Reviews in History
Published on *Reviews in History* (http://www.history.ac.uk/reviews)

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Review Number:
1008
Publish date:
Tuesday, 30 November, 2010
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ISBN:
9780691090108
Date of Publication:
2000
Price:
£20.95
Pages:
392pp.
Publisher:
Princeton University Press
Place of Publication:
Princeton, NJ
Reviewer:
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Ten Years of Debate on the Origins of the Great Divergence between the Economies of Europe and China during the Era of Mercantilism and Industrialization

1. Smith, Marx and Weber

Along with histories of power, histories of material life and economic growth are the most popular of metanarratives currently published in the growing field of global history. Indeed no surprise will be occasioned by the appearance in our times, of accelerated ‘globalization’, of histories seeking to encompass a ‘global economy’, dealing with chronologies going back millennia and written to expound upon the disparate levels of material progress achieved by tribes, societies, communities and national economies located on all the world’s continents. Such concerns continue to be the litmus test of the mission of global economic history to keep ‘humanity in view’. After all, most people, in most places for most of history have been preoccupied with obtaining food, shelter, clothing and other manufactured artefacts that they required to sustain either a basic, a comfortable and only latterly, an agreeable standard of living.

Traditions of historical enquiry into the wealth and poverty of nations began with Herodotus but modern paradigms for investigation need be traced no further back than to the towering intellects of two cosmopolitan, but perhaps equally ‘Eurocentric’ Germans: Karl Marx and Max Weber. Both scholars maintained a serious interest (admittedly as a counterpoise to Europe) in the evolution of the Indian, Chinese, American and Russian economies. However, Weber’s investigations into Oriental religions, philosophies, cities and states look far more serious than anything written by Marx and Engels.

The vocabularies and concepts borrowed by generations of historians from the corpus of writings left by Marx and Weber can no longer be presented as coherent theory. Nevertheless, it is still heuristic – when trying to understand material progress and relative decline across continents over long spans of time – to distinguish Marxian from Weberian approaches. The former has classically been concerned to investigate the potential for material progress embodied in distinctive 'modes of production' observed for different parts of the world. While the Weberian 'research programme' can be divided into two major strands of inquiry: firstly, a comparison of hegemonic systems of belief, (cultures) operating to promote or constrain personal and group behaviour in economic life; and coupled secondly, with an empirical analysis of how the political, legal and institutional frameworks within which economic activity is embedded has operated historically to foster or hinder economic development around the world.

In classical Marxian thought, the only mode of production capable of generating sustained material progress, 'capitalism', is based upon wage labour and the accumulation of capital. Marx found that the first transition from pre-capitalist to capital modes of production occurred first in Western Europe. Thereafter global historians (working within a Marxian tradition) have addressed his question of when and why did the transition occur there before considering the obverse question: what sorts of 'pre-capitalist' modes of production prevailed throughout Africa, Asia and the Amerindian Americas that delayed or arrested comparable transitions to capitalism upon other continents?

Recently a 'deviant' (or supplementary) Marxian paradigm has been elaborated in an impressive volume of research conducted by the World Systems School of Historical Sociology. This "School" maintains that the transition to capitalism (or commercial society) that led eventually to the establishment of successful industrial market economies occurred initially in Western Europe because Europeans reaped timely and decisive gains from intercontinental trade and the colonization of the Americas for some three or more centuries before the onset of the French and Industrial Revolutions. Europe's economic benefits from centuries of participation in *inter-continental* commerce and imperialism are broadly conceived to encompass positive externalities as well as a range of favourable political, institutional and cultural feedbacks and spin-offs connected to ever increasing flows of commodities shipped into European ports from all over the world, from across the Atlantic and Indian oceans.

Unsurprisingly, the World System Schools' emphasis upon the extension of markets for European exports to Asia, Africa and the Americas and above all its insistence on the pervasive significance of imports (embodying productive knowledge) from other continents has been contested. Classical Marxist scholars defend canonical texts concerned with progressive and non-progressive modes of production and thereby implicitly join forces with neo-classical economic historians who continue to regard the particularities of Europe's own history as the motor of its earlier transition to capitalism or commercial society. Parenthetically, and for this particular debate, neither of these representations, nor that other unresolvable discussion about continuous versus discontinuous transformations from one kind of traditional economic system to another, and ultimately more progressive, system seem to matter. What is now at issue is to specify and measure the significance of endogenous compared to exogenous forces promoting economic growth in one part of the world economy (Europe) and restraining a similar momentum on the continents of Asia, Africa and Southern America.

