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LABOUR-INTENSIVE INDUSTRIALIZATION IN GLOBAL HISTORY: A REVIEW ESSAY

Ewout Frankema¹ 

Abstract

In *Labour-Intensive Industrialization in Global History*, 11 leading economic historians explore whether East Asia's pathway into modern economic growth can be meaningfully characterized as a trajectory of 'labour-intensive industrialization', a route distinct from the North Atlantic capital-intensive path as well as the more diffuse paths of industrialization in the labour scarce regions of the Southern hemisphere. This review essay situates this collective volume in the wider literature on modern economic growth to stake out its main arguments. It proceeds with an integrated overview of the main chapters to discuss some of the shared conclusions as well as some of the internal disagreements. It concludes with some critical reflections on the viability of the concept of labour-intensive industrialization, as well as the possible implications for areas such as Sub-Saharan Africa, which have largely remained outside the global diffusion of modern manufacturing.

Key words: Industrialization, factor endowments, global history

JEL Codes: N30, N60, O14

Introduction

Except for a few city-states that thrive on the sale of international financial and business services, there are at least four reasons to believe that modern economic growth – i.e., GDP per capita growth driven by sustained labour productivity growth – requires the development of modern manufacturing of some sort. Modern manufacturing, that is, the machine-based processing of raw materials into intermediate or final products with the partial use of inanimate (fossil) energy sources, tends to involve more capital per worker and higher degrees of

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specialization than most agricultural or service sector activities. It requires specific technological and organizational capacities and human skills, which can spill over to other sectors and support cross-sector investment flows. It requires backward and forward linkages, tying the production of agricultural commodities and services together in stronger and more extended value chains. And last but not least, by enhancing diversification of jobs and income flows, modern manufacturing creates a more solid economic foundation to prevent brain drains, absorb trade shocks and accommodate fiscal strains (Bénétrix et al. 2015).

It is thus not surprising that virtually all of the (formerly) developing countries have attempted to kick-start industrial growth at some point in the previous century. In fact, very few governments, if any, have leaned back to see how markets would promote the modernization of handicraft production. Industrialization targets were prominent in the grand schemes of socialist economic planning, as well as in the ideologies of staunchly capitalist regimes that had similar aspirations of ‘national’ progress. The degree and nature of state intervention in support of industrialization has, of course, varied widely across space and time, and so have their comparative rates of success. What determined these successes? To what extent were industrial policies conditioned by pre-industrial trajectories of economic development? And to what extent were endogenous trajectories of pre-modern industrialization – which I will collectively label as ‘industrious development’ – shaped by different endowment structures, providing an alternative route into modern manufacturing than the North Atlantic path?

In *Labour-Intensive Industrialization in Global History* (LIIGH hereafter), 11 leading economic historians set out to explore these questions, focusing in particular on the supposedly labour-intensive East Asian path in contrast to the capital-intensive path of industrialization in Western Europe. This collective volume is timely, because the global diffusion of industrial technology accelerated in the late twentieth century and has provoked fundamental reinterpretations of present-day processes of economic convergence and economic divergence during the past centuries (Gunder Frank 1998; Pomeranz 2000; Morris 2010). Although the idea of the *rest copying the West* has received criticism from various theoretical angles, alternative conceptualizations of long-term growth trajectories have remained highly contested. The issue is complicated. The current global income distribution picture offers many more shades of grey than it did in the 1950s or even in the 1970s. Making sense of the temporal and spatial unevenness of post-1960 catch-up growth appears much harder than understanding how industrial technologies gave the West a formidable head start in the long nineteenth century (Bourguignon and Morrison 2002; Milanovic 2005; Deaton 2013). As the editors, Gareth Austin and Kaoru Sugihara point out, there now is a need to answer

not only the traditional question of why some parts of the world are poorer than others, but also the new question of how so much of the world has either achieved, or made striking progress towards, levels of manufacturing output that used to be the preserve of a small minority of countries. (1)

This review essay situates this collective volume in the wider literature on modern economic growth to stake out its main questions and arguments. It proceeds by offering an integrated overview of the various contributions to this volume, pointing to shared conclusions as well as some internal disagreements. The final section offers some critical reflections on the viability of the concept of labour-intensive industrialization and its implications for areas such as Sub-Saharan Africa, that have so far failed to connect with the global diffusion of modern manufacturing.

The ‘plural paths’ thesis

The main assertion of the ‘two-paths’ thesis as originally formulated by Kaoru Sugihara (2003, 2005, 2007) is that different proportions of labour, land and capital initiated a process of economic divergence between East Asia and Western Europe before the industrial revolution that did not manifest itself primarily in growing Eurasian income gaps, but mainly in the relative intensities with which these factors were employed in economic reproduction. Variations in factor intensity determined choices of production technology, but also shaped the wider economic and social organization of production, including shared norms and values regarding the household allocation of labour, attitudes towards work on and off the farm, and the organization of capability-enhancement mechanisms of labour. In *LIIGH* Austin and Sugihara extend the ‘two-paths’ thesis into a ‘plural paths’ thesis to account for the possibility of multiple paths of industrialization, but they take the ‘labour-intensive path’ as point of departure:

The term ‘labour-intensive’ denotes the type of industrialization, seen typically in East Asia but partially present in many other parts of the world, which utilized labour, rather than capital or land (or other natural resources), as a major source of competitive advantage in relation to the world economy. Specifically, the labour-intensive approach to economic development, including industrialization, means a preference for maximizing the ratio of inputs of labour to inputs of cooperating factors. It is therefore manifest in choice of production technique and in the way in which other resources (land or capital) are handled. (2)

This definition hinges on the notion of competitive advantage in relation to the world economy. For if ‘modern’ manufacturing entails the machine-based processing of raw materials into intermediate or end products with the partial use of inanimate energy sources, then it is not obvious how this can be labelled as labour-intensive. Substituting fossil energy for human and animal labour power is essentially a labour saving process of economic change, that is to say, labour need not be saved in absolute terms as industrial expansion may create more jobs than it replaces, but in relative terms it raises the share of capital input per unit of production. Sugihara thus contends that ‘labour-intensive industrialization’ can only be present in a historical context where the alternative, ‘capital-intensive industrialization’ has preceded it.

