Industry And Labour Scarcity In Latin America: The Case Of Domestic Cotton Textiles During The Age Of Export-Led Growth, Brazil And Mexico

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Preliminary draft, please do not quote

Note

This paper is a shortened, re-focussed extract from a larger work presented at the Osaka GEHN Conference in December, 2004. It addresses issues of labour recruitment and retention in a 'labour scarce' environment in order to offer contrasts with the position in parts of Asia.

Notwithstanding a long tradition of textile production across the continent in the colonial period, a modern cotton textile industry emerged in Latin America only fitfully after c.1860. Modern textile manufacture had to overcome a number of constraints. According to contemporary accounts, the principal difficulties constraining textile industrialisation included: the openness of the economies - by mid nineteenth century small domestic markets were well stocked with imports from the UK; scarcity of capital; shortages of labour; an unsympathetic policy environment; and lack of 'patriotism' on the part of consumers who were reluctant to buy national. To this list, historians have added such items as the relatively slow introduction of modern technology and related factors - small scale of production, poor quality and limited diversity of output, and thin distribution networks. (Clearly, several of these complains/observations resonate with those raised in other literatures.) Despite differences if focus and emphasis, contemporary accounts and later scholarly analyses concur that labour procurement was an important constraint. Hence historians have devoted considerable attention to how the 'labour problem' was conceived and addressed. This paper appraises that debate and literature.

Introduction

This paper explores a major problem that exercised industrialists in nineteenth-century Latin America - labour recruitment and retention. In various parts of the continent, non-export-sector activities (agriculturalist supplying the domestic market, producers of traditional handicrafts, and modern manufacturing) appeared to be engaged in an unequal struggle with the dominant export sector for factors of production. A surge in mass consumer demand in the nineteenth century for former luxury items like sugar and coffee, and in the factory consumption of fibres such as raw cotton and wool, enabled producers of these commodities to commandeer capital and labour. Political power and market forces were employed to channel scarce labour, in particular, into export commodity production. Commodity producers resorted to various mechanisms to procure workers. The favoured devices were internal and international migration, usually involving a considerable degree of coercion. While many early Brazilian manufacturers purchased slaves, this option become increasingly costly after c.1850 when the ending of the trans-Atlantic slaved trade coincided with the opening of a new coffee frontier in São Paulo. Industrialists in Mexico similarly lacked the capacity to 'complete' with *hacendados* for *communards* separated from the means of production when collective ownership of land was abolished by mid-century liberal reformers. Hence, 'labour' became a perennial problem for entrepreneurs seeking to establish modern mills.

In considering how the 'labour problem' was resolved, the paper first offers a stylised history of the growth of cotton textile production, and of the 'making of the market' for basic wages goods. The second section focuses directly on the labour question. It identifies and analyses mechanism employed from the 1860s to the 1930s to address the labour demands of modern mils. These involved forced labour, efforts to identify 'inferior' workers, unlikely to be drawn into export production, changes in the location of plant, experiments with a range of money and non-monetary incentives, and the substitution of capital for labour. The Conclusion summarises the findings and re-connects them with the growth trajectory of the industry.

A Stylised Account Of A Century Cotton Textile Production: Firms And The Market

Some modern cotton manufacturing plant had been set up around the time of Independence (1810s-1820s), but most experienced a chequered existence, few surviving the upheavals of the following half-century. In short, discontinuity characterised the history of modern domestic manufacturing until the last quarter of the century. Only after the 1870s did factory-based, machine-made lines of goods such as textiles, footwear, and food products begin to displace domestic output - and imports. After c.1900, the scale of production of basic products began to change. Items like textiles, footware, foodstuffs and beverages were beginning to be produced on a scale that rivalled that of export processing. By this stage, the largest textile mills in Brazil and Mexico integrated virtually every stage of cotton manufacture from plantation to retail emporia. Until the early twentieth century, most firms were 'national' in the sense that they were owned by local or immigrant capitalists. 'Spurts' in industrial production immediately before the First World War, and in the mid-1920s, focussed on manufacturing for the internal market, were also associated with a growing presence of trans-national corporations. A number of these corporations were engaged in the production of capital goods - looms and spinning machinery for the textile industry and sewing machines for shoe-making, a development that points to the size of local manufacture[1].