Unfortunately, Marxian scholarship concerned with Asiatic modes of production and with the presence, or absence, of peculiar forms of 'feudalism' found outside Europe now looks more theoretical than historical. Furthermore, (and perhaps because the tradition was ostracized and ossified during the Cold War) classical Marxism seems less influential than its Weberian counterpart in establishing the parameters, structure and vocabulary of a discourse concerned with 'restraints' which for several centuries operated to prevent Asiatic economies from following the 'European trajectory' which was leading towards divergent standards of living between the West and the Rest that became discernible by the 1700s and conspicuous over the course of the 19th and 20th centuries. Unfortunately, the ad hoc comments made by Marx on Asian societies are now regarded as little more than typical Eurocentric speculations of his time, which led generations of his followers down a blind alley in search of supposedly ubiquitous and unchanging Asiatic modes of

production.

Max Weber's erudition is more impressive. His approach, questions and topics for investigation have effectively set the parameters for the construction of global histories of material progress written in recent decades. He dealt with long spans of time, read widely about classical and oriental civilizations and used comparative methods in order to comprehend why capitalism arose in the West and not in the East. Reading, as he did, over chronologies covering millennia, he recognized that the economies of India and China displayed impressive scientific and technical precocity. Weber appreciated that Arabs and Asians had established sophisticated systems and efficient institutions for the conduct of internal and overseas trade long before European ships and merchants began to sail regularly into and around the Indian Ocean and China seas during the 16th and 17th centuries.

Weber remained less impressed than Adam Smith or Karl Marx, with the economic significance for European development of the discovery and colonization of the Americas. He was not inclined to rank the gains from trans-Atlantic trade and colonization above endogenous forces, operating over centuries of history to promote economic growth within Europe. Thus in line with classical Marxism, Weber retained an appreciation of how and why the accumulation of capital and the evolution of slave, through feudal to free markets for labour mattered as 'proximate' determinants of material progress within Western Europe.

For a growing band of scholars, concerned to include an analysis of intercontinental connexions in their metanarratives about the long run history of material progress, Weber elaborated upon themes that have exercised a powerful impact on modern stories told about the economic success of the West and the relative failures of the East over the past 400 years. Along with Montesquieu and other thinkers of the Enlightenment, Weber (and Weberians) believe that discernible contrasts in the institutional, ideological and legal frameworks within which economic activities (especially internal and overseas trade) were embedded in Europe compared to Asian economies had prevailed for several centuries and that marked differences in religious beliefs, family life, cultural conditioning, institutional frameworks and political systems promoted divergent paths of economic growth that eventually produced a clear divide within the world economy into affluent and poor nations.

2. The New Global History of 'Surprising Resemblances'

In recent decades, a modern generation of economic historians have carried forward the Weberian tradition of attempts to explain for what became for at least three centuries increasingly visible economic achievements of Western societies in a global perspective. Weber left them with an approach, a vocabulary and several suggestive hypotheses that have been accepted, modified and also rejected by two generations of post war and post colonial historical research. There are now libraries of books and articles dealing with 'Eastern' agricultures, industries, towns, commercial networks, communications, trade, science, technologies, cultures, business organization, taxation, state systems, government policies and cosmologies for the comprehension of nature covering the centuries since the Tang dynasty (618–907) – some based on research by historians from universities, not long emancipated from imperial rule. This impressive, but still less than comprehensive, volume of historical investigations has, moreover, been communicated to the West by specialists in area studies from North American, European, Australian and Japanese universities. Not long after the Second World War and during an era of decolonization, historians were offered an opportunity – provided by the accumulation of a large and sophisticated body of knowledge (long available about Europe and North America), but emerging on Asia, the Middle East and Africa and Latin America – to reposition their hitherto disconnected histories of wealth and poverty one against another in order to construct global histories of material progress that might have satisfied the aspirations of Montesquieu, Voltaire, Smith and their 'enlightened' followers and pleased Max Weber.

Clearly, and as a prelude to any scholarly analysis, and explanation, it will be necessary to date the divergence in living standards between the western and eastern ends of the Eurasian landmass because the assumption that unmistakable gaps in real incomes per capita and labour productivities (measured for the decade preceding the Great War) must have evolved and prevailed for centuries prior to that time, cannot

supported with hard economic data. Indeed recent historical research on Asia has produced some partial, regionally specific and still inconclusive and defective evidence to suggest that standards of living in Western Europe and *maritime* provinces of China and South India may not have differed perceptibly much before the late 18th century.

That contestable suggestion has led global historians, labelled as ‘Eurocentric’ by their opponents, to fall back upon unquantified ‘Weberian’ (and ‘Marxist’) assertions that the economies of ‘North Western’ Europe, were surely on potentially more promising trajectories for early transitions to efficient industrial market economies for ‘several’ centuries before even the more developed regions of Asia? Europe’s cultures, political systems, property rights, legal frameworks, regimes for the discovery and diffusion of reliable knowledge, commercial and financial organizations, trading networks, markets for commodities, labour and capital are conventionally represented as being altogether more likely, than anything discernible in Asian systems of production to have generated: preconditions for factories, mechanized industry and steampowered transportation by land and sea; for the generation of inanimate forms of energy; for the mechanization manufactories and reorganization of agriculture and commerce into concentrated locations and functional firms.