That said, Sugihara contends that the development of labour-intensive and resource-saving industrial technology was crucial for the global diffusion of industrialization. Without a competitive advantage in labour costs it is difficult to see how industrialization could have progressed beyond the North Atlantic space. For new entrants in global manufacturing markets it would have required a single leap to the technology frontier to compete with incumbent Western firms. In other words, labour-intensive industrialization is a phenomenon well worth studying, because it has softened the sharp edges of the yawning global income gap of the modern era. The study of labour-intensive industrialization thus helps us to understand how an era of global economic divergence could transform into an era of global economic convergence.

The basic idea that relative factor proportions shape choice of technique is of course not new. It has long been argued that differences in factor proportions *within* the North Atlantic core gave rise to different paths of industrial technology, skill formation and labour productivity levels. According to Habakkuk (1962) the high wage levels in Antebellum America that resulted from land abundance and labour scarcity, stimulated the adoption of labour-saving technologies in a specifically 'American' system of manufacturing as opposed to a more labour-intensive system in Britain (cf. Broadberry 1997). As such, the East Asian path of labour-intensive industrialization may simply be placed at one end of a linear spectrum where the US sits at the other end.

However, there is more to the 'plural paths' thesis than quantitative differences in capital-labour ratios alone. Sugihara contends that the labour-intensive path involved important qualitative differences, extending beyond the mere technological features of productive organization. These differences are revealed in distinct social norms governing the allocation of household labour, strategies of reproduction, perceived age and gender roles, and inter-generational transfers of knowledge and skills. These aspects contributed to a multifaceted improvement of 'labour quality' that has historical roots in the centuries before modern manufacturing took off in the West. The East Asian path of labour-intensive industrialization was thus shaped by an endogenous trajectory of industrious development, which was subsequently influenced and transformed by the arrival of Western industrial technology. Instead of replacing this path, though, it merged with it, and eventually toppled it. It was endogenous because it had been shaped by *local* endowment structures.

The idea of qualitative differences in trajectories of industrialization is not new either. Gerschenkron (1962: 7) already pointed out that processes of industrialization in 'backward' European countries, such as Tsarist Russia, differed from the leaders

not only with regard to the speed of development (the rate of industrial growth) but also with regard to the productive and organizational structures of industry which emerged from those processes. Furthermore, these differences in the speed and character of industrial development were to a considerable extent the result of application of institutional instruments for which there was little or no counterpart in an established industrial country. In addition, the

intellectual climate within which industrialization proceeded, its 'spirit' or 'ideology', differed considerably among advanced and backward countries.

Gerschenkron argued that 'economic backwardness' could only be overcome if the state would step in to lift the barriers to industrial development; barriers that were ingrained in economic and social backwardness. According to Gerschenkron, the state had to take the lead in the development of physical infrastructure (especially railways) and a banking sector that could meet the capital requirements of industrial enterprises. He reasoned that for private entrepreneurs the possibilities of engaging in collective action to overcome these barriers would be too limited. However, the gradations in 'backwardness' Gerschenkron observed between nineteenth-century Germany and Tsarist Russia, demanded different degrees of government intervention to jump-start industrialization. Despite his scepticism regarding the effectiveness of Russian state policies, which he qualified as corruptive, inefficient and anti-democratic, Gerschenkron maintained that the only way to overcome inadequate physical and financial support structures ran via the state.

The 'plural paths' thesis can thus be situated in a long tradition of economic historical thought on multiple trajectories into modern economic growth. The main contribution of *LIIGH* is that it brings back the role of labour into the analysis and situates the East Asian 'path' in a truly global comparative framework. By doing so, it confronts Gerschenkron's argument that late industrializers can only catch up by state-directed increases in capital investment with a radical alternative: private investments in labour. Whether this implies that the role of the state in labour-intensive industrialization is of limited importance, is a question I will return to in the final part of my essay.

Rethinking Eurocentrism in global economic history

Japan was probably the first industrializing country outside the North Atlantic. It adopted modern manufacturing technologies before the close of the nineteenth century and at a pace that was comparable with many of the late industrializers in Western Europe, such as Germany, the Netherlands and the Scandinavian countries. In India 'modern' textile manufacturing technologies had been introduced under British rule in the second half of the nineteenth century as well. In the twentieth century modern manufacturing activities spread to Japan's former colonies Taiwan and South Korea, to China and to the wider South East Asian space (Singapore, Malaysia, Philippines, Thailand, Indonesia, Vietnam). This 'flying geese' pattern of Asian manufacturing growth has given impetus to a large literature trying to identify the root causes of the Asian economic renaissance (Amsden 1989; Worldbank 1993; Kohli 2004). Economic historians have contributed to this literature by exploring comparative colonial legacies (e.g.,

Booth 2007) and digging deeper into the historical origins of industrial and pre-industrial growth (e.g., Hayami 2004).

But Asia's resurgence also forced economic historians to rethink *Eurocentric* accounts of global economic development (Arrighi et al. 2003). In the wake of seminal studies such as Edward Said's *Orientalism* (1979) and Eric Wolf's *Europe and the People Without History* (1982), questions were raised about the transferability of (quantitative) economic concepts developed by Western scholars to study economic developments in Asia. The need for making 'reciprocal comparisons' became a central aspect of the so-called Great Divergence debate (Pomeranz 2000; Sugihara 2003, 2005, 2007; Austin 2007; Bin Wong and Rosenthal 2011).

LIIGH takes a position in this debate, by exploring a hypothesis that goes explicitly against the Eurocentric account of global economic development: the idea that the 'rest' was bound to replicate the path of the 'West' by copying whatever was developed there. This idea is most closely associated with the stage theory of growth developed by Walt Rostow (1960). Building on growth models of the 1950s, where capital was singled out as the crucial variable (Solow 1956), Rostow (1960) held that the capacity of poor countries to accumulate capital was the key to economic 'take-off'. Once pre-industrial economies were able to raise their saving rates, they would be able to raise capital investments, create and re-invest surpluses and follow the path to the global technology frontier that had been pushed outward in successive stages of Western industrial development.

