THE SECOND NOEL BUTLIN LECTURE: LABOUR-INTENSIVE INDUSTRIALISATION IN GLOBAL HISTORY

BY KAORU SUGIHARA*
Center for Southeast Asian Studies, Kyoto University

East Asian industrialisation has shown that modern industry has occurred across different cultures under a variety of factor-endowment conditions. The global history of the diffusion of industrialisation over the past two centuries suggests two distinct routes. The first is the ‘Western path’ associated with capital- and energy-intensive industry. The second path to creating a modern industrial economy is the ‘East Asian path’ based on labour-intensive industrialisation that has built on quality labour resources cultivated in the traditional sector. This was the path followed by Japan from the nineteenth century and by many other countries in Asia during the twentieth century.

JEL categories: N10, N15, O11, O43, O53

Keywords: China, East Asia, global history, industrialisation, Japan

INTRODUCTION

The ‘East Asian Miracle’, the growth of high-performing economies in Asia since the end of World War II, shows that industrialisation occurs across different cultures under a variety of factor-endowment conditions. We might ask: How have the experiences of these economies affected our understanding of the global diffusion of industrialisation for the past two centuries? The aim of this lecture is to show the central role labour-intensive industries played in the global diffusion of industrialisation and to discuss its significance for global history. It suggests a new interpretation of industrialisation by placing the improvement of the quality of labour as a vital element of global transformation.

The theory of economic growth has commonly focused on capital rather than labour. Classical economists discussed the growth of the market, focusing upon

* This lecture was presented at the Asia-Pacific Economic and Business History Conference, Brisbane 2006.
the change in production rather than demand or consumption. In their framework, labour was a factor of production along with land and capital. The role of labour in industrialisation was mainly discussed in the context of how and in what proportions capital and labour were combined to produce industrial goods. There are at least two implicit but fundamental assumptions in these works, which have gone against recognising the importance of the quality of labour for industrialisation. One is the tendency to single out capital, or the establishment of a savings-investment mechanism, as the most important element for the growth of industrial capitalism. The unique attribute of labour among factors of production (labour is embodied in humans) has largely disappeared from the analysis of economic growth. While in Simon Kuznets’ theory of economic growth the importance of labour was understood in the same way as he understood the importance of capital, as substantially ‘human capital’, for others, most conspicuously in W. W. Rostow’s scheme, the timing of industrial ‘take off’ was determined by the rise in the ratio of saving to GDP.

The second, equally important assumption was to regard labour as abundant, homogenous, and disposable at the initial stage of economic development. Labour was treated as analogous to other factors of production such as capital and land. While the law of diminishing returns was recognised with respect to land, the difference in quality among labour was not thought vital. Development economists led by Arthur Lewis tended to disregard the quality of labour in their discussion. Labour as human capital was not important at the initial stage of industrialisation.

Thus, the prevailing account of the global diffusion of industrialisation remains roughly as follows. During the first half of the nineteenth century, Britain became the workshop of the world, while the rest of the world came to specialise in the export of primary products. Countries in Continental Europe and the regions of recent European settlement achieved industrialisation by learning new technology and/or by importing capital, labour, and machinery with their export earnings. In the New World, the integration of vast natural resources into the international economy served as the engine of economic growth. Labour was scarce and land was abundant, and the difference in factor endowments between the Old World and the New World induced a growth of trade, migration, and investment.

In the nineteenth century, the growth of the Atlantic economy dominated long-distance trade. An implication of this development was that the regions of recent European settlement had a better incentive than Britain to raise labour productivity using abundant natural resources and imported capital. The movement to labour-saving, capital-intensive, and resource-intensive technology was most clearly observed in the United States. The need to save skilled labour led to the standardisation of industrial production such as the use of interchangeable parts, which facilitated the transfer of technology across industries and mass production, as well as ‘deskilling’ labour. Industrialisation became associated with the exploitation of economies of scale.

1 Kuznets, Toward a theory; Rostow, The Stages.
2 Lewis, Economic development.
Looking back from the twenty-first century, the British industrial revolution only began to show the explosive power of labour-saving technology through the use of coal and steam engines, and merely paved the way for a fuller replacement of skilled labour by capital and technology. Although the conditions for the industrial revolution may have been laid before 1800, the ‘Western path’ with emphasis on capital-intensive and resource-intensive technology, arguably only became established with the growth of the Atlantic economy and the emergence of America, where labour productivity was increased vastly through technological innovation. The increasing dominance of the West resulted in a widening gap between the rich West and the poor non-West while the growth of trade between the West and non-West was often accompanied by colonialism, which reinforced inequalities.

In this lecture I suggest there was another, in many ways more dynamic route for the global diffusion of industrialisation. This second labour-intensive route for industrialisation took root in Japan first and was followed in other Asian countries, particularly after 1945. Today, the majority of world manufacturing employment is located in the developing countries of Asia, especially in China and India, which have their roots in this route (see Table 1). Although it escaped Lewis’s attention, I argue that if we examine the process of diffusion during the last two centuries, this ‘East Asian path’ has been as influential as the ‘Western path’ described above.

Table 1. World manufacturing employment, 1997

<table>
<thead>
<tr>
<th></th>
<th>Population</th>
<th>Employment</th>
<th>Industrial employment</th>
<th>Manufacturing employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 China</td>
<td>1,243,738</td>
<td>744,095</td>
<td>122,307 (21.9) [16.4]</td>
<td>87,803 (22.3) [11.8]</td>
</tr>
<tr>
<td>2 India</td>
<td>960,178</td>
<td>419,562</td>
<td>75,941 (13.6) [18.1]</td>
<td>62,515 (15.9) [14.9]</td>
</tr>
<tr>
<td>3 America</td>
<td>271,648</td>
<td>138,393</td>
<td>30,446 (5.5) [22.0]</td>
<td>19,513 (5.0) [14.1]</td>
</tr>
<tr>
<td>4 Russia</td>
<td>147,708</td>
<td>77,431</td>
<td>30,818 (5.5) [39.8]</td>
<td>18,351 (4.7) [23.7]</td>
</tr>
<tr>
<td>5 Japan</td>
<td>125,638</td>
<td>67,465</td>
<td>22,871 (4.1) [33.9]</td>
<td>16,192 (4.1) [24.0]</td>
</tr>
<tr>
<td>6 Bangladesh</td>
<td>122,013</td>
<td>62,201</td>
<td>13,560 (2.4) [21.8]</td>
<td>12,375 (3.2) [19.9]</td>
</tr>
<tr>
<td>7 Indonesia</td>
<td>203,480</td>
<td>95,894</td>
<td>13,905 (2.5) [14.5]</td>
<td>10,836 (2.8) [11.3]</td>
</tr>
<tr>
<td>8 Germany</td>
<td>82,190</td>
<td>41,053</td>
<td>13,014 (2.3) [31.7]</td>
<td>10,304 (2.6) [25.1]</td>
</tr>
<tr>
<td>9 Pakistan</td>
<td>143,831</td>
<td>52,830</td>
<td>11,358 (2.1) [21.5]</td>
<td>7,449 (1.9) [14.1]</td>
</tr>
<tr>
<td>10 Ukraine</td>
<td>51,424</td>
<td>25,773</td>
<td>10,361 (1.9) [40.2]</td>
<td>7,397 (1.9) [26.7]</td>
</tr>
<tr>
<td>High-income countries</td>
<td>817,346 (16.1)</td>
<td>404,362 (16.2)</td>
<td>105,498 (18.9) [18.0]</td>
<td>74,197 (18.3) [17.8]</td>
</tr>
<tr>
<td>Others</td>
<td>4,263,025</td>
<td>2,096,326</td>
<td>453,103 (81.1) [21.6]</td>
<td>320,958 (81.4) [15.3]</td>
</tr>
<tr>
<td>Six Asian countries</td>
<td>2,798,878 (55.1)</td>
<td>1,442,047 (60.3)</td>
<td>259,942 (46.5) [18.0]</td>
<td>197,173 (50.2) [13.1]</td>
</tr>
<tr>
<td>Asia total</td>
<td>3,426,873</td>
<td>1,721,601</td>
<td>308,628 (55.3) [17.9]</td>
<td>233,515 (59.4) [13.6]</td>
</tr>
<tr>
<td>World total</td>
<td>5,080,371</td>
<td>2,500,688</td>
<td>558,601 (100) [22.3]</td>
<td>392,875 (100) [15.7]</td>
</tr>
</tbody>
</table>

Source and notes: International Labour Organisation (2002), World Employment Report. High-income countries refer to 25 countries with per capita income of 5,000 dollars or above (but excluding five oil-exporting countries). Figures in square brackets refer to shares of each country’s industrial, and manufacturing, employment to total employment.
The second proposition of this lecture is that this route of industrialisation has generated its own logic of training labour to pursue a distinctive path of economic development in the world economy, a logic which is focused on the improvement of the quality of labour, and which continuously redefined and enlarged the scope of labour-intensive industries. Labour-intensive industrialisation first occurred where initial conditions were good and international circumstances were favourable. Supported by the diffusion of education and easier global relocation of industries, labour-intensive industrialisation expanded into countries with poorer development options though incorporating the relatively skilled and educated components of the population into an industrial workforce at internationally competitive wages. The developmentalism under which a ‘growth ideology’ was widely shared allowed this route of industrialisation to deepen its technological and institutional edge and channel the best human resources into manufacturing.