More than three decades ago, Marshal Hodgson (one of the godfathers of modern global history) opined that ‘all attempts to invoke pre-modern seminal traits in the occident to account for the divergence in living standards can be shown to fail under close historical analysis'. Two generations of post war research on India, China and South East Asia (synthesized in the recent writings by Fernand Braudel, Kirti Chaudhuri, Gunder Frank, Jack Goldstone, Jack Goody, John Hobson, Ken Pomeranz, John Reid, Kaoru Sugihara, David Washbrook, Bin Wong, Harriet Zurndorfer, et al) concur. From his own impressive and detailed comparisons of levels and types of economic development achieved by European and Asian economies during the early modern period, Braudel inferred that ‘the populated regions of the world faced with demands of numbers seem to us to be quite close to each other’. But there is, he observed, ‘a historiographical inequality between Europe and the rest of the world. Europe invented historians and made good use of them Her own history is well lit and can be called as evidence or used as claim. The history of non-Europe is still being written. And until the balance of knowledge and interpretation has been restored, the historian will be reluctant to cut the Gordian knot of world history’. One distinguished historian of Western Europe, David Landes, displays no such reluctance and his celebrated book, ‘The Wealth and Poverty of Nations’ (1998) elaborates over some 600 odd pages on an ‘historical record’, of ‘Weberian’ preconditions which he claims demonstrates why ‘for the last thousand years Europe (the West) has been the prime mover of development and modernity’.

Modern historical research, has, however virtually ‘degraded’ (or at least severely qualified) repetitions of Marxist and Weberian assertions that the political, institutional and cultural frameworks within which economic activities in Asia were embedded for centuries before the Industrial Revolution, differed from Europe in ways that clearly and *significantly impeded*: the evolution and integration of commodity and factor markets; the development of financial intermediation; the spread of private property rights; the operations of mercantile networks; proto-industrialization; and above all the commercialization of agriculture. What recent but different syntheses of whole libraries of historical research on the economies of Asia (as well as Europe) observe and document are not only a range of advanced and less developed regions across Western Europe, but (to use a now famous phrase by Ken Pomeranz) a ‘world of surprising resemblances’ across Eurasia. Surveys of monographic literature have effectively rendered a whole corpus of Marxian and Weberian interpretations redundant. It can no longer be taken for granted that for centuries before the Industrial Revolution, European economies experienced virtually exceptional transitions to capitalism; evolved discernibly more efficient legal, behavourial, institutional and political frameworks for the formation, integration and operation of markets, and thereby allowed for progress (albeit at a slow rate and with limited help from new technologies) down a path prescribed for in models of Smithian growth. Furthermore historians of pre-industrial Asia have also located and analyzed ‘cultures’ that encouraged industrious and ambitious households to transform their extra earnings into displays of possessions and luxuries. Their work reveals that, contrary to the expectations of Werner Sombart (and his modern European

followers), common attributes of material life appeared in too many cities, town and villages across the Eurasian landmass, for anyone to single out the 'rise of material culture' as something peculiar to the so called and uniquely 'acquisitive' and 'industrious' households of Western Europe.

Furthermore and before the era of liberal imperialism, (from the Opium to the Great War) states everywhere placed impediments in the path of Smithian growth that emanates essentially from the spread and integration of markets; and that endlessly repeated (endemic but always implausible) notion that dynastic and territorial rivalries among European states consistently provided more favourable (less unfavourable) conditions for the operation of market forces during the early modern era of mercantilism and warfare has also been undermined. More simplistic versions of the hypothesis conflate virtuous circles and cycles for development flowing from 'competition' with the destructive violence and rivalries of early modern European power politics. Notions (that have been floating around since Montesquieu) that the emperors and bureaucracies of despotic eastern empires ruled over the economies (and ergo their fiscal bases) in irrational ways that can be represented as more predatory, arbitrary and consistently and peculiarly malign towards Smithian growth now look increasingly obsolete historical scholarship.