The optimism about the chances of 'catch-up growth' received further impetus from Arthur Lewis's (1954) point that the labour surpluses of developing countries created a major competitive advantage. Large pools of unskilled labour tied to subsistence wages offered unprecedented opportunities for labour-cost competition. Lewis reasoned that the outflow of labour from the 'traditional' rural sector, with negligible marginal productivities, into the 'modern' urban sector, with considerably higher levels of productivity, would eventually determine the pace of economic development. Until the labour surpluses were fully absorbed, subsistence wages would keep offering this competitive edge. The cost of growing income inequalities between the owners of labour and capital would be transitional, adhering to the logic of the inverted U-curve that Kuznets (1955) suggested one year later.

The genesis of 'development economics' as a sub-discipline of economic science thus corresponded with a strong focus on the development implications of relative factor proportions, but by doing so, it also helped to establish a black box of growth accounting residuals: the role of economic geography, culture, ecology, institutions, social capital and even human capital were subordinated to macro-processes of structural change. The eurocentrism of this theoretical perspective rested in the implicit idea that cultural or institutional differences between the *West and the rest* would play a minor role in the adoption of Western methods and techniques of capitalist production.

Neo-institutional economists formulated a powerful critique of this neo-classical conception of global economic development, but they had surprisingly

few problems with the Eurocentric aspects of it. According to the neo-institutionalists, the spread of industrial technology to the non-Western world hinged on the adoption of the entire *package*, a package that included liberal market institutions, underpinned by Western conceptions of private property rights and rule of law (North and Thomas 1973; North 1990). Neo-institutional economics has been very effective in reopening the black box of growth accounting residuals, but at the same time they compounded the Eurocentrism of theory with a Eurocentrism of agency. The now famous accounts of the global diffusion of Western ‘developmental’ and Western ‘extractive’ institutions developed by Acemoglu, Johnson and Robinson (2001, 2002), entirely neglected the roles of indigenous agency and non-Western histories as relevant factors in long-term institutional, and for that matter, global economic development (cf. Acemoglu and Robinson 2012).² Indeed, even in those areas where Europeans refused to settle, they managed to ‘reverse the fortunes’ of non-Europeans through the transplantation of extractive institutions enforced by ‘absolutist’ colonial – read European – rulers. In a more recent paper with the unambiguous title *The European Origins of Economic Development*, Easterly and Levine (2012) argue against the institutional view, claiming that *direct transfers* of technology and knowledge via European settlers were far more important than the institutions they transplanted across the globe. Their regressions ‘demonstrate’ that 47% of world GDP at present can be explained by these presumably unilateral flows of technology and knowledge from Europe to all those regions without history (see Frankema et al. 2014 for a critique).

The ‘plural paths’ thesis takes a firm stance against Eurocentric conceptions of global industrialization. It seeks to understand how Western industrial technology fed into endogenous paths of industrious development. Moreover, *LIIGH* avoids the pitfall of replacing ‘Eurocentrism’ with ‘Eurasian-centrism’ (see Frankema 2015 for the term) by exploring the concept of labour-intensive industrialization in a truly global historical perspective. Indeed, the contributions on West Africa by Gareth Austin (chapter 9) and Latin America by Colin Lewis (chapter 10) are crucial to the book, for these historically labour scarce and land abundant regions offer test-cases *par excellence* for the viability of the concept of labour-intensive industrialization.

East Asia: the cradle of labour-intensive industrialization

While Japan may have been the leading industrializer of the non-Western world, East Asia stands out in the global diffusion of industrialization for at least three additional reasons. First, industrial growth occurred at an extremely rapid pace,

² Frankema et al. 2014 argue that colonial settlement in these studies is not only conceptualized as an *exogenous* phenomenon, but is also measured as an *event*, rather than a *process* shaped by the interaction between (potential) settlers and indigenous peoples.

fuelling decades of economic growth close to, or even exceeding double-digit rates, according to official income statistics. Second, manufacturing output growth involved a full range of industries from light manufactures, to heavy industries and from labour-intensive, low-skilled manufacturing to skill-intensive high-tech sectors. Third, East Asian industries did not merely replace imports into the domestic market, it was also vigorously export-driven. East Asian manufactures conquered world markets that had been dominated by Western producers with impressive speed and depth.

Kaoru Sugihara (chapter 2) surveys the distinctive aspects of labour-intensive industrialization in Japan. Drawing on the extensive scholarship on the Tokugawa and Meiji eras he argues that Japanese manufacturing enterprises adapted *and* modified Western technology to promote the input of labour and save capital. Cotton spinning factories adopted night-shift systems to use the spinning machines as efficiently as possible, creating additional employment. And where the mechanization of cotton spinning was led by scale-intensive factories using British machinery, the weaving sector continued to be dominated by small-scale production units. Weavers in Meiji Japan economized on capital inputs by using cheaper wooden frames for their power looms, instead of the iron frames used in Europe and the US.

The competitiveness of Japanese textile manufacturers was further enhanced by high degrees of labour discipline, obedience, time and task orientation, hygiene-consciousness, and tacit communication and managerial skills of the workforce. The management of modern factories sought to reinforce such labour qualities via elaborate systems of punishment and reward; incentives to which Japanese workers vigorously responded. Such cultural values were also reflected in the political ideologies of authoritarian East Asian regimes, who aimed to win mass support for ‘growth’ and ‘national progress’, rather than civil ‘freedoms’ (56).

Formal schooling was part of this development too, but the rapid progress in enrolment rates can only be understood, Sugihara claims, as the institutionalization of human capability enhancement ideologies that had evolved in the course of centuries preceding the schooling revolution. The need to diversify into off-farm production and by-employment under pressure of declining land-labour ratios, had made labour capability-enhancement a central part of the livelihood strategies of the Tokugawa peasantry. The training of reading, writing and calculation skills via formal education was largely a twentieth-century phenomenon, and rapid progress occurred during the first phase of industrialization, not before. Formal education was, of course, crucial to prolong the wider dispersion of human capital in the twentieth century, resulting in rapid wage rises, especially after the Second World War, when the labour-intensive path fused with a capital-intensive, labour-saving path of industrial structural change in order to maintain international competitiveness (24).