Until the late-nineteenth century, consumer markets in Latin America were demographically small (even in Brazil and Mexico, the most populous countries), and shallow. At Independence, New Spain (aka Mexico) was the most populous region with some seven million inhabitants concentrated mainly in the core of the country. The population of Brazil was around four millions, largely settled on two distinct clusters along the coast: the north east and centre/south probably each accounted for about 40 percent of total population; the balance was represented by the interior province of Minas Gerais, the only inland province to boast relatively large clusters of population. As Maddison and others have shown, Independence had a profound impact on the demographic history of Mexico. Population declined, or at best did not grow in the early nineteenth century. By mid-nineteenth, Mexico was not longer the continent's most populous country, having been overtaken by Brazil. Low levels of natural growth in Mexico were countered by loss of territory, while natural population growth in Brazil was complemented by forced migration from Africa (until c.1850), and free migration from Europe. As a result, the population of Mexico in 1870 stood at a little over nine million, while that of Brazil was almost ten. By 1913, the respective populations were approximately 15 million and 23.7 million[2].

Demographic growth, however, is hardly a proxy for the expansion of the market. For much of the nineteenth century and beyond, market scope and depth was limited by more than sluggish population growth

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[1] D.M. Phelps *Migration of Industry to South America* (New York 1936) pp232-5; S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) p.148.

[2] A Maddison The World Economy: a millennial perspective (Paris 2001) pp.191, 193; J.H. Coatsworth 'Economic and Institutional Trajectories in Nineteenth-century Latin America' in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.28-30.

and the scattered nature of settlements. Effective demand was constrained by a combination of factors like slavery, subsistence and socio-ethnic divisions which frustrated market integration and homogenisation. Poverty and inequality were both a function and cause of sluggish growth and an additional check on market consolidation. Such institutions as slavery in Brazil (not abolished until 1888) and debt peonage in Mexico limited participation in the market. While slaves and *peones* may have produced for the market, they hardly participated in it. Ethnic and social divisions further fragmented the market. Domestic and artisan production, particularly of textiles, may have been sustained by taste and cultural preferences associated with ethnicity - as much as 'natural protection' which limited the penetration of interior markets by cheap imports before the coming of railways. Extreme inequalities of wealth, and very low levels of literacy, further evidenced limits on market engagement. As well as pointing to the quality of human capital, levels of schooling and literacy serve as a proxy for equality of economic and political rights and of opportunities - and of ability to participate in the market. Low school enrolments and limited access to schooling indicates high levels of inequality, and weak integration with the market, in many parts of Latin America until well into the nineteenth century[3].

Data on wages is limited and fragmentary, but the information that exists tends to points to a slow deterioration in real purchasing power in most regions during the half-century following Independence. This is corroborated by very low rates of growth per capita, that must have limited income expansion, irrespective of further negative market implications resulting from acute income and wealth inequality[4]. For

[3] S.L. Engerman & K.L. Sokoloff 'Colonialism, Inequality and Long-run Paths of Development' mimeo. 2004, pp.11-12, Table 2; N.H. Leff *Underdevelopment and Development in Brazil: Vol II: Reassessing the Obstacles to Economic Development* (London 1982) pp.57-8, 134-5.

[4] A. Maddison *The World Economy: a millennial perspective* (Paris 2001) p.126.

Mexico, the evidence is gloomy, though not uncontested, depending on constructions placed on non-wage payments to *hacienda* workers. Did usufruct rights to plots of land in exchange for labour services, and payments in kind, represent a neo-feudal labour arrangement, or protect workers against food staple price hikes? According to some estimates, real wages may have fallen by a half between the 1870s and 1910[5]. Katz argues that in the south, where contract labour and debt peonage prevailed, conditions approximated slavery. On *haciendas* in the populous central parts of the country, there was a precipitate fall in real wages over the porfiriato[6]. Conventionally, it is argued that real per capita incomes remained low and stagnant for virtually the whole of the nineteenth century in Brazil, depressed by slavery, immigration and, possibly, a 'reserve army of labour' which, although wedded to subsistence, periodically flooded the labour market, for example when there was drought in the backlands[7]. Yet, with the rapid expansion of the coffee frontier in São Paulo after c.1870, wages in the centre-south increased in real terms, despite mass immigration[8]. After the 1880s, demographic growth presaged an horizontal expansion of the market, even if there was little qualitative deepening.