In the recently reconstructed economic histories of a 'world of surprising resemblances' canonical accounts of Smithian growth – of European economies growing up gradually but inexorably on distinctive market led trajectories within their restricted and relatively underdeveloped promontory of Eurasia – look untenable simply because too many 'seminal' traits of the occident turn out to be not only ubiquitous, but prior features of the Orient. Perhaps such Weberian (and/or Marxian) perceptions will be revived and underpinned by further research and debate. Research (or even a renewed search among extant histories) might *delineate* and perhaps measure unmistakeable/incontestible differences in the scale, scope and intensity of Smithian growth across time and space. Meanwhile and as recent reconfigurations of Asian economic history become known and acceptable (to all but an anachronistic generation of historians and a-historical economists) and debate moves on from the realm of acrimony towards conversation, we may well witness a revival of more nuanced and carefully specified long run historical explanations for divergencies in productivity and living standards between east and west, that historians have long agreed became unmistakable over the 19th and stark during the 20th century, but which are disappearing today.

3. Revisionist Explanations for Delayed and Late Divergences Between Eastern and Western Economies

Meanwhile to suggest (as anti-Weberian revisionists do) that an unexpected and unpredictable conjuncture between East and West appeared quite suddenly in the late 18th century also remains too fragile to stand as a core hypothesis about long-run global economic development. That is so because revisionism offers three contested explanations for both this ostensibly 'late' and the 'great divergence'.

The first contention is that in different ways, for different reasons and along different chronologies, imperial governmental structures in the Orient became increasingly inefficient and incapable of providing their subject populations and territories with the good order, protection against external aggression and other public goods required to maintain satisfactory levels of private economic activity, market integration and innovation. In short, strategic and administrative defects afflicting the Safavid, Ottoman, Mughal and Ming-Qing empires, intensified through time and thereby made space for the rise of the West. Investigations into the nature, extent and significance of the political crises (clearly affecting three Oriental empires in the 18th century and China by the time of the White Lotus Rebellion) continue and may well lead to the kind of insights now coming on stream from comparative histories of early modern European states, concerned to contrast the evolution of political arrangements and policies conducive or obstructive towards economic growth and innovation within Western Europe. This debate about the constitutions of government and behaviour of states will only be taken forward by social scientists who know something about the histories and social scientists of political and other subordinate institutions, their diverse forms and the precise ways they interconnected with the economic activities of households, farms and firms not only in early modern Europe, but in Asia as well. Repetition of recycled enlightenment equations between republicanism, liberty and parliamentary forms of governance on the one hand and transitions to industrial market economies on

the other, seem less and less satisfactory. The theories, concepts and taxonomies now emerging in illuminating forms from neo institutional economics, need to feed into and be reformulated in the light of historical investigations into specific political, legal and institutional frameworks that promoted and restrained national, regional and sectoral rates and patterns of economic growth across the whole of Eurasia.

Secondly, and at the heart of the key revisionist explanation for divergence between East Asia and Western Europe, is a quintessentially classical growth story which is based upon an impressive array of historical scholarship investigating connexions and mechanisms derived ultimately from the writings of Smith, Malthus and Ricardo. For example, Pomeranz represents cultivable land as a relatively fixed factor of production and suggests that additions to the stocks of useful and reliable knowledge allowed only for incremental and limited technological progress. Upswings in population growth led (only *in extremis* and in some Asian regions) to Malthusian crises, but more commonly both in Western Europe and in the Ming-Qing Empire to constricting shortages of land intensive crops and agrarian raw materials, including: basic foodstuffs, timber utilized for manufacturing and construction, wood converted into fuel and energy for both industrial and domestic purposes and fibres derived from plants and animals for purposes of transformation into textiles.

Over some two or more centuries, before 1750, when population growth rates in Europe and China advanced at comparable rates, the Chinese economy coped with the ‘pressure of numbers’ basically by intensifying labour in order to relieve shortages of food and agrarian raw materials. For Pomeranz, and other scholars (who reject Eurocentric explanations for the great divergence cast in terms of Smithian growth), the problem is to explain how and why European economies did not proceed down the same path as China, but instead avoided diminishing returns to labour engaged in agricultures and proto-industries and gradually diffused mechanized techniques of production across manufacturing and transportation. Pomeranz reposed the key question very cogently: ‘why’ he enquired, ‘did England’s economy not continue to develop like the economy of the Yangzi Delta?’ In other words modern revisionism insists, as Marc Bloch advised long ago, on carefully specified and *reciprocal* comparisons of economics with comparable geographical endowments.

The answers offered by Pomeranz are carefully supported with a reflexive reading of modern scholarship on China and Europe, and refer to contrasts between endogeneous and exogeneous potential for the avoidance of diminishing returns to land and other natural resources available to China and to Europe. They suggest that after millennia of successful land management, Chinese agriculture stood closer to its production possibility boundary than European agriculture. Possibilities for coping with population pressures by extensions to margins of cultivation and cropping, through tenurial reform, investments in the infra-structure for intra-regional trade and specialization, by reallocating pasture to arable, improving the control of water, supplies implementing efficient food stabilization policies, etc., had already been carried further in China than Europe.