Masayuki Tanimoto (chapter 7) offers a deeper look into the connection between the Japanese peasant economy and the evolution of Japan’s modern textile industry. Building on the seminal work of Nakamura (1983, 1971) he quantifies the

importance of small-scale workshops in the process, and shows how they transformed from their rural basis and direct links to the farm, into small-scale workshops in expanding urban conglomerations such as Tokyo and Osaka. As late as 1914, two thirds of weaving output was still produced in mini-enterprises, which were not only able to fend off cloth imports from Britain, but also to conquer a vast Asian export market (162). The growth of textile manufacturing thus implied a shift in market orientation from a *Kaufsystem* where rural producers retained autonomy over their investment strategies (raw materials, spinning, weaving gear, etc.) to a *putting out* system that allowed for scale-enlargement and vertical integration of the value chain. Tanimoto shows that the rates of self-employment nevertheless remained far higher in the 1930s to 1970s in Japan than in Europe, also corrected for differences in GDP per capita.

Shifting the lens to China, and the Yangzi delta (Jiangnan) in particular, Kenneth Pomeranz (chapter 6) argues that the industrial boom in contemporary coastal China is rooted in the legacies of labour-intensive rural industrialization in the late imperial era. Pomeranz compounds the conceptual framework of labour-intensive industrialization by drawing a distinction between a ‘dynamic’ and a ‘stagnant’ type. The difference, he argues, depends on the extent to which technological change was not just labour-absorbing, but also geared towards the creation of new products and new production skills.

Because of ecological constraints to energy-intensive industries (small forests, no accessible coal reserves, limited opportunities for wind power, lack of minerals), but excellent conditions for local trade in the intensively cultivated (irrigated paddy cultures) and water-rich flat delta area of Jiangnan, specialization in light manufactures was the obvious route of industrious growth. Jiangnan remained markedly more rural far into the twentieth century than Northwestern Europe had been in the mid nineteenth century. The links between agriculture and handicraft production were forged by gender-specific allocation of labour in extended households, where female workers produced handicrafts for sale, cloth being the chief product. Specialization in non-farm activities by rural households supported the development of labour skills, and complemented the labour-intensive with a human-capital intensive path of industrious development – I avoid the use of the term ‘proto-industrialization’ here because its meaning is contested as we will see in a minute.

Female rural workers earned a premium over the urban proletariat, testifying to the reduced status and productivity of wage work (125–126). Urban labour markets absorbed parts of the labour force that could not be accommodated in extended household economies, especially unskilled male workers, most of whom were bachelors as a result of the structural gender imbalances caused by female infanticide and polygamy. With strong usufruct rights, land markets were well developed but did not lead to a concentration of land holdings, because of the heavy weight of on-farm production of manufactures and the low intensity of structural rural-urban migration. This offers a sharp contrast to the European model of industrious growth, which saw the rise of cities as well as expanding wage labour

markets. It also suggests that direct comparisons of urban real wages are bound to offer a biased view on comparative living standards (Pomeranz 2000; Allen et al. 2011).

Especially insightful is Pomeranz's account of how the Maoist state turned this trajectory of labour-intensive rural industrialization on its head. For the Maoist government, the mobilization and re-allocation of rural labour were key to its economic planning programmes. Rural labour was reallocated to large-scale infrastructural projects such as dams, canals, roads and railways with little supply of capital. Cities were selected as locations for various types of heavy industry, including a substantial military industry. The mass mobilizations of rural labour and the resource-squandering aspects of new urban factories undermined the viability of rural household industries. During the liberalization programmes of the 1980s, many of the urban factories collapsed under competitive pressure, while rural industries regained momentum. The investments in education and healthcare services incurred under the Maoist People's Republic supported the revival of China's rural industry. The rural labour-oriented and urban capital-oriented paths of industrial development fused as export-oriented enterprises at the coast expanded. But even today, about half of the Chinese population still lives and produces in the countryside.

How does the 'industrious revolution' fit in?

One of the attractive features of *LIIGH* is that the authors do not try too hard to hide their mutual disagreement and occasional unease with the concept of labour-intensive industrialization. The contribution by Jan de Vries (chapter 3) stands out for the clarity of its theoretical exposition and the articulation of its broader argument, but it also goes a long way in de-emphasising the presumed contrasts between the Western European and East Asian trajectories of industrious development. De Vries starts by demonstrating the contrasts in Eurasian population densities per unit of arable land (73) in a table that should have been present in the introduction to the volume, thus empirically underpinning the crucial point of departure, namely that East Asia's land intensive (wet) rice economies were characterized by significantly higher densities of population than the mixed husbandry systems dominating the early-modern landscape of Western Europe. After discussing Malthusian and Boserupian perspectives on the relationship between population growth and agricultural development in a context of closed land frontiers, de Vries sets out to explain how industrious development in East Asia has differed from the 'industrious revolution' in Western Europe. His central argument is that labour-intensity is a shared feature at both ends of the Eurasian continent, but that *the incentives* to raise the input of labour stemmed from a different demographic and economic dynamic.

De Vries contends that industriousness has been incentivized by *necessity* in East Asia, while it was driven by *opportunity* in Western Europe. Mounting

demographic pressure lowered marginal productivities of labour in East Asian agriculture, thus forcing surplus-labour into off-farm activities. The threat of a Malthusian collapse, or a more gradual long-term decline in living standards, was averted by deliberate reproductive strategies (including gender-selective infanticide) and increasing income diversification by the combination of food and handicraft production. In Western Europe, de Vries argues, the choice to substitute leisure for labour was primarily driven by changing consumer aspirations. The larger degree of market-orientation of nuclear households, as opposed to extended households in East Asia, created more fully developed factor markets and gave rural households a larger degree of freedom in their labour allocation decisions, including the possibility of taking up wage labour in the city. According to de Vries, market-orientation, rather than labour-intensity is the distinguishing feature in the Eurasian comparison.