INITIAL CONDITIONS AND FACTORS AFFECTING LABOUR QUALITY

Why did labour-intensive industrialisation take root in Japan and subsequently in other parts of East Asia? Part of the answer to this question lies in the initial conditions that existed in the region and part of it comes from the specific international circumstances in the second half of the nineteenth century that made it possible. This section discusses the former aspect of the question.

In his 1977 paper, Akira Hayami described the different paths which England and Tokugawa Japan (1603–1868) followed, calling them the ‘industrial revolution’ and the ‘industrious revolution’, respectively. With their different mix of factor endowments and assuming no transfer of factor inputs took place between England and Japan, Hayami thought it natural for these two countries to pursue different paths and for Japan to exploit the potential benefit of increasing labour absorption.

Emphasis on labour absorption in Tokugawa Japan began in labour-intensive agriculture, centred on rice cultivation. After the second half of the eighteenth century this strategy was extended to rural industries. Rural merchants engaged in regional commerce, while feudal domains actively pursued policies to promote agriculture, commerce, and industry to earn ‘foreign’ exchange. Farmers had a chance to exploit non-agricultural as well as farm opportunities, and rural households mobilised cheap labour to produce more in response to the demand from the rise in rural income. This proto-industrial work of the rural household was merely an extension of their labour absorption strategy. It might include weaving in the home for rural merchants in a putting-out system or working in a cottage industry to make sake, for example.

3 Hayami, Keizai shakai; Hayami, A great transformation; Hayami, The industrious revolution.
4 For a brief discussion, see Sugihara, The East Asian path.
Proto-industrialisation in rural Japan had a clear impact on demographic behaviour. The sex ratio was corrected to a more natural level and the population started to grow. Under the severe land constraints, proto-industrialisation allowed the income of the rural peasant household to rise. Although ‘labour absorption’ has been associated with agriculture, we can extend the idea to proto-industry’s capacity to absorb labour in the peasant households.

Did such a labour absorption path exist in Western Europe? Mendels clearly had this point in mind when he suggested we should look at the ‘development of a labour-intensive industry by the peasants’ as ‘the first phase of the industrialisation process’. ‘Cottage industry affected population trends. . . . It made it possible for the peasants to multiply in their villages without corresponding increase in arable surface.’ The sale of these industrial goods produced in the village outside the local market contributed to the growth of the market too. Mendels noted that proto-industrialisation absorbed surplus labour from the slack season and gave the peasant household a chance to increase household income without permanent migration. Unlike population growth, labour absorption of the existing population did not substantially increase the demand for food, but released the household from the constraints of land. It was the key device to help the rise of per capita income and the accumulation of capital.

**Tokugawa Japan**

Beyond proto-industrialisation and migration, however, there were other differences. Land was scarcer in Japan and there was little room left for pasture. Plough and transport animals were used, but land was seldom available for growing meat, dairy, or wool. Japanese agriculture concentrated on the improvement of annual crop output per unit of land, with the use of human labour, manure, seeds, and agricultural tools. Concern for fixed capital or the sale of land was minor in the development of labour-intensive technology and labour-absorbing institutions.

The household and the village community played a key role in the allocation of labour. The maintenance of the ie, the family line, and the maximisation of the welfare of family members was more important than an individual’s search for a better life. Commercialised agriculture, temporary migration, and household by-employment developed in a way that fostered the flexible allocation of labour in the rural household. Since the number of work days for rice cultivation was large but labour productivity remained at a comparatively low level, farmers were used to working hard for small rewards. In Japan it was easier than in Western Europe to promote proto-industry by-employments to the full, as Thomas Smith so well documented.

---

5 Booth and Sundrum, *Labour Absorption*.
9 Smith, *Native Sources*, p. 83.
The land tax system, land holding patterns within the village, and the increasing monetisation of the economy combined to reinforce the development of a complex division of labour within the household, possibly at the cost of a geographical division of labour and the benefit of migration. As a result, an effort to develop multiple and coordination skills, rather than specialised and individual skills, assumed priority. The improvement of the quality of labour took a specific direction to accommodate such institutions.

By contrast, the Western European experience involving long-distance trade, fiscal-military states, urban growth, and rural–urban migration which encouraged a tendency to obtain improvement in the quality of labour from geographical specialisation and monetisation. While the proto-industry in East Asia grew as a further development of the peasant family economy, in Western Europe the in-house combination of agriculture and industry was gradually replaced by the division of labour through the market. Specialised and individual skills were accumulated and diffused through urban craft guilds, while their main competitor, rural putting out, was a net consumer of technological innovation.10

On the other hand, when Thomas Smith described the sense of time of Tokugawa peasants, he was concerned with the ideology that underpinned production. ‘Time was regarded as fleeting and precious, and great moral value attached to its productive use. Farmers made elaborate efforts to coordinate work and to stretch nature’s constraints by the skilful use of early and late varieties, . . . None of this ingenuity, however, was for the benefit of individuals. Time was not a personal possession but belonged primarily to families and, through them, to kin, neighbours, and villages.’11 Indeed, ‘industry’ could be generated by a variety of motivations and the improvement of the quality of labour motivated by either family or collective purposes or the search for material reward or individual satisfaction.

A major problem with the Lewis model is that it ignores the vital importance of proto-industry in economic development. Lewis was familiar with parts of Africa and the Caribbean, and the industrial revolution in Britain, but in none of these cases did he observe the huge numbers of peasant spinners and weavers, who were essential ingredients of East Asian economies. In Lewis’s dual economy model, employment in proto-industry was included in the traditional (subsistence or non-capitalist) sector, and thus outside the urban industry sector that was his engine of industrialisation. This assumption was held, regardless of each country’s factor endowments and position in the world economy. While Lewis did recognise the importance of raising labour productivity in traditional agriculture, he made a critical error of applying the classical political economists’ vision to developing countries with sophisticated proto-industry.

10 Epstein, Craft guilds.
Factor endowments versus institutions

In the literature on economic development in Western Europe before industrialisation, two factors are thought to be important in promoting Smithian growth. The first is the balance between factors of production, especially between land and labour. The second is the institutions that supported the growth of the market, including both commodity markets and factor markets for land, capital, and labour.

North and Thomas argued that changes in factor prices in land and labour was an essential background to the process of Smithian growth in which the geographical division of labour developed. Economic progress proceeded from the inclusion of new areas into the national and international markets through settlements and the opening up of land, resulting in the growth of inter-regional trade between resource-rich and labour-abundant areas. There were moments during which population fell absolutely or relative to land, when significant institutional changes were made so as to channel resources to more productive use and to reduce transaction costs from better information, lower risk, and secure property rights. Central to this process was the establishment of private property rights through the enclosure of commons by private landlords and the growth of the land market.

In this original North and Thomas perspective, the relationship between changes in factor prices and institutional response is only loosely defined. Changes in prices may or may not lead to Smithian growth, depending on both the kind of resources brought into the market (New World silver, newly opened European land or the discovery of coal) and the degree to which stable and low transaction costs were maintained by the domestic and international political regimes. On the other hand, institutional changes may or may not occur, depending on the political circumstances or the economic environment that underpinned them.

Recent Asian economic history suggests that a similar degree of Smithian growth is observable in East Asia and Western Europe in the late eighteenth century, which implies that both regions had sufficiently high ‘initial conditions’ for labour-intensive industrialisation. While these observations are debated, the discussion is centred on factor endowments and institutional development. One of the virtues of the view Ken Pomeranz sets out in his Great Divergence is that he has separated the two elements, and picked out relative factor price changes as the driving force behind the making of the capitalist world economy. One “trick” which released Pomeranz from the usual stumbling block is that he put aside conventional territorial boundaries to identify three or four ‘core regions’ for comparison. Thus, he was able to see that there is no fundamental difference between Western Europe and the core region of China for instance, in terms of the degree to which the division of labour developed. Once we establish the presence of Smithian growth in Tokugawa Japan, China’s lower Yangzi, and

12 North and Thomas, An economic theory; North and Thomas, The Rise.
13 Pomeranz, The Great Divergence.
Northern India, as well as in Western Europe, we are able to discuss just how these advanced ‘core’ regions managed to channel vast resources into productive use and reduce transaction costs without the accompanying institutional development of the Western European variety, in particular without the establishment of private property rights.