Europe not only enjoyed some discernible (alas, unmeasurable) opportunities for taking up ‘slack’ within the agrarian system, but the potential gains from trade and specialization in foodstuffs and raw materials within northern and southern, eastern and western parts of our continent remained greater than the long exploited patterns of intra-regional trade within the Chinese Empire. Indeed (and as demographic pressures intensified over the 18th century), the potential for trade diminished because, unfortunately, rates of population increase became faster among China’s poorer, less urbanized, provinces of primary production. The empire’s northern and inland regions then adjusted by reallocating surplus agricultural labour into proto-industry; consuming higher proportions of both the food and agrarian raw materials produced within their boundaries and by importing less manufactured goods. Thus China’s precocious Smithian growth, already high levels of trade and path dependency based upon a mix of labour intensive crops (particularly rice), rendered the imperial economy more ‘ecologically vulnerable’ than Europe to population pressures when they intensified over the century before the Industrial Revolution.

Nevertheless, revisionists insist (and have traduced a not entirely sufficient or convincing body of evidence to support their view), that Britain and other the organic economies of Western Europe were also on a similar trajectory of diminishing returns and rising costs for the production of food, fuel and fibres, but the

‘core’ *postponed* the onset of more severe ecological problems and shortages during the early phases of industrialization in the 18th century and *circumvented* them over the 19th century by exploiting two ‘windfalls’ of massive significance, namely: endowments of cheap and accessible energy in the form of coal, and the fecund soils and abundant natural resources of the Americas.

In bringing to the foreground the contribution of the Americas, revisionists have in effect returned our attention to exogeneous (overseas) sources of Western Europe’s economic advance, underlined by Adam Smith and Karl Marx and reified in recent decades into a ‘*primus mobile*’ by Wallerstein, Chase-Dunn, Blaut, Frank, Gills and others we may group in the World Systems School of Historical Sociology.

But Wrigley and an earlier generation of British economic historians had already explored the profound significance and widespread ramifications of endowments of cheap fossil fuels in allowing Britain to escape (before the rest of Europe) from potential ‘Malthusian traps’. Although precise calculations are difficult to make and several figures (including revised estimates from Pomeranz) jostle for recognition the tradition of energy accountancy as a way of explaining increasing and decreasing returns go back to the 19th century. Furthermore, it is not difficult to accept that school's major conclusions, namely that the substitution of coal and steam power to provide for the heat supplied to Britain (and other European economies) by oxen, horses, wood and manpower for various benchmark decades after the Napoleonic Wars, would (counterfactually) have absorbed ever increasing and implausibly large shares of Europe’s virtually fixed supplies of agricultural land. Furthermore, all forms of heat intensive industry and transportation (metallurgy, glass, pottery, beer, sugar and salt, refining soap, starch, railways and ships) benefited from the substitution of coal for other more costly and less efficient organic forms of energy. Feedbacks and spin-offs from the mining, transportation and utilization of coal, including the construction of canals, precision engineering and, above all, the impetus provided by coal for the development, improvement and diffusion of engines for the provision of energy from steam, remain impossible to calculate. They became central for Europe's aptly named ‘age of steam’. Yet that age (1846–1914) remained imminent rather than dominant during the first stages of the industrial revolution, which occurred decades before that particular golden age of liberal capitalism.

Furthermore (and to revert to Bloch’s reciprocal mode of comparative history), the question of why China failed to exploit its known and very considerable deposits of coal, and thus become more like England, Belgium and Westphalia is, perhaps, not pursued in the depth that such a salient contrast demands. Chinese coal may or may not have been more combustible and less well located than European deposits, but it stayed below ground as an abundant and presumably as a potentially more efficient source of energy, compared to the manpower, wind and water that the Chinese, Japanese and other Asian economies continued to utilize throughout the 19th century. References to geology, geography and transportation problems do not seem to be sufficient to explain why China remained virtually an outsider throughout the age of steam?

4. The Significance of Intercontinental Trade for European Transitions to Industrial Market Economies

Finally, (to return to Adam Smith and overseas expansion) europeans (not Chinese, Arabs or Indians) discovered conquered, infected, plundered, colonized and eventually established mutually beneficial, commercial relationships with the Americas. That protracted enterprise should not be designated as ‘peripheral’ (as I suggested, before climbing onto a learning curve some 18 years ago) nor reified (as it continues to be in the writings of Immanuel Wallerstein, James Blaut and the world systems school of historical sociology), as the ‘motor’ driving Europe's benign transformation towards successful industrial market economies over the course of the 19th century.