Osamu Saito (chapter 4) is also sceptical about the validity of the concept of labour-intensive industrialization. He argues that *within* East Asia and Western Europe one can distinguish multiple responses to demographic pressure, and that this intra-regional variety does not enlarge, but reduces the supposed contrasts between East Asia and Western Europe. Saito criticizes the focus on *comparative levels* of population density, arguing that a proper understanding of pre-industrial development trajectories should include a comparison of population *growth rates* and their relation to changes in rural labour division and the market-orientation of rural households.

One way of conceptualizing labour-intensive industrialization is to link it to the concept of *proto-industrialization*, as Hau and Stoskopf observe in the Alsace region (chapter 11): a process of 'proletarianization' of the rural labour force due to self-propelling forces of population growth. New generations were increasingly forced off the farm into industrial activities to overcome declining marginal productivities of labour in agriculture. Their early departure lowered the age of marriage, increased fertility and, hence, re-enforced population growth. The increasing division of labour that emerged in this demographic regime led to new inter-sectoral forms of exchange (food for handicrafts) that supported the growth of markets within regional economies as well as enhanced specialization into manufactures for inter-regional markets. This process of demography-induced *Smithian* growth typically involved the transition from a *Kaufsystem*, in which rural handicraft producers controlled the value chain and the marketing of the end product as a side-activity to agriculture, into a putting-out system where cheap rural labour surpluses were sought by (urban) entrepreneurs who controlled the distribution networks of manufacturing inputs and output.

The alternative scenario was that rural societies, consciously or unconsciously, put a brake on population growth. A rise in the age of marriage may have gone hand in hand with a skill-intensive path of industrious development, in which labour resources were diverted into semi-skilled or high-skilled handicraft production, such as weaving, metallurgy or clock-making. This type of labour division required the

training, equipment, work experience and the type of workshop that take years of investment before marriage could be considered.

Building on extensive case-study evidence from Europe and Japan, Saito concludes that there is little reason to believe that intra-regional variations in population densities and related factor ratios correlate with either of these two rural coping strategies. Saito uses this argument to criticize Sugihara's two-paths thesis for its failure to factor in the skill component of labour:

Sugihara seems to have assumed this dichotomy [i.e. the capital-labour dichotomy] when he says that 'labour-intensive industrialization' was more important for the global diffusion of industrialization than capital-intensive industrialization. However, we should realize that there are two totally different scenarios for increasing labour intensity. In one productive activity becomes more skill intensive, whereas the other involves nothing but an increase in the input of labour. Obviously the latter will not lead to sustainable growth once the supply of labour ceases to be cheap and plentiful. (95)

It seems that Saito takes issue with a position that Sugihara developed in his earlier work, in which he has downplayed the issue of labour quality, but that critique does not apply to Sugihara's contribution to *LIIGH*. This should not bother the reader too much, if it was not for the implication Saito's critique has for the Eurasian comparison: if the defining feature of labour-intensive industrialization in East Asia was, in fact, the skill-intensive nature of industrious development, then in which respect did it still differ from the Western European path? I will return to this issue of skill-intensity in the final section.

India and Indonesia

An intra-continental comparison between East Asia, South Asia and Southeast Asia offers new ground to explore the boundaries of the 'labour-intensive industrialization' concept. In his survey of colonial India, Tirthankar Roy (chapter 5) starts by introducing two 'stylized facts' of Indian cotton manufacturing in the period of the British Raj (1858–1947). First, India's manufacturing sector employed more than double the amount of labour per unit of output than its British counterpart. Second, artisanal household production and small workshops, instead of being replaced by rising factory-based production systems, grew alongside 'modern' textile manufacturing. In fact, Roy notes that labour productivity levels between factories and artisanal workshops tended to converge. Handloom weaving accounted for about one-third of total industrial employment in 1901 (107), and like Japan, the weaving industry remained dominated by artisans up to the Second World War. Indian industrialization can thus be labelled as labour-intensive in two respects: a high rate of labour input in the cotton mills and craftsmen that combined their labour with creative skills.

Roy subscribes to the factor endowments perspective where he argues that the labour-intensive path of Indian industrialization leaned on Lewisian labour costs

advantages as well as on significant variations in labour quality between mill workers and artisans. But why did mill-owners permit such an uneconomic use of labour? After all, low wages eat into profit margins as well. Roy's explanation focuses on the different incentives faced by the owners (profit margins) and the work-floor supervisors. Mill owners critically depended on intermediaries to recruit their workforce. These jobbers, however, were keen to accommodate a large pool of workers to stay flexible. The quality of the service they provided to employers depended on the way they performed their social duties in the communities from which they sourced their workers. Cost-efficiency was not their primary interest, sustained relations with their clientele was.

Hence, where the working environment in the cotton mills did little to improve labour quality, the artisanal sector could only survive by paying attention to labour discipline, quality control and playing into changing market conditions (new products, changing consumer demands, etc.). For artisans the only way to survive price competition from British and Indian cotton mills was to develop new niches, adapting their production techniques and striving for higher quality segments. In this process of adaptation acquiring new skills was essential. Roy thus reiterates the point that Saito made for the wider Eurasian comparison: labour-intensive industrialization involved two different, albeit interconnected, types of economic development: one that enhanced labour commodification and another that enhanced labour quality.

Pierre van der Eng's (chapter 6) contribution on Indonesia is somewhat of an outlier in *LIIGH*, for it does not explicitly engage with its central hypothesis. Van der Eng raises the question why it took until the 1980s before Indonesia was able to develop a modern manufacturing sector. Why did Indonesia's industrial boom not occur half a century earlier, in the 1930s, when the Dutch colonial government felt pressed to diversify the colonial economy away from plantation-based agriculture in the wake of the great depression? Van der Eng shows that growth of manufacturing employment did not keep pace with overall labour force growth: its share fell back from circa 15% in 1940 to circa 8–11% in the mid-1970s. Manufacturing output was exclusively produced by small-scale workshops and cottage industries. The lion's share of these workshops consisted of self-employed workers in food and beverages, and textiles and apparel. Van der Eng's main answer to his own question is that a long period of political and macroeconomic instability, including the Japanese occupation during the Second World War, the prolonged independence struggle and the inflation during the Sukarno regime, created adverse conditions for industrialization.