What kind of institutions functioned in East Asia in the same positive direction as the European regime of private property rights and states system? At the international level, the China-centred tributary trade system in the eighteenth century, for example, provided a relatively peaceful environment for trade, with a degree of mutual respect between China and other states. The Japanese response was managed trade through designated ports, but the importation of technological and managerial knowledge from China continued throughout the Tokugawa period. At the state level, China and Japan differed substantially. Fiscally, the Chinese empire was a relatively small state, and the market was less regulated than Continental Europe and Tokugawa Japan. Tokugawa Japan, on the other hand, had a strong state, extracting a larger share of agricultural surplus than its European counterparts. The domestic market was highly regulated and inland transport was poorly developed, but peace and stability made for low risk and transaction costs without the enforcement of an elaborate code of law. In sum, although there is no common pattern of institutional development in East Asia, it is not difficult to find the institutions analogous to the European system. The establishment of private property rights is only one of several ways to provide the institutional foundations of Smithian growth.

**Value regimes and welfare goals**

In addition to factor endowments and institutions, the improvement of the quality of labour also depends on the perception of the welfare goals of people; something which may differ between countries. Different value regimes exist behind different perceptions of welfare goals. How they influenced Smithian growth is a relatively undeveloped area of investigation.

Only recently have various types of human development index (HDI) been constructed and used by historians. The simplest type of HDI is an arithmetic average of three indices of per capita income, infant mortality, and literacy rate. If we were to use these as the welfare measure for late eighteenth century, we might find each core region attached importance to these three measures differently. Susan Hanley suggested that Tokugawa Japan valued more hygiene and cleanliness. Other East Asian core regions might have valued literacy more than per capita income, while the South Asian core region valued literacy rather less.

14 Sugihara, The European miracle.
15 Crafts, Historical perspectives.
16 Hanley, *Everyday Things*. 
Comparatively speaking, the basic human development goals were shared among different classes of people in Tokugawa Japan, despite social divisions, whereas in India the caste division may have resulted in a greater degree of diversity in welfare goals within the society. Less egalitarian value regimes in Western Europe could well be more consistent with the division of labour and the growth of the market than egalitarian ones. In this way, various types of Smithian growth could emerge as a result of different value regimes.

International factors could affect the value regime. A country that wanted military and naval power for territorial expansion or to discover the New World would have a different value regime to a country that preferred peace, closed the country, and denied entrepreneurial opportunities. It would be a mistake to make a judgement of the particular value regime for economic development using another value regime, especially if it was a later one. If the world had ceased to exist around 1820, it would have looked as if different value regimes helped produce different kinds of Smithian growth around the world. Furthermore, value regimes do not necessarily converge as fast as technology or material culture, and the slow pace of change is relevant for our understanding of different ways in which the quality of labour has been improved over time.

In summary, Japan and other core regions of East Asia followed a development path that prepared them for labour-intensive industrialisation. By the mid-nineteenth century Japan was better prepared than China. On the other hand, this path lacked the experience of institutional innovation for capital accumulation and was ill-suited to resource-intensive technology. The potential for the region’s economic development cannot be measured by the degree of Smithian growth or the level of real wages alone. Initial conditions for the region’s industrialisation were path-dependent.

LABOUR-INTENSIVE INDUSTRIALISATION, 1850–1945

The idea of the ‘great divergence’, that the resource endowments and factor prices of the Atlantic economy was distinct from the rest of the world, adds a new dimension to our understanding of labour-intensive industrialisation in East Asia. First, it singles out two most important factors, the ready access of coal and the availability of vast resources in North America, which directed the real wage in Western Europe and North America to rise, especially from the second half of the nineteenth century (see Table 2). On the face of it, this has little to do with the modern Asian history literature discussion of the ‘Western impact’, colonialism or imperialism. Yet the Atlantic economy’s shift towards a high-wage economy was a major factor for the diffusion of industrialisation; it gave room for Japan and later China to use their cheap labour to capture the huge Asian mass consumer market. Without the great divergence, the wage gap would not have widened as fast as it did and the low-wage competition worldwide would have
continued into the late nineteenth century, making regional specialisation more difficult.

An underlying assumption for the East Asian industrialisation strategy was that the opportunities for emigration from Asia to the West were quite limited. Since the nineteenth century, Asian immigration to North America and Australasia was severely restricted. Table 3 suggests that the flow of Asian immigrants was discouraged by the restriction of entry of women. After the conclusion of a gentleman’s agreement with the United States in 1907, the Japanese government insisted on American Japanese being allowed to bring Japanese brides to the United States. India and China were less able to help their immigrants. The effects of the restrictive immigration policy might be interpreted to have accelerated the shift to a high-wage economy and paved the way to labour-intensive industrialisation in East Asia.

Second, the two ‘contingent’ factors (coal and North America) have little to do with science and technology. The opening of North America of course made these windfalls possible, but the crucial point from an East Asian perspective was that the industrial revolution innovations, such as steam engines and advances in mechanical engineering, were not culturally or ecologically tied to the West. They were universally applicable. Indeed, by the standards of a century later, Britain during the industrial revolution was not a high-wage economy and its factor endowments arguably resembled East Asia rather than Western Europe.

Of course, the windfalls themselves further generated technological advance to make industrial technology more efficient and better suited to the resource-rich environment. When the Japanese Government’s Iwakura Mission visited Europe and the United States in the early 1870s, they recognised that the machinery, the factory system, and railways operating in the West were too capital-intensive for direct introduction to Japanese soil. But Japan could make adjustments, such as replacing steel in the frame of the power loom with wood, without detracting from the technology. Thus, from the mid-nineteenth century industrial technology and organisational innovations were made available to East Asia while at the same time the more advanced Western economies began to opt out of internationally-traded labour-intensive goods.

Table 2. Comparisons of per capita GDP, 1820–1950: East and West (1990 international dollars)

<table>
<thead>
<tr>
<th></th>
<th>1820</th>
<th>1870</th>
<th>1890</th>
<th>1913</th>
<th>1933</th>
<th>1950</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Europe</td>
<td>1,270</td>
<td>2,086</td>
<td>3,688</td>
<td>3,851†</td>
<td>5,013</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>1,257</td>
<td>2,445</td>
<td>3,396</td>
<td>5,301</td>
<td>4,783</td>
<td>9,561</td>
</tr>
<tr>
<td>Japan</td>
<td>669</td>
<td>737</td>
<td>1,012</td>
<td>1,387</td>
<td>2,120</td>
<td>1,926</td>
</tr>
<tr>
<td>China</td>
<td>600</td>
<td>530</td>
<td>540</td>
<td>552</td>
<td>578</td>
<td>439</td>
</tr>
<tr>
<td>World</td>
<td>667</td>
<td>867</td>
<td>1,510</td>
<td></td>
<td>2,114</td>
<td></td>
</tr>
</tbody>
</table>

Third, industrialisation diffused beyond the West from the late nineteenth century not because it was a product of the West but because it acquired a culture-neutral character that transcended political, cultural, and social specificities of the West. Science-based technology, not resource allocation, was the vital link, which encompassed a variety of cultures and institutions. Together with the initiatives of financial and service sector interests, science-based technology heralded a global transformation that included rapid urbanisation and the modernisation of social values and norms in a culturally neutral language that persuaded people of the merits of industrialisation in different civilisations.