Material benefits from the rediscovery of the Americas did not come on stream for a long time after 1492, and accrued disproportionately to two latecomers and free riders – the Netherlands and England. No doubt quantitative exercises in national accountancy designed to measure the macro-economic significance of transatlantic commerce for either the development of Europe as a whole, or even for particular countries such as the Netherlands or Britain, (most persistently and profitably involved with expansion overseas) are

fraught with conceptual and statistical difficulties. No economic historian could deny that the establishment of (colonies regulated along mercantilist lines) together with slave plantations in the New World, turned the terms and conditions for trans-Atlantic trade in favour of Europe; compared, that is, to commerce with Asia; and even more clearly to a counterfactual scenario, whereby the settlement and the build-up of viable and independent economies in the Americas depended upon unregulated, but unprotected private investment and the immigration of free labour from Europe rather than the enslavement of millions of Africans. Furthermore, recent research into world trade in bullion has clarified the importance of the complex and multifaceted role played by Chinese, Indian and South East Asian demand for New World silver in maintaining the profitability and momentum of European investment in the Americas for some two centuries before the Industrial Revolution. That investment also promoted an entirely gradual movement towards the integration and growth of an embryonic global economy, within which the separated maritime towns and regions of Europe, Africa, Asia and the Americas interacted – usually with more positive effects for European than for Asian development.

Nevertheless, a national accounts framework continues to be the only viable perspective available to historians who wish to specify and quantify the overall significance of variables, such as intercontinental exports and imports for national (and European wide) rates of capital formation and structural change and innovation from 1492 to 1815. If (as Paul Bairoch's imperfect and badly referenced data suggest), European exports to other continents and imports from the Americas, Asia and Africa are but 'small' percentages of the total value of European output, then inferences that either the Americas (or the none-European World as a whole) continued, as late as the end of the 18th century, to play a comparably minor role for the advance of the West could only be meaningfully challenged in two ways. First, (and this logic could be compelling), in early modern Europe, economic growth took place as specific margins and *if* a large share of the annual *increment* to total European (or to particular national products) can be connected directly or indirectly to intercontinental commerce, then that over-publicized and glamorous sub-sector of several maritime economies might indeed be plausibly represented as 'highly significant' for the economic advance of the West. Quantitative tests could then relate the gains from intercontinental trade to 'net' capital formation and to aggregated volumes of potentially 'tradeable outputs' in order to manufacture ratios that are more relevant for locating, dating and comprehending the sources of economic growth from, say, 1500 to 1800. Revisionists, who take their perceptions from Adam Smith, will prefer to shift the focus for concentration to Britain, which over time became more involved than any other European economy (including the Netherlands) with intercontinental commerce and colonization. Nevertheless that shift looks far too convenient, simply because the 'ratios of significance' for a precocious and quintessentially 'British' Industrial Revolution (diffused as traditional and now degraded stories would have us believe with lags onto the mainland) will become that much larger and rhetorically more persuasive as numbers, designed to represent the importance of the Americas (and via their connexions with Asia) for transition of the West to modern industrial economies. Britain cannot represent the West and its transition to an industrial market economy and was never a paradigm for its rivals on the mainland to follow.

Another route that can be followed in order to make the case in a less parsimonious way, but which comes closer to the details of micro dynamism favoured by economic historians, (like Fernand Braudel, Immanuel Wallerstein and Ken Pomeranz) is to construct narratives built around the array of imports that Europeans transhipped from the New World and Asia back into their famous maritime ports (Lisbon, Seville, Cadiz, Antwerp, Amsterdam, Bordeaux and London). Imports represent tangible manifestations of the 'bounty' that Europe eventually obtained from investments in commerce and colonization in the Americas and (by way of extension and linkages) to gains from trade with Asia as well.

American and Asian imports included: bullion, foodstuffs, manufactured goods, industrial inputs and raw materials. Imports, obtained in very large part through the exercise of coercion designed to secure favourable terms of trade, increased in volume with the incorporation of maritime Atlantic economies into global commerce, slowly at first, but more rapidly as the infra-structure and organizations required for long distance trade were built up over the 16th and 17th centuries. Histories of spin-offs and externalities have been woven around most of the major imports from other continents carried into European ports. Their

connexions to the maintenance and extension of benefits from long established patterns of intra-European trade, to the foundation of new food processing industries, to geopolitical rivalry and state formation, to the growth in the wealth and powers of merchant oligarchies, to the rise of maritime cities, to changes in science, technology and the arts; indeed to almost all aspects of European economic, political and urban life have been elaborated in numerous histories of sugar, tea, coffee, cocoa, maize, rice, tobacco, tropical fruit., tomatoes, beans, chillies, potatoes, timber hardwoods, dyestuffs, wax, fish, oils, cotton fibres; quinine, curveé sarsparilla, pecal, laxatives; porcelain, silk and cottons, textiles and above all to silver and gold. That bibliography is long. Volumes imported fluctuated but increased on trend. Points of entry and distribution for Asian and American imports changed through time from city to city and from country to country. The problem is how to connect imports from other continents to narratives (or models) of early modern European development in which national economies are carried forward to plateaux of possibilities from where transitions to industrial market economies became probable?