Van der Eng's contribution becomes more connected to the overall theme of the volume where he notes that, apart from the obvious policy failures, Indonesia had a comparative advantage in primary commodity exports and had long been kept on a path of resource-intensive growth (oil, tin, plantation agriculture rubber, palm-oil, tobacco) by the Dutch colonial government. Although Dutch and foreign investors did explore opportunities to cater to a large domestic consumer market, for instance by linking the palm oil production to soap manufacturing –

e.g., Unilever – it was too little too late (Lindblad 2013). The fact that foreign investors were leading this cursory path of industrialization re-enforces the question of what role the Javanese peasantry played in this, other than offering cheap labour.

It is unfortunate that the chapter on Indonesia misses the opportunity to put the labour-intensive industrialization thesis to the test: did the abundance of resources and land induce a different path of industrious development in Southeast Asia, or were colonial policies key in delaying or advancing industrialization (cf. the Philippines)? What role did Java's rural households play in the industrial boom of the 1980s? Was the green revolution of the 1970s a necessary condition? And did Dutch underinvestment in public education play a role in keeping down labour quality (Booth 2007; Frankema 2014b)? And how did the colonial connection between the Netherlands and Indonesia erode or enhance industrious development, for instance in the Indonesian *batik* industry (van Nederveen Meerkerk 2013)? Indonesia presents a comparative case worthy of further exploration.

West Africa and Latin America

The labour scarce regions of West Africa and Latin America offer the ultimate litmus test. Colin Lewis (chapter 10) convincingly argues that it is virtually impossible to fit the diffuse experiences of Latin American industrialization into a labour versus capital-intensive dichotomy. He points out that the region faced a double-edged sword of factor scarcity, relying largely on the import of both labour (forced and voluntary) and capital to enhance manufacturing growth in the so-called *obrajes* (colonial sweat-shops) before the arrival of modern industrial technology in the late nineteenth century. These workshops also had to compete with other sectors for scarce labour and capital, in a context where mineral abundance (mines) and/or land-extensive plantation agriculture tended to promise higher rates of profit.

The most important conclusion of Lewis's wide-ranging survey of Latin American industrialization is that the transition from cottage-based and sweat-shop production towards large-scale, machine-based factory production was marked by discontinuities and ruptures. Small workshops continued to co-exist with new factories but instead of feeding into these, they gradually lost out. Domestic markets tended to be small and fragmented. National markets only emerged in the late nineteenth century, while most of the industrial exports of the 'golden era' of 1870 to 1914 were based on local resource endowments, such as the meat, wool, and leather industries in Argentina. Lewis adds that under conditions of labour scarcity and related high market wages, various systems of labour coercion were sustained, ranging from slavery to labour pass systems, anti-vagrancy laws and institutionally created land scarcity. In so far as these systems led to systematic underinvestment (both public and private) in human capital, the scarcity of labour and capital also prolonged a scarcity of labour skills.

Gareth Austin (chapter 9) notes that West Africa – and Sub-Saharan Africa as a whole for that matter – has also been historically short in both labour and capital (see also Austin 2008). Although land had been abundant, the quality of land and/or the prevailing climatic conditions, did not allow for a widespread development of land-intensive systems of agricultural production. West Africa's labour scarcity, which was compounded by the Trans-Atlantic slave trade, raises the puzzling question why West African handicraft producers did not seem to care about labour-saving technological innovations. For instance, in the heart of West Africa's cotton textile production in Kano (present-day Northern Nigeria), weavers continued to use the narrow loom instead of adopting the more productive broad loom.

According to Austin this choice of technique should be understood in the context of heavy seasonal fluctuations in labour demand from food-crop production, creating a situation of labour abundance during the slack seasons (the dry periods). In addition, cotton supplies were inelastic because the growing cycle of cotton interfered with the cycle of food-crop production. Food-security thus competed directly with the production of industrial crops and thus narrowed the scope for the expansion of the cotton industry and reduced incentives to implement labour-saving technologies.

Austin does not mention, however, that in the period that the adoption of the broad loom may have become most opportune, i.e., the nineteenth century, Kano became the centre of the Sokoto Caliphate, which enforced a fairly rigorous division of labour between a free peasantry concentrating on food production (partly for the market) and large slave estates specializing in cotton growing, among other activities (Lovejoy 2005). Hence, the supply of cotton may have been more elastic than Austin suggests. An alternative explanation is that Kano weavers had a keen interest in limiting market entrance in order to keep their prices up, and that the collective action needed to restrict entry was facilitated by the institutional structures put in place by the Caliphate. Successful attempts to keep the broad loom out were then motivated by concerns of income distribution, rather than allocative efficiencies. Ecological constraints may still have played their part in this, especially because high transportation barriers naturally limited the markets for bulk textiles, while only the high-quality textiles could profitably reach the more distant markets in North and West Africa.

West African cotton textiles (spinning and weaving), iron works, pottery, carpentry and gold-working thus remained labour-intensive and, to a considerable extent, skill-intensive as well. Austin contends that it was impossible for modern manufacturing in West Africa to rise out of the environmentally constrained systems of handicraft production, given the vast comparative advantage in land-extensive agriculture. A transition to modern manufacturing thus had to involve a phase of specialization in land-extensive agricultural production, a phase that has not yet come to an end. The past two decades of economic growth have seen a new shift towards natural resource exports (especially oil), but there are few signs of increasing manufacturing output (McMillan and Harttgen 2014). African manufacturing firms are small and face severe barriers to expand in size.

Austin finishes his chapter (225) by noting, in line with Hopkins (1973) and Iliffe (1987), that with increasing land scarcity in the twenty-first century, and steady progress in health and education, conditions for labour-intensive industrialization start to become more favourable. Austin's cautious optimism begs the question whether it is possible to embark on a path of 'labour-intensive industrialization' after successive phases of massive manufacturing imports from Europe and Asia, which have erased much of 'traditional' skills and know-how in the region. I will return to this issue in the final section.