The role of science-based technology in the nineteenth-century global history must be assessed not only in terms of productivity increase, but also in the context of cross-cultural diffusion. Having largely escaped Western colonial rule, at the end of the nineteenth century East Asia emerged as the only region that was capable of testing technology’s culture-neutral quality to the full. Although the


---

Table 3. Proportion of female migrants to the United States, 1820–1928 (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>Indian</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Chinese</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Korean</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Japanese</td>
<td>33</td>
</tr>
<tr>
<td>Southeastern Europe</td>
<td>Bulgarian</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Rumanian</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Greek</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Italian</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Russian</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Polish</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Portuguese</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Jewish</td>
<td>46</td>
</tr>
<tr>
<td>Northwestern Europe</td>
<td>Belgian</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Dutch</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Swiss</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Scandinavian</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Welsh</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>German</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Scottish</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Irish</td>
<td>48</td>
</tr>
<tr>
<td>Americas</td>
<td>Mexican</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Spanish American</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Canadian</td>
<td>39</td>
</tr>
</tbody>
</table>

region’s size of industrial production was relatively small, the success of science-based technology in East Asia was to prove crucial to the global diffusion of industrialisation in the twentieth century.\(^{18}\)

**Pre-war Japan**

In Asia, modern industrialisation started during the 1850s when India began machine cotton spinning in Bombay. Japan followed in the 1860s and the 1870s. Both cases involved the direct transfer of Western technology and institutions. By the 1880s, however, the Meiji Government recognised that Japan’s abundant and relatively good quality labour was a comparative advantage on which to industrialise. Japan produced a wide range of modern industrial goods such as cheap cotton textiles and noodle making machines to meet Asian cultural needs.\(^{19}\) In doing so, she drew on traditional institutions to raise the quality of labour. This strategy fostered the use of traditional labour-intensive technology, modernisation of traditional industry, and the conscious adaptation of Western technology to different factor-endowment conditions. Japan’s path we have called ‘labour-intensive industrialisation’ because it absorbed labour more fully and relied less on substituting capital for labour, than the Western path.

Traditional historiography maintained that Meiji Japan industrialised because it had cheap and docile labour. But cheap labour in the nominal sense does not explain why Japan industrialised more fully in the nineteenth century than any other country in the non-European world. Cheap and poor quality labour has usually been associated with the failure to industrialise because its low productivity makes it internationally expensive and the goods uncompetitive in an international market.

The point about Meiji Japan is that it had internationally competitive labour. Japanese wages were not just nominally cheap, but cheap relative to its efficiency. The Japanese wage of a young female worker in a textile factory in the late nineteenth century might have been a sixth of the English wage, but the productivity gap was smaller. Because the international labour market was imperfect, domestic demand and supply determined Japanese wage levels, while the quality of labour was determined in the peasant household, the main source of supply. Since land and capital were scarce relative to labour, labour remained cheap until capital became more plentiful shortly before World War I and industrialists sought to minimise the cost of capital. Unlike in Western high-wage economies, the technology used in Japan during this period aimed at the maximum and most effective use of labour wherever capital and labour were substitutable.

Further, Japan was overwhelmingly rural until after World War II. Only 38 per cent of population lived in cities in 1940, which was very small compared with

---

\(^{18}\) Sugihara, Japanese imperialism.

\(^{19}\) Sugihara, Keizai Hatten.
Western Europe at a similar stage of development. The rate of urbanisation in Britain exceeded 48 per cent by 1840 and 65 per cent by 1870, while the ‘European norm’ was 31 per cent in 1840 and 45 per cent in 1870. In other words, most of Japan’s industry was modernised cottage industries predominantly situated in rural areas. In the early 1930s, the Japanese manufacturing industry had a small fast-growing modern urban sector, and a large slow-growing but steadily modernising rural sector.

Why was the modernisation of rural industry so crucial? Given the technology gap, the abundance of cheap labour and the scarcity of capital made it sensible for Japan to minimise the cost of building urban infrastructure and specialise in the rural production of low-technology industrial goods. Most industrial goods produced in Meiji Japan were hybrid in character. Low-count yarn was produced in modern cotton mills in cities, while rural female workers hand-wove this machine-made yarn on improved traditional looms and later power looms. The latter were internationally competitive. In pre-war Japan, the peasant household continued to combine farm and industrial work, only releasing relatively few family members as casual workers. It was this parallel and tied development of modern and traditional sectors that ensured the international competitiveness of Japan’s textile and other export industries.

**Intra-Asian trade and imperialism**

To realise the potential of internationally competitive labour, a country needs to be able to export competitive labour-intensive goods. Between 1860 and 1938, Japan was more or less able to specialise in the exporting of labour-intensive industrial goods and the importing of capital-intensive goods and primary products, thereby enhancing her potential for growth through exploiting the gains from international trade. Figure 1 shows Japan’s place in world trade between 1900 and 1930 in a schematic way.

Several international conditions had to be satisfied for this to occur. Under Western domination, in particular colonialism, the regime of ‘forced free trade’ emerged in Asia and most countries were incorporated into the international economy. Merchant networks, such as those of the overseas Chinese, played a vital role in identifying both suppliers and consumers of Asian industrial goods. Japanese industrial policy helped ensure that Western technology was quickly employed to increase industrial production. Above all, labour-intensive industrialisation in Japan needed the presence of two types of trading partners: an

---

20 Crafts et al., Britain.
21 Saito, Chingin to Rodo, chs. 2–4.
22 For more discussion, see Sugihara, Patterns of Asia’s integration; Sugihara, Ajiakan Boeki; Sugihara, Intra-Asian trade; Sugihara, Japan, China.
23 Kagotani, Ajia Kokusai.
advanced country that specialised in capital-intensive industry and a developing country that specialised in primary production.

During the nineteenth and early twentieth centuries, the international market in East Asia was shaped by a pattern of consumption different from that of the Atlantic economy. Wages were lower and the type of mass consumer goods was different, yet expanding. Traditional industries had supplied this market. By the early twentieth century, more efficient production of these products gave emerging Japanese modern industry a competitive advantage in Asia. Japanese exports to Asia included a wide range of goods. Most of these were made to local consumer taste. Japanese manufacturers were better able to compete with domestic manufacturers in Asian countries than Western firms. For Japanese manufacturers, the Asian market was often as important as the domestic market in volume terms. Its

---

24 These included cotton yarn, silk spun yarn, cotton cloth, silk cloth, undershirts and drawers of cotton knit, socks and stockings, European umbrellas and parasols of cotton knit, matches, paper and paper manufacture, pottery, glass bottles and flasks, lamps, ropes, bags, mats of straw, toilet soap, drugs, and medicines. Sugihara, Patterns of Asia’s integration, p. 716.
large potential consumer population enabled Japanese manufacturers to develop an international labour-intensive goods market in Asia more readily than German manufacturers, for example, could do in Europe.

At the same time, Japan needed to develop trade complementarity because many of its new industries relied on raw materials and energy from abroad. Similar to the ‘windfall’ England had in obtaining fuel and raw materials from the New World, Japan needed a primary producer cum non-competing importer of labour-intensive goods, or a ‘windfall’, or both, to upgrade the industrial structure along the labour-intensive path. This came in Japan’s colonisation of Taiwan in 1895 and Korea in 1911. In both colonies Japan introduced wide-ranging reforms and market initiatives that increased agricultural surplus for home consumption, such as land-intensive rice and sugar imports, and created a market for industry exports. Japan was able to use colonial trade to her advantage, obtaining cheap imports of food and other materials while suppressing low-wage industrial competition.

In the regional context of labour-intensive industrialisation, there was relatively free technological transfer from Japan to China. After 1912, East Asian competition increased as China began to pursue import-substitution industrialisation. Japan, along with the United States and Europe, was a major source of inspiration of Chinese industrialists and entrepreneurs. Japanese technology was transferred to Korea and Taiwan as well. As Chinese manufacturers captured the domestic market of plain cotton cloth, Japanese exports shifted to higher-quality products and exports of textile machinery also increased. In another words, there was room for further specialisation within labour-intensive industrialisation. This interwar context was the background to the theory of the ‘flying geese pattern of economic development’. At this time Britain was not antagonistic to the industrial development of Japan and saw benefit in trade with Japan and in expanding the export of capital and services in Asia. Japan took advantage of Western colonial order in Asia to further its economic goals. Japanese imperialism became an increasingly significant part of that order from the 1920s, and in the 1930s the need to secure raw materials and energy for industrialisation became the background for Japan’s aggression and the Pacific War.

Defining labour-intensive industrialisation

We now need to clarify our definition of the term labour-intensive industrialisation. First, this paper uses the categories of capital-intensive and labour-intensive industries in relative terms across time and space. For example, despite being

25 Nakamura, Incentives, productivity gaps.
26 Abe, The Chinese market.
27 Akamatsu, A historical pattern.
28 Akita, British informal empire.
much more capital-intensive than traditional weaving industries, Japanese modern textile factories in the late nineteenth century were more labour-intensive than heavy industries in Germany and the United States. Also, cotton textile factories in England were relatively capital-intensive in the first half of the nineteenth century, but progressively became an ‘old industry’ seen as labour-intensive in the twentieth century.

