capital flowed freely from the core of rich countries of Western Europe to the developing economies in the Americas, Asia, and Australia. The net outflow from Britain rose to as high as 9% of GNP. By contrast, even at their maximum in the 1980s, net capital outflows from Japan and Germany never exceeded 5% of national output.

Looking over these facts we have to conclude that for one and a half centuries after 1750, Britain was more than a fully signed-up partner of the globalising world: Indeed, it was instigator and gang-leader.

Turning to the history of new technologies, the words “Industrial

Revolution” and “Britain” are practically synonymous. Historical accounts draw no distinction between the Industrial Revolution of the late 18th century and the expansion of British industry under Richard Arkwright, Matthew Boulton, and James Watt. Moreover, the great technological advances in Britain did not just begin and end in 1800. For the century afterwards British workers and machines extended the application of new work ideas to France, Belgium, the German states, Sweden, Switzerland, and ultimately to the eastern US. Over 100 million people—14% of the world’s population—migrated across continents in the 50 years before World War 1.

This quick historical survey shows that neither globalisation nor technological change is new to Britain. It reveals nothing in the British character or in its culture averse to international openness, technological innovation, individual entrepreneurship, or productivity and enterprise. Indeed 19th-century Britain positively thrived in all these dimensions.

More recently? For the 30 years after 1960, per capita income for the entire world grew by 2.26% per year. Corrected for purchasing power parity, UK per capita income only exactly kept pace. At both the beginning and end of this period, UK per capita income was 3 times that the world average—averaged over the 1970s, however, this ratio had fallen to as low as 2.73, climbing again only after 1981. But keeping level with an average is only relative. Averaged over the first five years of the 1960s, the UK ranked 9th in the world in per capita income across countries; towards the beginning of the 1990s, that same average showed the UK’s rank had fallen to 15th. Over these same three decades, not only has aggregate performance been dismal, but UK income inequality also *increased* by over 13%. This increased inequality, to be clear, cannot be traced to low-wage competition from less-skilled workers in poorer economies: the relative prices that have declined most are those of goods that use skilled labor more intensively. Imports from the poorer developing countries have had no measureable direct impact on wages or employment in the UK.

2 Technology: Changes large and small

What has changed in these last 200 years? More important, how will the situation evolve from here on out? What is the modern-day counterpart to the steam engine and cotton imports, to the abolition of the Corn Laws, and to the Industrial Revolution that all together so magnificently drove British and world economic growth?

The old saw that knowledge drives technological progress and through that economic prosperity is as legitimate now as it was then. Indeed, it must have held even before the Industrial Revolution, whether it manifested in Cro-Magnon's language skills allowing them to rise dominant over the Neanderthals, or whether it resided in Sumerian clay tablets recording economic and financial transactions.

Unlike with historical events, what we have to work with for these forward-looking questions is no longer reality and fact documented in archives. Instead, we can only use conjecture, hypothesis, and reasoning. As economists, we analyse models, based on informed, maintained hypotheses, that attempt to draw out the implications of our guesses. So here's my stab at answering the list of questions, extrapolating from observations about changes in the world now.

The newest and most profound global and technological changes have two key characteristics: first, they imply ever-increasing disrespect of distance (and thus space), time, and other putative natural boundaries; second, they progressively tear down the barriers between producers of new technology and consumers. These effects work as powerfully across countries as they do between neighborhoods in a city or villages in the countryside.

Falling transportation and communications costs is a convenient shorthand to describe the first of these: Technical progress on Internet and telecommunications infrastructures is a case in point. For this description to work, however, it must be that the economic value we're interested in moving displays no hard physical limits in its transportation and communication. However much transportation costs fall, however low tariff barriers become, if it's an oil supertanker we're slinging back and forth, that's going to eat up real resources. By contrast, where such physical limits do not apply, it is useful to

think about the economic value as being *weightless*. Examples include modern finance and financial services, software and other elements of information and communications technology, electronic libraries and databases, media content, and intellectual property broadly construed. It is these parts of the economy to which falling transportation costs apply [and indeed drive those falling costs in the first instance]; it is then their rising importance in a modern economy that allows falling transportation and communication costs to matter at all.

The same circle of ideas helps shed light on the ever closer proximity of technology-producers and consumers. Most of what we buy and enjoy now has large chunks of technology embodied in ever less physical material. Time was, high-tech meant a faster, more whizz-bang spinning jenny pushing out better textiles that in turn got reworked into higher-quality clothes. Now, high-tech means the clothes, the software, the video content, the Internet delivery themselves directly encode the improved knowledge and information. It is that knowledge and information that we now value; their carriers are inessential and immaterial.

This identification sheds light on a number of important developments in the modern globalised economy.

One, the knowledge-driven economy is real and is here. This knowledge in economic life, however, is not always identical with the knowledge in science and technology. Lara Croft Tomb Raider is a weightless knowledge-product that we enjoy or we sell—its economic and physical properties make it a prototypical product in the new hi-tech knowledge-intensive economy. It is, however, a different animal altogether than a mathematical theorem or a scientific or engineering breakthrough. It is not knowledge that comes out of an R&D laboratory, at least not in the traditional sense.

Two, this move towards a weightless economy implies for business firms outsourcing and downsizing in the small but, simultaneously, agglomeration in the large. Because the distance between production and consumption is ever smaller, individuals with enterprise, a good idea, and not much else can have a go: Their reaching a market for their ideas no longer needs to be mediated through expensive large-scale bricks-and-mortar operation. The comparison is with, on the

one hand, hawking one's good ideas to, oh, the two or three businesses large and interested enough to want to implement them, or, on to the other hand, to the two or three hundred million consumers waiting on the other side of the Internet. Getting a penny off each of even a fraction of such a customer base, from one's special customised niche idea, will already do nicely. Thus, every week we hear of yet another rags-to-riches Internet business.

At the same time, however, the network externalities and scale economies in servicing global markets for these new hi-tech products make large conglomerates—with truly international reach—the operation of choice. Software and cable companies, telecommunications firms, banks, even staid old-fashioned ivory-tower academic universities, all in the weightless economy business, seek to operate or cooperate at ever larger scales. Evidently, there is room for successful enterprise at different magnitudes of operation, large and small, but leaving out the soggy middle.

Where does national policy-making situate in this canvas? Governments and nation-states, in my view, face much the same choices as do firms. Either cooperate internationally, and exploit the network externalities and scale economies from coordinating global reach; or operate in a niche, customising, identifying, and serving specific interests.

3 Conclusions

In this talk, I have described how Britain took the lead in and profited from globalisation and technological change over a great deal of the last 200 years. The world now, however, has changed.

I have described how the new technology and modern globalisation take a particular form. The key features are an increased disregard for distance, time, and other putative boundaries; and an increased proximity between technology and the consumer.

History has no record of anyone ever successfully holding back the tide of commercially-profitable technical progress or ever successfully closing off their society and economy to external influences. The

opposite, instead, is how almost all economies have succeeded. Identifying and then leveraging one's comparative advantage, rather than fearing these changes, should be the way forwards.

Almost all the examples I gave at the beginning of this talk show the intellectual and economic predominance of the US. However, nothing should be taken as granted. In the early 1990s, Finland's national income fell by a magnitude comparable to that experienced by many countries during the Great Depression of the 1930s. Today, observers acknowledge that compared to Finland Silicon Valley is, to use the vernacular, a Third World country in its use of advanced technology. If all that Britain had to choose between was Finland or Silicon Valley, then I'd say we're in pretty good shape.