The 'hybrid' paths of industrialization in Latin America and Sub-Saharan Africa invite a final remark. Although neither region experienced an outspoken labour-, capital- or skill-intensive path, Latin America did experience significant manufacturing growth, and Sub-Saharan Africa, with the notable exception of South Africa, hardly did (Austin et al. forthcoming). It is interesting to see how Austin emphasizes the seasonality of agriculture as a binding constraint, whereas Lewis does not pay much attention to it. It seems that historical differences in economic geography, that is rates of urbanization sustained by higher qualities of surrounding agricultural land (including husbandry), offer an important clue. Spanish and Latin American manufactures faced small consumer markets, but a higher concentration of demand in cities. These scale effects allowed for a greater disconnect between handicraft production and agriculture. The problem of getting workers, capital and skills together in the *obrajes*, as well as in 'modern' factories was partly accommodated by the capacity of American settler colonies to attract production factors from Europe and Africa at considerable scales, part of which flowed into expanding cities, which allowed for a more intensive degree of specialization industrious and modern manufacturing growth. Thus the double scarcity of capital and labour was much more ameliorated in Latin America than in Sub-Saharan Africa. But the major differences in the rate of industrialization between both regions does not take away the fact that the labour versus capital-intensive dichotomy in the conceptualization of multiple paths of industrialization fails to work for the labour scarce regions of the Southern hemisphere.

Labour-intensive industrialization in global history: a new research agenda?

Figure 1 visualizes the overarching argument of *LIIGH*. Following de Vries (chapter 3), Saito (chapter 4) and Hau and Stoskopf (chapter 11), the road leading up to the European Industrial Revolution can be characterized as one of labour-intensive industrious development by 'opportunity', as distinct from 'necessity' in East Asia. During and after the Industrial Revolution, Western Europe embarked on a path of capital-biased technological change, while East and India adopted and transformed new industrial technologies to follow a more labour-intensive path of industrialization. The labour and capital scarce regions, West Africa and Latin America, do not fit this dichotomy, although the supply of labour, capital

Regions Phases	East & South Asia	Western Europe	West Africa & Latin America
Before 'modern' manufacturing	Labour-intensive industrious development (by necessity)	Labour-intensive industrious development (by opportunity)	Hybrid patterns of industrious development in context of labour and capital scarcity
During 'modernization'	Labour-intensive industrialization	Capital-intensive industrialization	Latin America: hybrid industrialization West Africa: cursory industrialization
Era of hyper-globalization post-1973	Fusion of labour-intensive with capital-intensive path	Partial de-industrialization due to global relocation	Latin America: Increasingly capital-intensive path Africa: prolonged stagnation/decline of industry

Figure 1: Stylized overview of global industrialization.

Source: Author's interpretation of *LIIGH*.

and skills in West Africa and the rest of Sub-Saharan Africa (with the exception of South Africa), have been notably less elastic than in Latin America.

The main question that now needs to be answered is whether this scheme is sufficiently useful to be adopted in the conceptual toolkit of global economic historians, or whether the very term 'labour-intensive industrialization' creates more confusion than clarity, and should therefore be abandoned. Let me emphasize that reaching the latter conclusion would by no means lower the importance of *LIIGH* as a call for, and a stepping stone to, a richer comparative analysis of multiple paths of industrial development.

Conceptual limitations of 'labour-intensive industrialization'

The main problem with the concept of 'labour-intensive industrialization' is that it is rather generic. First, it captures the idea that labour abundance leads to factor-price induced labour-augmenting technological change, underpinning the edge for wage-cost competition by new entrants in global markets for manufactures. Second, it refers to a long historical process of gradual labour quality improvement, induced by declining marginal productivities of agricultural labour, forcing rural households into diversified by-employment and the accumulation of

complementary skills. Combining these two types in one term makes it difficult to sort out to which extent East Asian manufacturing firms were primarily competing on the basis of low labour costs, or low costs of labour skills. Moreover, the implied contrast with Western Europe is questionable. Jane Humphries (2013), in her critique of Allen's (2009) account of capital-biased technological change during the British Industrial Revolution, has pointed out that adult male labour was substituted for by cheaper child and female wage workers, thus augmenting the factor labour, while economizing on labour costs.

But the notion of labour 'skills' also needs further decomposition. Sugihara's account of 'labour quality' lacks a hierarchical order of skill types. Diligence, docility, task and time orientation are labour qualities that aid the organization of manufacturing production in large-scale factories. The comparison of Japan with India is worth exploring in greater detail, because labour discipline in the Indian cotton mills under the British Raj did not appear to meet similar standards, despite the labour abundant context in which these mills operated. Artisans, however, required other types of skills to survive. Of course, labour discipline is important in quality control, but artisanal production also involves more complex tasks in overseeing a wider range of aspects critical to the production chain, including higher levels of planning, creativity, and sensitivity to changing market conditions.

Yet, 'modern' manufacturing requires a pool of labourers capable of applying prescriptive knowledge, that is people who understand the techniques or instructions underlying production processes (the 'know-why' instead of 'know-how') (Mokyr 2002). A scientific culture involves wider networks of learning, knowledge dissemination and inter-personal exchange of theoretical critique. Such platform functions can be fulfilled by religious networks (e.g., Islamic learning), bourgeois societies or other civil networks, receiving indirect or direct support from political elites. It also pre-supposes that people share a similar 'language'. There is a formidable task in explaining the connection between factor endowments and the emergence of science, and the toolkit developed by evolutionary economists and their work on national innovation systems, who are notably absent from *LIIGH*, may be of great help in this regard (Nelson 1993, 2000; Von Tunzelmann 1995). But the main point is that industrialization in the West and the East may be better conceptualized by varying types of skill-intensity, than by the labour-capital-intensive dichotomy.