The proposed categorisation is useful in identifying the general direction of technological and institutional innovation of each country or region. For example, heavy and chemical industries require the development of financial institutions to fund large fixed investments, while the labour-intensive industries focus more on the recruitment and training of labour. The difference often reflects factor endowment conditions; in principle, high wage economies develop capital-intensive industries while low-wage economies develop labour-intensive ones. The development of labour-intensive industries needs some capital-intensive industries, while population growth and labour supply conditions might encourage high-wage economies to develop labour-intensive industries. Nevertheless, the distinction is useful to identify the specific logic of industrialisation of each country or region.

Second, the best way to recognise the different paths of industrialisation is to study the trade structure of a country or region. The development of modern industry implies the deployment of modern machinery and a greater input of capital and hence a higher capital–labour ratio and capital–output ratio. It also implies the replacement of labour with capital or machinery, and the demise of some artisanal occupations. On the other hand, the resilience of traditional industry and the prevalence of small- and medium-scale industries have been recognised in the proto-industry literature. Modern industry destroyed some traditional industries (e.g. hand spinning), while others had mixed experiences (e.g. weaving). Where hand-weaving survived for a time using machine-made yarn and cheap family labour in the peasant household, before the productivity gap with power looms became too great, the sector was often critical for the initial stage of industrialisation. Improved productivity in the traditional sector using new industrial inputs, such as in weaving, increased consumer demand and the demand for the output from modern spinning mills. Indeed, the parallel development of modern industry and traditional industry is one of the main features of the Meiji industrialisation. And local hand-loom centres did not always die out; power looms gradually replaced improved hand looms and in many places traditional industry transformed itself to small-scale industry that still constitute a part of Japanese industry to this day.

While it seems obvious that smaller-scale industry had a lower capital–labour ratio and a lower capital–output ratio than large-scale industry, it is not always the case. The post-war experience suggests that policy bias towards heavy industry could easily force small-scale industry to purchase expensive and out-of-date production inputs. The proposed categorisation is useful in identifying the general direction of technological and institutional innovation of each country or region. For example, heavy and chemical industries require the development of financial institutions to fund large fixed investments, while the labour-intensive industries focus more on the recruitment and training of labour. The difference often reflects factor endowment conditions; in principle, high wage economies develop capital-intensive industries while low-wage economies develop labour-intensive ones. The development of labour-intensive industries needs some capital-intensive industries, while population growth and labour supply conditions might encourage high-wage economies to develop labour-intensive industries. Nevertheless, the distinction is useful to identify the specific logic of industrialisation of each country or region.

Second, the best way to recognise the different paths of industrialisation is to study the trade structure of a country or region. The development of modern industry implies the deployment of modern machinery and a greater input of capital and hence a higher capital–labour ratio and capital–output ratio. It also implies the replacement of labour with capital or machinery, and the demise of some artisanal occupations. On the other hand, the resilience of traditional industry and the prevalence of small- and medium-scale industries have been recognised in the proto-industry literature. Modern industry destroyed some traditional industries (e.g. hand spinning), while others had mixed experiences (e.g. weaving). Where hand-weaving survived for a time using machine-made yarn and cheap family labour in the peasant household, before the productivity gap with power looms became too great, the sector was often critical for the initial stage of industrialisation. Improved productivity in the traditional sector using new industrial inputs, such as in weaving, increased consumer demand and the demand for the output from modern spinning mills. Indeed, the parallel development of modern industry and traditional industry is one of the main features of the Meiji industrialisation. And local hand-loom centres did not always die out; power looms gradually replaced improved hand looms and in many places traditional industry transformed itself to small-scale industry that still constitute a part of Japanese industry to this day.

While it seems obvious that smaller-scale industry had a lower capital–labour ratio and a lower capital–output ratio than large-scale industry, it is not always the case. The post-war experience suggests that policy bias towards heavy industry could easily force small-scale industry to purchase expensive and out-of-date production inputs.
machinery with capital at a high interest rate, while the more powerful large companies could enjoy the importation of efficient foreign machines and better borrowing terms. During pre-war industrialisation, many traditional industries were probably inefficient and suffered from a rather high capital–labour ratio, especially if they were located where machinery and capital were not readily available. Thus, the data on the capital–labour ratio offer a useful but not a definitive guide for the understanding of the direction of technological and institutional innovation in each country or region.

We might better identify the direction of industrialisation using the long-term trend of the country’s structure of foreign trade. The best sign of labour-intensive industrialisation is when a country exports labour-intensive goods and imports capital-intensive ones at the initial stage of industrialisation. That country could remain the exporter of labour-intensive goods without the improvement of the quality of labour, or develop a labour-intensive path of development based on the more skilled and educated labour that progressively improves the character of exported goods. If that takes place, the country’s trade structure would begin to look more like a country with capital-intensive industrialisation, but that does not necessarily mean its competitiveness is from the use of capital. Rather, international competitiveness could come from the quality of labour.

The improvement of the quality of labour

My last comment is important for our understanding of the character of labour-intensive industrialisation before the education of the majority of the workforce. What were the determinants of the quality of labour and how did it improve over time? Let us go back to the case of pre-war Japan to review the process.

First, labour recruited from the countryside was of a relatively good quality. The Tokugawa peasant household had an incentive to improve their economic and social capabilities, and a high level of social stability was achieved over a long period of time. The accumulation of human capital, especially that of general, managerial, and interpersonal skills relevant to the control of their immediate surroundings and the administration of the village community, became an engrained value in Japanese society and contributed to slow but steady economic progress. The Japanese developmental path after the Meiji Restoration largely retained these characteristics. There was a capability enhancement channel within the society, and the development of ideologies and institutions was essentially directed towards creating an order which would promote this channel.

Second, labour management played an important role in the improvement of the quality of labour. In cotton mills, there were many kinds of prize or bonus available to encourage workers. Individual performance was often publicised and workers were encouraged to compete with each other on a group basis. These

30 Nakamura, Human capital accumulation.
incentives were by no means original, but most workers responded enthusiastically. For instance, most factories reported that many workers (70 or 80 per cent in some factories) received attendance prizes.

A female worker demonstrates the attitude, who when asked why her co-workers did not rest at the rest time, said: ‘Nobody takes a rest because it is not nice to be beaten by others’.  

This attitude is unusual at an early stage of economic development. Japanese workers were willing to express themselves by accepting the new rules of the factory community as the most relevant values for them.

Industrial paternalism was widely practiced, including the conduct of classes in reading and writing, tea ceremony, flower arrangement, cooking, and morality; some factories practiced inspection of workers’ clothing or required the reporting of their personal expenditures. Others encouraged the keeping of journals that were published in factory news-sheets called Operatives Friends or similar names. The improvement of the quality of labour did not, however, directly make a great impact on labour productivity. The more literate, the more hygiene-conscious, and the more disciplined workers were better able to perform their tasks, but their skills often remained simple, at least for the majority of workers on the shop floor. Along the way, however, the efforts of managers resulted in a greater sense of dignity to unskilled work and a greater sense of respect to modern social values. This raised the social profile of the cotton mills as a place to work and facilitated the recruiting of the daughters of respectable rural households. Essentially, this was the Japanese solution to the problem of reconciling the need for unskilled (and often manual) labour with human development during industrialisation.

Third, formal schooling played a part. In 1905, 57 per cent of the working-age population had not completed primary school, while 42 per cent had completed primary school only; by 1935, the proportions were seven per cent and 82 per cent, respectively. By 1930, more than 90 per cent of industrial workers completed primary school. Nevertheless, we need to look beyond formal schooling to understand the ideologies and institutions that supported the entire process of industrialisation. Japan’s remarkable development of formal schooling in the twentieth century institutionalised the capability enhancement channel that had been set for centuries, rather than created it.

Our evidence suggests that labour must be interpreted as a factor of production, the quality of which has constantly changed and often improved. Throughout the history of capitalism, factor endowment conditions set the condition under which technological and institutional innovation took place. The argument is that labour functioned, not like capital, but rather like land, the value of which has changed, depending on whether its quality was improved, maintained, or depleted.

31 Quoted in Noshomusho, Shokko Jijo, p. 550.
32 Sugihara, The transformation of young country girls.
33 Hazama, Nihon ni okeru, p. 194.
POST-1945 DIFFUSION OF LABOUR-INTENSIVE INDUSTRIALISATION

The post-war debate on the industrialisation strategy

Industrialisation in Asia accelerated after 1945. The single most important factor was decolonisation, which led most Asian countries to implement a programme of industrialisation. Inevitably, the Cold War changed the pre-war pattern of intra-Asian trade. Countries under the influence of the Soviet Union or the non-aligned movement largely withdrew from world trade while a handful of countries along the Western Pacific Rim, Japan, South Korea, Taiwan, Hong Kong, and Malaya, were integrated into the international economy.