Fernand Braudel, Giovanni Arrighi and Charles Kindleberger find the key mechanisms they wish to underline in a geopolitical matrix of dynamic circuits between maritime cities, big merchants and nation states. Pomeranz devotes his research and analysis to two possible macro-economic connexions. One operates through a thesis recently elaborated by Jan de Vries about Europe's pre-modern 'industrious' revolution, which emanated from decisions by myriads of households to work harder and to allocate more of the labour time and other resources under their control to production for markets. Behind such decisions made by households are shifts in tastes or propensities to consume, stimulated by the availability of 'exotic' and 'addictive' foodstuffs – such as sugar, tea, coffee, cocoa, tobacco, tropical fruit, tomatoes and spices; pharmaceuticals, opiates and luxurious but affordable Asian manufactures such as silks, jewels and porcelain, and above all, cottons from the East. In brief, the rise of material culture in Europe has been linked, in carefully specified ways, to intercontinental trade and colonization to changes in consumption and investment and to the patterns of work by European households.

Nothing comparable occurred in Asia because the consumption of tropical groceries, porcelain, silks and cotton textiles and other indigenous products had already diffused down the social scale. In the Orient, imperial states had virtually no fiscal or other interest in the promotion of commerce and colonization that might in the fullness of time pay for itself in the form of imported and taxable luxuries. At the same time, Chinese and Indian demands for foodstuffs and manufactures produced in Europe remained limited in volume and scope. Although the new world silver that European merchants exchanged for Asian foodstuffs, manufactures and raw materials presumably promoted monetary transactions and internal trade in China and India in the same way that American bullion did within Europe?

Revisionists make the most of a not unconvincing case for symbiotic linkages between the luxurious, exotic, addictive and desirable characteristics embodied in imports from Asia and the Americas to: the industrious revolution; the maintenance of European commitments to intercontinental trade; the enslavement of Africans; and flows of investment into colonization and plantations in the New World. They cite literature which locates the impetus to development from urban processing industries (sugar refining, coffee roasting, tea and tobacco blending, etc.) in maritime cities, heavily engaged in trans-oceanic commerce. They are familiar with histories that explain how the manufacture of cotton textiles in Britain developed over the 18th century within a matrix of trade with India, the import of cotton fibres from slave plantations in the Americas, state involvement with its East India company and the promotion of a functional process of import substitution by English Parliaments from 1660–1721.

Nevertheless, it will be heuristic to confront this new and stimulating narrative which foregrounds the role of Asian and Americas imports in bringing about divergent economic developments between Western Europe and East Asia. First the share of the calorific intake supplied by sugar, tea and other tropical groceries could only have been small. Growing proportions of British merchant ships were indeed built in North American colonies (and in Asia) even before the French blockades cut off supplies of Baltic timer and other naval stores (pitch, tar and hemp) during the Napoleonic Wars. Nevertheless, established patterns of East-West and intra-European trade in timber reverted to normal after that war, and iron rather than American forests alleviated European shortages of wood for construction and for shipbuilding in the 19th

century.

Although a statistically more compelling case for the substitution of cotton fibres grown on slave plantations in the Americas, for supplies of flax, hemp, silk and wool grown in Europe can be made. Once again, the *scale* of imports in relation to total consumption of indigenous fibres becomes important later rather than earlier in the 19th century. The suggestion that supplies of cotton wool from the Americas had long been 'virtually indispensable' for the development of mechanized cotton textile production in Europe is not convincing because an equally plausible counterfactual scenario can be formulated to suggest that the accumulating and steadily improving capacity to produce mechanized cotton yarn and cloth first in Britain and then elsewhere on the continent, would have stimulated other primary producers in Asia (even China) and the Middle East to respond to European demand for cotton fibres.

New economic history consigned axioms of indispensability to the realms of improbability four decades ago. Yet there is certainly a more nuanced but less dramatic argument to be made for the importance of supplies of slave produced cotton fibres, namely that cheap raw materials promoted the growth of one major manufacturing industry in Europe and that the engineering problems involved in the mechanization of spinning and weaving cloth were more easily solved with fibres with the tensile properties of cotton, than thrown silk (not so clear!), wool, flax, and hemp. Nevertheless, in rather short compass the problems of mechanizing all major processes in the production of cloth made from the entire range of natural fibres were solved. By then supplies of cheap flax from Russia and wool from Australia, Argentina and other primary producers come on stream to supply Europe's textile industries with all the fibres that they could process mechanically.