The concept of 'capital-intensive industrialization' also needs to be decomposed, since capital has its 'qualities' as well. Modern manufacturing involves a transition in the sources of energy that are employed to convert raw materials into manufactures. Energy-intensity, however, is not quite the same as capital-intensity and the use of coal for generating thermal and mechanical power is not simply a form of labour-saving technological change. In fact, it is questionable whether the relative price of labour plays a key role in the shift to a coal-based economy at all. Labour and animal power are only one type of energy, and a rather limited one, since humans only produce mechanical power, but do not generate the thermal

power to melt iron. Coal thus competed as much with human labour as it did with other forms of energy: biomass (wood), wind and water (Wrigley 2010; Kander et al. 2013). The energy-revolution, which is crucial to the global diffusion of industrialization, does not neatly fit into a labour versus capital-intensive dichotomy. Put differently, the ecological constraints to shift from one type of energy to another have to be a central part in the conceptualization of multiple paths of industrialization.

Will Sub-Saharan Africa industrialize?

What promises do ‘labour-intensive industrialization’ hold for those regions that so far have failed to link up to the globalization of modern manufacturing? Does the demographic revolution in Sub-Saharan Africa change its prospects? According to Austin (225) it is possible to envisage ‘relatively cheap labour, and relatively cheap human capital, becoming sources of West African industrial competitiveness’ if current demographic and educational transformations will sustain. One may add that the historically high constraints to the use of energy have also been greatly relaxed by large-scale oil discoveries. Moreover, increasingly diversified sources of investment capital since the 1990s have made the supply of capital far more elastic than it was in the not so distant past. Finally, Africa’s changing demography involves more than declining land-labour ratios, it also raises the concentration of consumer demand in cities, thus lifting many of the transport and communication barriers that were inherent to Africa’s historical pattern of dispersed human settlement (Frankema 2014a). Hence, despite the fact that most of current FDI inflows are geared towards Africa’s mineral and land resources, it is not inconceivable that expanding urban consumer markets will take an increasing share of this inflow in the coming decades.

That said, the historical account of ‘labour-intensive industrialization’ may also re-enforce the general pessimism about Africa’s chances to industrialize. First, what the region had in terms of labour-intensive rural industry – cotton textiles predominantly – has been almost entirely washed away in the twentieth century under the influence of massive imports of European textiles during the colonial era, and the further blows it suffered during the structural adjustment programs of the 1980s and 1990s, when the thin layers of industrial protection of earlier ISI-policies were effectively dismantled. Since so much of Africa’s former industrious development has been uprooted one wonders whether labour-intensive industrialization can emerge from scratch?

To reflect on this question, we need to address the follow-up question: what creates a competitive advantage in the global manufacturing markets of the twenty-first century, and to what extent does it differ from the conditions that Japanese producers faced in the late nineteenth century? Is cheap labour enough, or is it much more a matter of cheap labour skills? If it is the first, Africa’s demographic explosion may help. Asian wages are surpassing West African wages, whereas the latter have tended to be higher during most of the twentieth

century (Frankema and van Waijenburg 2012). But if it is the second, then it becomes more important to study the structures that are currently in place to educate and train new generations of African youth. In the context of skill-differentials it may take decades before wage differentials may become meaningful to global manufacturing investors, because relevant skill-premiums in Africa still seem to exceed those in Asia (Frankema and van Waijenburg 2014).

Current developments in Ethiopia are interesting from the viewpoint of *LIIGH*. Ethiopia is not only one of the fastest-growing countries in Sub-Saharan Africa, but part of it is also driven by the development of modern manufacturing. Chinese and Indian investors are setting up production chains for the production and export of shoes, yarn, textiles and apparel. Dutch investors have discovered Ethiopia for the cultivation and export of flowers. Ethiopian minimum wages are lower than in most of Sub-Saharan Africa (Austin et al. forthcoming), but the really interesting aspect is that Ethiopia has a long history of intensive sedentary agriculture and independent state formation, as opposed to other Sub-Saharan African countries. Is there a link with the labour quality argument developed in *LIIGH* and current manufacturing growth in Ethiopia?

Bringing the state back in

According to Gerschenkron, and many others, state power and state policies were and are key to industrialization in the ‘global periphery’ (cf. Amsden 1989; Chang 2002; Kohli 2004). The endowments perspective explored in *LIIGH* puts more weight on the bottom-up process of industrious development, but at some point the state has to be brought back in. States have the power to intervene in the allocation of production factors at a ‘national’ level and in varying degrees also influence economic relations at an ‘international’ level.

As noted by Austin and Sugihara (3), without state intervention in international flows of migrant labour, factor biases would be largely absent. The involvement of West African states in the Trans-Atlantic slave trade stimulated the export of scarce African labour to a continent where colonial and post-colonial states were actively promoting labour immigration. This is just one example that shows how deep the connections between state power, state policies and relative factor endowments are in shaping conditions for industrialization.

LIIGH does not refer to the popular and academic discussions about the advantages of the BRICs, but the idea that ‘big’ states such as China, India and Japan have had, and still have, a major advantage in building industrial capacity, both because of large internal markets that can be shielded, and because of their political power on the international stage, is not easy to dismiss. In so far as large concentrations of people in areas of intensive agriculture have co-determined the rise of such ‘big’ states, there also is a direct historical connection with the endowments perspective. If size determines part of the conditions for labour-intensive industrialization, then this may be good news for African countries such as Nigeria, but bad news for dozens of smaller states in Africa.

Finally, if the accumulation of labour skills, of the varying types discussed above, is key to understand multiple paths of industrialization, the role of the state has to be incorporated in the endowments approach. As Engerman and Sokoloff (2005; Sokoloff and Engerman 2000) have argued in their synthesis of the endowment and institutional perspectives on comparative growth in the Americas, human capital accumulation is one of the major distinguishing features. This re-invokes the old Marxist notion that relative factor prices are not just shaped by endowments, but also by the distribution of power between the owners of ‘labour’ and the owners of ‘capital’. The way states mediate the distribution of power and resources determines much of the opportunities for labour quality improvement of different social, ethnic and gender groups in society, but those distributional aspects also affect aggregate levels of human capital accumulation. The way colonial states have mediated investments in education is particularly relevant in this respect.

In sum, shedding the Eurocentric feathers of neo-institutional theory is badly needed, but a new research agenda of global industrial diffusion will only open up if it strives to synthesize the endowments approach with the institutional approach. *LIIGH* can play a central role in it. It is a must-read for all economic historians and development economists who try to make sense of global comparative economic development and who care about deeper reflections on its past, present and future.

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