In the 1950s and the 1960s, a number of South and Southeast Asian countries attempted import-substitution industrialisation. But it was not easy to alter the pattern of international division of labour where developed countries exported manufactured goods and developing countries exported primary products. The United Nations Committee on Trade and Development in 1964 stressed import-substitution industrialisation to redress the worsening of the terms of trade for primary producers. Import-substitution was thought to be possible through heavy protection, low interest rates, overvalued currency, and fiscal concessions. Emphasis was placed on the development of capital-intensive industries across the region.34

Other organisations such as the International Labor Organisation were unhappy about such a strategy that emphasised the use of scarce capital, did little to address the problems of unemployment, and neglected agriculture.35 These criticisms produced a ‘new orthodoxy’ that emphasised rural development and labour-intensive industries based on medium and small firms. Thus, ‘human resource development’ moved to the centre stage of development priorities.36

Both Taiwan and South Korea had a large labour-intensive industry sector at an early stage and proceeded with export-led industrialisation, importing intermediate and capital goods from Japan that were combined with their competitive labour to produce final goods for export to the United States.37 Around the mid-1960s, Southeast Asian countries began to change their industrialisation strategy, adopting a more open economic policy with an emphasis on the exports of labour-intensive goods. After 1979, China also became an exporter of labour-intensive industrial goods. Looking back, labour-intensive industrialisation in Asia had continued in the second half of the twentieth century after a short interregnum of capital-intensive industrialisation. Over the past half century, those countries that had pursued capital-intensive industrialisation, such as India, lagged in growth, while those that had shifted to labour-intensive industrialisation, such as Taiwan, grew rapidly.

34 Oshima, Economic Development.
35 Amjad, The development.
36 Amjad, Human resource, p. 1.
37 Lee, Egalitarian peasant; Lee, Export-led industrialisation; Hattori and Sato, Kankoku, Taiwan Hikaku.
The Japanese miracle and the ‘flying geese’

Japan’s ‘high growth’ of the 1950s and the 1960s was an important background to this regional policy shift. After its defeat in World War II, the Japanese government pursued a programme of modernisation through expansion of its domestic market. Resource constraints remained a critical bottleneck. The Cold War changed the American attitude towards Japan and it was allowed to introduce capital-intensive heavy and chemical industries, something that had in part been attempted in the 1930s. The character of Japanese growth effectively shifted from labour-intensive industrialisation to the fusion of two paths: the East Asian labour-intensive path and the Western capital-intensive one in an experiment that began to assume global significance. This change was based on two highly contingent factors: the opportunity surrounding the Cold War, which allowed Japanese industrial growth, and the Japanese drive to modernise using the fewest additional resources, which was an instinctive reaction to the consequences of the Asia-Pacific War.

Under the Cold War regime, technology was transferred from the United States, while Japan – and later the Newly Industrialised Economies (NIEs) – was allowed to import natural resources. The United States specialised in resource- and capital-intensive military, aircraft, and petrochemical industries, leaving East Asia to industrialise light industries, the non-military and relatively labour-intensive segments of heavy and chemical industries, including shipbuilding, automobiles, and consumer electronics. East Asian capitalist growth in turn bolstered the Cold War regime. The Cold War regime and East Asian growth were essentially two sides of the same coin.

As the Cold War turned to a ‘long peace’, military demand flattened, and the market expanded for the mass consumer goods in which East Asia specialised. The region’s exports to the United States as well as intra-Asian trade increased rapidly. The US-Europe trade and intra-European trade grew but slowly during the same period. The European Economic Community adopted a protectionist stance and decolonisation gradually led to the demise of the sterling area. The Soviet-centred communist-bloc failed to generate the dynamism of technological advance in labour-intensive industries and new consumer demand. Thus, the growth of post-war trade was driven by the leadership of the United States and the high-speed growth of Japan and other Asian countries.

Within Asia the fusion between the traditional commercial skills of overseas Chinese and Japanese technology helped the diffusion of industrialisation, a process captured in the term the ‘flying geese pattern of economic development’. In this scheme, the relatively labour-intensive low-technology industry of a more advanced country (such as Japan) would be rapidly transferred to the country next in line (such as Taiwan), which in turn would transfer it to another (such as Malaysia). The more advanced county would be under constant pressure to restructure its industries because of the competition from low-wage countries. State intervention through industrial policy was essential to this process, yet East
Asia, particularly Japan, was more committed to free trade than Europe and the United States and was willing to let international competition rule the region’s economics and politics. The income gap, first between Japan and NIEs, then between NIEs and the ASEAN bloc, between ASEAN and China, and between China and other parts of Asia, provided the opportunities for technological transfer. By the 1980s, the centre of world trade had decisively shifted from the Atlantic to the Pacific.

The economic success of Japan and NIEs prompted a change in Chinese policy in the late 1970s, which vastly enlarged the market of the Asia-Pacific region. With the collapse of the Soviet Union in 1989, the United States began to reduce its commitment to military industry and aimed more for financial supremacy. The new complementarity between the American financial interests and East Asia’s industrialisation replaced the old (military/non-military) division of labour and sustained the continued growth of trade during the 1990s.38

Figures 2 and 3 confirm the sweeping change in the structure of the world economy in the second half of the twentieth century. Figure 2 shows that East

---

**Figure 2. Regional composition of world GDP, 1950–2002.**

*Source and notes:* Maddison (2003). Western Europe consists of Austria, Belgium, Denmark, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland, and United Kingdom. East Asia refers to Japan, South Korea, Taiwan, Hong Kong, Singapore, Philippines, Thailand, Malaysia, Indonesia, and China. South Asia refers to India, Pakistan, Bangladesh, and Sri Lanka.

---

38 Sugihara, Oceanic trade.
Asia’s share of world GDP rose from 10 per cent in 1950 to 27 per cent in 2002, while the share of the rest of the world, especially Western Europe and the former (non-Asian) socialist countries declined. Figure 3 depicts the shift in the centre of world trade from the Atlantic to the Pacific. Omitted from this scheme are two large regional trade blocs, intra-European trade and trade among nine key Asian countries (other than Japan) including China, though they conform to the trend too.

**Factor endowments and consumer tastes**

The most immediate international economic force that united the economies along the Pacific Rim was the ‘second’ transport revolution, the introduction of large tankers and the containerisation of cargo. The biggest ocean on earth began to provide the biggest opportunities for trade as cheaper transportation connected countries with great diversity in factor endowments and consumer tastes.

How do we explain the explosion of Pacific trade? Ricardo and later Heckscher-Ohlin argued for the ‘gains from international trade’ – a model that explained the rise of the Atlantic economy. But the diversity of factor endowments and
productivity was greater around the Pacific. The region was more densely populated, relatively resource-poor, and with widely varying wage rates and technological capabilities. The United States, on the other hand, needed to exploit the advantage of its economies of scale in resource- and capital-intensive industries. It, Canada and Australia sought customers for their primary products now that Europe had lost its capacity for rapid import growth. Within East Asia, a flying geese pattern was the basis of the growth of intra-Asian trade of high-technology industrial goods.

A simple principle emerged – the greater the diversity, the greater the trade opportunity. The case was put for ‘open regionalism’, which advocated lower tariff barriers within the region, but unlike the European Union, without discriminating against countries outside the region. In spite of economic nationalism, Asian countries enjoyed the benefits of the entrepot of Hong Kong and Singapore with the economies of Japan, NIEs, ASEAN, and China trading heavily via these ports. Open regionalism became the guiding principle in the late 1980s.

Furthermore, a more comprehensive technological and cultural fusion between different civilisations occurred than the world had ever seen. In the 1960s, East Asia had contributed significantly to the emergence of the mass consumer market in the United States. During the 1980s and 1990s, technological fusion became a two-way process. Not only did Japan absorb a wide range of American technology and culture to produce competitive cars and consumer electronics, but the US manufacturers responded to the Japanese challenge by adopting some Japanese production methods. In other words, convergence and specialisation occurred. International competition for the best input mix became increasingly fierce and propelled the growth of the Asia-Pacific economies.