5. Divergence and Convergence

The problem of 'the Great Divergence' between Western Europe and East Asia is important for social scientists to address simply because it is still with us as a North-South divide. We can agree that the early shift from organic to inorganic forms of energy provided Europe (particularly Britain) with an early start. Nevertheless, and for several reasons, the other leg of the revisionist explanation (which follows the line taken by Adam Smith, Karl Marx and the World Systems School) that the discovery, conquest and exploitation of the Americas also generated comparably large windfall gains and allowed Western Europe to circumvent the problems of diminishing returns afflicting oriental empires carries less conviction.

First of all, classical diminishing returns to land seem less applicable to India and South East Asia than to China. Furthermore, the convergence of Japan (despite a poor endowment of natural resources), undermines histories based on classical growth models. Secondly, and on any recasting and reconfiguration of the data, now available to measure the significance of intercontinental commerce, standard exercises in national income accountancy are unlikely to provide persuasively large ratios. Meanwhile the now fashionable post-modern retort that large outcomes could flow from small changes to exogeneous variables, simple destroys any claims that economic history might have to precision. We might rhetorically enquire if small outcomes could flow from large changes to endogenous variables?

Thirdly, it is not at all clear that the arable land, pastures, forests and seas of Western Europe, together (and through trade) with its periphery to the East and South could not have sustained the rates of population growth, industrialization and urbanization experienced say, down to the mid-19th century without massive imports of primary produce from the Americas. To hark back to the central point of Mark Elvin's classic book, was it not the case that China had exhausted more of the potential gains from intra-regional trade, intensification of labour inputs and agrarian improvements well before the growth of its population accelerated in the 18th century? Elvin's thesis can moreover, be reformulated in the language of classical economics. Compared to Western Europe, just how far were China (and other regions of Asia) away from their (technologically constrained) production possibility boundaries before 1750? Classical economists (Smith and Malthus) both perceived that China had proceeded further and had continued to move faster down the path of diminishing returns.

Leaving coal aside, the intercontinental trade data suggests that Europe possessed the foodstuffs and agricultural raw materials required to persist with Smithian growth and the urbanization and industrialization of the workforce without recourse to massive imports of primary produce from the Americas until well into the 19th century. Meanwhile, the accumulation, testing and application of a body of reliable knowledge required to carry the mechanization and transformation of industry and transport, the deployment of steam power, urbanization and reorganization of finance and commerce had proceeded a long way and perhaps beyond a point of no return – or what historians of China refer to as involution.

With these observations, which is concerned with the unavoidable and important demarcation of relevant chronologies in place, I wish to underline a distinction that has perhaps not been made clearly enough throughout the modern debate about inter-connexions between 'The Industrial Revolution' and 'The Great Divergence'. 'The Industrial Revolution owed something – but probably not as much as Adam Smith suggested to the incorporation of the Americas into global commerce. That remains clear, if we look again at the volume and array of imports entering European ports before 1846. On the whole (and with the conspicuous exceptions of maize, potatoes and cotton fibres) imports merely 'supplemented' supplies of the continents' own basic foodstuffs and raw materials. The cargoes carried by ships into European ports were dominated for centuries by tropical groceries and manufactured luxuries. At most they embodied attributes that scholars (who 'represent' the 'rise of material culture', 'industrious revolutions' and the multifaceted role of grand merchants engaged in oceanic commerce as 'preconditions' for Western Europe's early industrialization) find appealing to place at the centre of their narratives about the origins of the North-South divide.

Agreed the Great Divergence and the Industrial Revolution form part of an interconnected narrative and the degree of divergence in labour productivities and real incomes between Europe in China, that had so clearly appeared by 1914, looks inconceivable without the massive supplies of basic foodstuffs and raw materials imported from the Americas and other primary producers. But since those supplies came on stream over the second half of the century, questions of what started and what sustained the Industrial Revolution should not be conflated.

In most of its essentials, the Industrial Revolution which demarcates the beginnings (sources?) (origins?) of divergence had appeared several decades earlier. During its early stages tenuous and not highly significant connexions can be constructed between intercontinental commerce on the one hand and the substitution of coal-based forms of heat and power for traditional forms of energy derived from wood, wind, water, animals and human muscles on the other. Some elements of early and gradual mechanization of industrial processes (particularly for textiles can be linked to trans-oceanic trade, but again the connexions still seem more tangential than central. There are missing elements in current explanations for divergence which would be concerned with 'regimes' for the production and diffusions of useful and reliable knowledge in Europe and China. Technology really mattered for the Industrial Revolution and *if* the English and follower economies on the mainland might well (but for coal and close involvement with the Americas) gone the way of the Yangzi Delta, then why has even that commercialised and advanced region of the Manchu Empire taken such a long time to regain the economic rank and status it held in the world economy in the mid-18th century and is regaining today?

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