The Asian market for mass consumer goods has also seen an unprecedented degree of fusion of consumer tastes. Part of the dynamism of the American mass consumer market during the 1950s and the 1960s came from the variety of European cultures and tastes that were blended to form a new mass consumer culture. In East and Southeast Asia in the 1980s and the 1990s, a wider range of cultures and tastes came to be blended, to create diverse patterns of food, clothing, and housing. With the rapid rise of per capita income, Asian household expenditure began to include a greater variety of consumer products. These developments by no means pointed to the ‘universalisation’ of consumer tastes. Products were adapted for East Asia, such as the local language interface for computer software. East Asian entrepreneurs who inherited the skills of translating local cultural codes to economic values were those who responded to these needs. Meanwhile, technology flowed from the United States and Western merchants secured a share of this long-distance trade. The point is that if two or more different civilisations develop slightly different mass consumer markets based on different languages and cultures, while there is also a strong tendency for technological and cultural

39 Garnaut and Drysdale, Asia Pacific regionalism.
convergence, business opportunities are greater than in a monoculture. Here ruled the principle that the greater the diversity, the greater the trade opportunity.

How did these market changes affect the recruitment and management of Asian labour? The growing diversity of the market, cutting across territorial boundaries from low wage to high wage, and from unskilled to highly skilled, exposed an increasing number of workers directly to international competition. By the early 1950s Japan was the world’s largest exporter of cotton textiles, a position held until China overtook it in the early 1970s.\(^40\) The development of labour-intensive manufacturing across Asia had been impressive, including Hong Kong, Taiwan, South Korea, Thailand, Indonesia and many others, including the poorest. Much of this was rural-based.

The evidence indicates that rural non-farm activities carried out mainly in small-scale enterprises (including farm household enterprises) are a very important source of employment and income in developing countries. As much as 30 to 50 per cent of the rural labour force is either primarily or secondarily engaged in a wide range of non-farm activities, which generate 20 to 40 per cent of rural household income. Particularly significant is rural manufacturing. Employment in this sector often exceeds that in urban manufacturing establishments; rural-based, small-scale industries are generally not only more labour-intensive, but also more productive per unit of scarce capital than their large-scale counterparts.\(^41\)

At the same time, the labour market was gradually enlarged to include higher-skilled, better paid jobs. The flying geese pattern of economic development suggests the growth of a hierarchical structure in the regional labour market – the high-wage economies possess a labour force of high quality and high education, while low-wage economies depend on cheap labour with little education and training. For the Asian labour market, given the restrictions of labour factor flows (migration), people were keen to be educated and trained because wages rose rapidly in tandem with demand for highly skilled jobs. Investment in education was partly a result of the relative lack of investment opportunities, but it also reflected the awareness of the need to improve the quality of labour. Technology together with commercial and managerial skills crossed national borders rather freely. American and Japanese direct investment and the overseas Chinese networks were important in these transmissions. Wage rises and labour shortages in Japan and the NIEs in the late 1980s increased pressure for the importation of labour.\(^42\) In the 1990s, unskilled labour was imported to some high-wage economies in the region.

These developments provided East and Southeast Asia with a route from labour-intensive industrialisation to a more comprehensive industrialisation. Simple labour-intensive industries were progressively assigned to low-wage economies, while the labour-intensive segments of capital-intensive industries (such as

\(^{40}\) Sugihara, International circumstances.
\(^{41}\) Hayami, Towards an alternative path, p. 2.
\(^{42}\) Godfrey, Labour shortage, p. 39.
computer assembly) were transferred from the United States and Western Europe to Asia. The exploitation of diverse consumer culture gave local and regional suppliers of labour-intensive goods and services an additional advantage. As long as the quality of labour responded to the upgrading of the industrial structure, labour-intensive industrialisation led to a more comprehensive industrialisation, incorporating ever larger segments of capital-intensive industries, while remaining relatively capital- and land-scarce and hence, with a tendency towards resource-saving technology. Meanwhile, the liberal trade regime facilitated greater level of international trade and capital flow.

An important revision proposed here is that there was a three-tier division of labour between capital-intensive manufactured goods, labour-intensive manufactured goods, and primary products; rather than a two-tiered division between manufactured goods and primary products that promoted the post-war growth of world trade. This view identifies the trade of labour-intensive manufactured goods as the driving force of world trade. It connects the pattern of pre-war Asian regional trade, described in the previous section, to the post-war pattern of trade expansion.

The impact of microelectronics revolution

Meanwhile, there was a significant change in industrial structures in the developed countries. Table 4 shows the difference in growth rates in various industrial sectors.

| Table 4. Trends of domestic demand in volume terms by branch of industry in the European Community, the United States, and Japan (average annual growth rate, 1972–85) (%) |
|-------------------------------------------------|-----------------|-----------------|-----------------|
| Strong-demand sectors                           | European Community | United States | Japan |
| Office machines, data-processing equipment      | 9.0              | 6.5            | 7.2            |
| Electrical and electronic equipment and supplies| 3.5              | 7.2            | 20.7           |
| Chemicals and pharmaceuticals                   | 5.3              | 2.3            | 9.9            |
| Moderate-demand sectors                         | 1.2              | 2.8            | 3.1            |
| Rubber, plastics                                | 2.8              | 5.4            | 2.0            |
| Transport equipment                             | 1.7              | 2.7            | 5.2            |
| Foodstuffs, beverages, tobacco                  | 1.2              | 0.4            | 0.0            |
| Paper, printing                                 | 1.6              | 2.9            | 2.7            |
| Industrial and agricultural machinery           | –0.1             | 5.6            | 5.6            |
| Weak-demand sectors                             | –0.3             | 0.5            | 2.4            |
| Metal products                                  | –0.5             | –0.4           | 3.4            |
| Miscellaneous industrial products               | –0.6             | 2.1            | 1.9            |
| Ores and ferrous and non-ferrous metals         | 0.6              | –1.8           | 2.0            |
| Textiles, leather, clothing                     | –0.2             | 2.0            | 2.2            |
| Non-metallic minerals (construction materials)  | 0.1              | 1.7            | 1.1            |

during the 1970s and 1980s. Industries linked to microelectronics technology grew rapidly, while the ‘old’ industries (including textiles and heavy industries) struggled. Japan also led this change, which was felt most keenly in the developing economies of East and Southeast Asia.

The new technology fused with the skills of mechanical engineering created a wide range of electronics-related industries that had a large number of relatively simple jobs, such as assembling, in addition to highly skilled tasks. More importantly, the ‘new’ industries did not necessarily require industrial concentration and infrastructure of the kind required by heavy industries. Nor did they necessarily need a large amount of capital. Provided there was competitive labour, access to information and commercial and financial networks, they could move to any location that combined best the factors and policy packages required. Conversely, if conditions changed, the industry could quickly relocate. Yet in terms of employment, the potential linkages between these new industries and domestic labour-intensive industries were large. Besides political stability and incentive packages, to host these new industries required a developing economy and a flexible supply of quality labour; ranging from unskilled to skilled. A range of quality workers was the key to a country’s competitive advantage. By the 1980s even rural industries often required educated labour.43

Reflecting such a change, many countries implemented various human resource development and education policies. By 1985, the attainment of primary schooling education was more or less the norm in ASEAN countries and secondary school enrolment rates had vastly improved, matching or exceeding the level of China and India. In higher education, the Philippines and Thailand exceeded that of India. Although ASEAN lagged Japan and the NIEs, the progress is impressive – immediately after World War II the levels of education were similar to or lower than that of South Asia.44 Thus, with time-lags and a different pace, Japan, the NIEs, and ASEAN passed through the phase of labour-intensive industrialisation and gradually moved to the human-resource-orientated path of economic development in which the improvement in education was important. The HDI of these countries rose steadily.

**Policy convergence**

The different developmental strategies of Asian countries affected the progress of labour-intensive industrialisation, and the speed and timing of the transition from labour-intensive industrialisation to the human resource path of economic development. Taking the case of independent India, the import-substitution industrialisation strategy made it difficult to pursue labour-intensive industrialisation, which had taken place during the colonial period.45 Several factors explain this

45 Roy, *Rethinking Economic Change*.
including: the legacy of the nationalist movement, which advocated protection and development of traditional cottage industries; government protection of the modern cotton textile industry, which provided the traditional weaving industries with cheap machine-made yarn; a protected labour sector; and the near prohibition on textile machinery imports and their installation. The result was an Indian cotton textile industry isolated from the technological advance of other Asian countries which had been led by Japan.  

The ideology for political and economic autonomy remained powerful in India. After 1965 several attempts to liberalise the economy failed. The 1991 policy shift realised a degree of liberalisation, but it did not represent a major ideological change among the Indian elites. The rate of increase in the expenditure on education and welfare for the ordinary people, relative to that for elites, has been slow. Yet a high level of capability based on primary and secondary education and hygiene is a necessary, though not sufficient, condition for economic development. In this respect, the Chinese achievement during the pre-reform period (1949–79) was more impressive. Nevertheless, the reforms of 1991 sharply corrected India’s past bias in economic strategy and she has been progressively integrated into the international economy.

At the end of the twentieth century, therefore, most of Asian labour employed in industry was in touch with, if not fully integrated into, a competitive international economy. More than 14 million Indians were employed in the textile sector in 1994–95 alone. Slowly but steadily, the route from a low-wage economy based on unskilled labour to a high-wage skilled labour economy expanded and the old idea of capital-intensive industrialisation faded. The labour-intensive route was the main route to industrialisation in Asia during the second half of the twentieth century.

Developmentalism and education

I wish to touch briefly on three final issues about the nature of labour-intensive industrialisation in post-war Asia. First, there is the question of voice and growth. During industrialisation, several of the NIEs and ASEAN countries were authoritarian states that fitted the Cold War regime of American strategy. Authoritarian government-led economic and social development was supported so long as it respected the international free trade and investment, and did not infringe on property rights. These governments formed a national consensus on the basis of

46 Itoh, Kiro ni Tatsu; Leadbeater, The Politics of Textiles.
47 For a typical reaction to the export-led labour-intensive industrialisation strategy, see Singh, The ‘basic needs’ approach.
48 Lindert, Voice and growth; Lindert, Growing Public.
49 Dreze and Sen, India: Economic Development.
50 Sugihara, India and the rise.
51 Roy, Development or distortion?
52 Milikan and Rostow, A Proposal.
anti-communist ideology and nationalism injected ‘from above’ with the support of technocrats.

These regimes had a distinctive ‘developmentalism’ character, committed to development and industrialisation; growth in turn legitimatised their authoritarian rule. While the government was generally repressive towards labour, it was often keen to mobilise farmers for political support. An important result was the improvement of roads and other infrastructure, education, and social welfare in rural areas. National leadership focused on winning mass support for growth rather than on freedom.

With the end of the Cold War, the need to mobilise anti-communism lessened, but developmentalism retained a central role. Although the growth ideology in Asia had been shaped under authoritarianism, developmentalism appears to be capable of accommodating democracy and remains a force in East Asia. Amartya Sen’s ‘development as freedom’ thesis is critical of these regimes. Nevertheless, the legitimacy of these regimes critically depended on a national consensus for growth, which was also a mechanism to promote education and human development. In Asia, it was not just the voice but the national quest for the competitive advantage that moved the society forward.

Second, high technology and globalisation challenged development economics. Arthur Lewis thought the Gary Becker and George Schultz arguments on human capital had problems measuring the value of education in terms of returns on investment. In his view, primary education in developing countries should rise gradually in accordance with changes in industrial structure. When a country had no choice but to depend on agriculture for most of its labour absorption, an increase of primary school enrolments would encourage young people to migrate to cities, which could check the rise of agricultural productivity and lead to the growth of the urban informal sector. As for higher education, most developing countries were already unable to offer employment to those who were highly qualified, resulting in a brain drain.

But the issue for the NIEs and ASEAN was to make a transition from labour-intensive industrialisation to the more human-resource-orientated path, not by creating an autonomous path of economic development but in response to external stimuli. It involved the flexible response to changing demand and the long-term development of human resources.

In particular, the balance between fostering specialised and general skills was important for the improvement of the quality of labour as technology changed, especially after the microelectronics revolution. In this context, Claudia Goldin’s understanding of the American ‘template’ is interesting. The US system of education established in the early twentieth century, she suggests, led the world to become accustomed to post-elementary education. The American template was

---

53 Suehiro, Hatten Tojokoku.
54 Sen, Development as Freedom.
shaped by endowments, ideology, mind set, and administrative practice that made for general schooling that produced more flexible and transferable skills across place, occupations, and industries than European counterparts. Goldin’s vision of the twentieth century, as the human-capital century, emphasises the degree of human capital accumulation as the trait that distinguishes that century from the past.

This vision encompasses the rapid diffusion of post-elementary education in the non-European world, especially in East Asia, though no discussion is offered as to how the American template was diffused. In fact, Asian labour skills were inclined to be initially quite general and remained flexible and multi-skilled during the period of rapid technological change. In other words, the East Asian tradition of skill formation was responsive to the age of high technology and globalisation, either because of the nature of the tradition itself or because of the relative lack of penetration of Western organisation of artisanal skills and technical specialisation, or both.

Third, the need for human resource development suggests the significance of balanced spending between primary, secondary, and tertiary education. According to Lindert, the ‘private property rights channel’, which Western Europe followed and has been inherited in other parts of the world, tended to produce an ‘elite bias’, especially overspending on higher education. By contrast, the public expenditure on education in Japan, NIEs, and ASEAN countries was more favourable to primary education. Table 5 shows a clear difference between South Asia and Southeast Asia, regardless of the nature of political regimes.

Table 5. The level and distribution of public spending on education in selected Asian countries, 1985

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall government spending (percentage of GNP)</th>
<th>Distribution of public spending† (%)</th>
<th>Primary</th>
<th>Secondary</th>
<th>Higher</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>1.5</td>
<td>49</td>
<td>34</td>
<td>15‡</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>India§</td>
<td>3.0</td>
<td>27</td>
<td>47</td>
<td>19</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>1.8</td>
<td>64</td>
<td>16</td>
<td>20</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.7</td>
<td>62</td>
<td>27</td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>3.6</td>
<td>58</td>
<td>24</td>
<td>12</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>6.0</td>
<td>36</td>
<td>34</td>
<td>26</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>3.3</td>
<td>41</td>
<td>42</td>
<td>18</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>3.4</td>
<td>57</td>
<td>34</td>
<td>9</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Source and notes: Tan and Mingat (1992, p. 27). †Figures may not add up to 100% because of rounding errors. ‡Figure includes expenditure on universities, polytechnics, and technical institutes. §For India, the data on the distribution of spending refer to 1980.

57 Lindert, Voice and growth, pp. 333–9; World Bank, Primary Education.
58 Tan and Mingat, Education in Asia, p. 27.
These observations support the idea that Asian growth economies shared a common developmentalism with an emphasis on primary and secondary education, despite diverse political regimes, including repressive ones. A result was that these growth economies were able to respond to international economic signals to maximise their comparative advantage in labour and train labour to enhance it.

CONCLUDING REMARKS

The central proposition of this paper is that labour-intensive industrialisation is one of the two major routes to the global diffusion of industrialisation. This position has several implications. First, the 'Western path' of economic development is not the only route to industrialisation. The pattern of global division of labour since the second half of the nineteenth century suggests that the capital-intensive and resource-intensive technology is developed by the use of a disproportionate amount of global resources available to mankind at each stage of development. There was no prospect towards a global equalisation of income through the direct diffusion of such a technology to the rest of the world. The global diffusion of industrialisation was made possible by the development of labour-intensive and resource-saving technology, which provided the majority of world's industrial employment. This labour-intensive route combined cheap labour and Western technology to produce a capitalism aimed at a fuller exploitation of human potential as labour. If we are interested in understanding the potential, reality, and consequences of capitalism, we need to capture this aspect of industrialisation by placing the improvement of the quality of labour in the centre of our discussion. Only by so doing will we be able to assess the achievements and limits of the 'Western path', which, by the efficient use of large amounts of capital and resources, brought about several technological breakthroughs, accompanied by the managerial revolution and the scientific management of labour.

Second, the connection between labour-intensive industrialisation and demographic patterns, which had been taken up in the proto-industry literature but not fully developed with regard to the diffusion of industrialisation, must be explored further. An implication of this paper is that we need to discuss the possibility that the employment opportunities created by labour-intensive industrialisation encouraged population growth. Not only did this stimulus release severe resource constraints arising from the shortage of land, but it supported a slow and steady rise of labour productivity in agriculture by offering additional work opportunities in the countryside and beyond. Improved agriculture in turn fed more people. This familiar linkage must be applied not only to the country-level analysis but to the understanding of economic development at regional and global levels, since international trade, migration, and the flows of capital increasingly helped the more efficient global resource utilisation during the last two
centuries. Insofar as labour-intensive industrialisation embraced the gradual improvement of the quality of labour, this was the main route by which mankind escaped the Malthusian trap of overpopulation and the Ricardian trap of rising food prices. In the end, it was this virtuous circle, not the sudden availability of vast resources in the New World that sustained the global diffusion of industrialisation.

REFERENCES


International Monetary Fund (various years) Direction of Trade Statistics (Washington, DC: International Monetary Fund).


Monthly Statistics of Imports and Exports (various years) (Taiwan District: People’s Republic of China).