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[5] The term applied to the 'oligarch republic', associated with the successive presidencies of General Porfirio Díaz, 1877-1911, is the *porfiriato*. During this period nominal wages hardly changed while prices doubled.

[6] K. Katz 'Condiciones de trabajo en las haciendas de México durante el profiriato: modalidades y tendencias' in E. Cárdenas (ed.) *Historia económica de México* (Mexico 1992) pp.126-33, 135, 144-5. For less gloomy views, see S. Miller 'Mexican Junkers and Capitalist Haciendas, 1810-1910' *Journal of Latin American Studies* XXII 2 (1990) pp.229-63 and A. Gómez Galvarriato 'The Evolution of Prices and Real Wages in Mexico from the Porfiriato to the Revolution' in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.347-78.

[7] N.H. Leff *Underdevelopment and Development in Brazil: Vol II: Reassessing the Obstacles to Economic Development* (London 1982) pp.10-11.

[8] T. H. Holloway *Immigrants on the Land: coffee and society in São Paulo, 1886-1934* (Chapel Hill 1980); N.H. Leff *Underdevelopment and Development in Brazil: Vol II: Reassessing the Obstacles to Economic Development* (London 1982) p.10.

Institutional changes in Mexico after c.1870 facilitated unprecedented export-led growth. The main reforms, which strengthened property rights, included a new Commercial Code, enacted in 1884, Limited Liability legislation, in 1888, Patent Law, revised in 1890 and 1903, the stream-lining of taxation - mainly by abolishing excise duties (the *alcabala*) in 1896, and the General Banking Act of 1897 which sought to inject greater liquidity into the local capital market. And, tempering liberalism with pragmatism, foreign investment was encouraged through the allocation of franchise, concession and subsidies, particularly in railways, mining and oil[9]. The result was commodity diversification and regional specialisation which yielded a dramatic volume and value growth in exports[10]. The result, notwithstanding reservations expressed by Katz, was a slow monetisation of the system, and the emergence of a waged workforce[11]. Between 1880 and 1911, money supply in Mexico grew more than eleven-fold, while prices approximately doubled[12]. A wage/money economy was also emerging slowly in Brazil, and similarly reflected in inchoate efforts by workers to organise[13].

[9] C. Marichal 'Avances recientes en la historia de las grandes empresas y su importancia para la historia económica de México' in C. Marichal & M. Cerutti (eds.) Historia de las grandes empresas en México, 1850-1930 (Mexico 1997)p.30; E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) pp.34-39; R. Weiner *Race, Nation and Market: economic culture in Porfirian Mexico* (Tuscon 2004) p.13.

[10] F. Rosenzweig 'El desarrollo económico de México de 1877 a 1911' in E. Cárdenas (ed.) *Historia económica de México* (Mexico 1992) pp.59-60, 61;J. Zabludowsky 'La depreciación de la plata y las exportaciones' E. Cárdenas (ed.) *Historia económica de México* (Mexico 1992) pp.306-7; E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) p.39;R. Weiner *Race, Nation and Market: economic culture in Porfirian Mexico* (Tuscon 2004) p.13.

[11] E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) pp.4, 27; R. Weiner *Race, Nation and Market: economic culture in Porfirian Mexico* (Tuscon 2004) pp.75-8; 13.

[12] F. Rosenzweig 'El desarrollo económico de México de 1877 a 1911' in E. Cárdenas (ed.) *Historia económica de México* (Mexico 1992) p.63. The doubling of prices, while nominal wages for many groups of workers remained fairly static after the 1890s, underpins the real wage decline thesis.

[13] N.H. Leff *Underdevelopment and Development in Brazil: Vol II: Reassessing the Obstacles to Economic Development* (London 1982) pp.57-8, 131, 133; T.E. Skidmore

Railways were, of course, a key mechanism integrating national markets and (with steamships) connecting Latin America to the global economy. Assessments of the impact of railways on domestic market formation now tend towards the positive, stressing significant social savings and the institutional significance of infrastructure modernisation for domestic agents, not least local industrialists. For Brazil, Summerhill argues that before the construction of railways, product and labour markets were disjointed, levels of activity low and the output mix reflected the general inefficiency of economic organisation. 'Of the myriad impediments confronting the economy, none was more oppressive than the state of internal transport.'[14]. Railway building resolved this constraint and changed the trend rate of growth c.1900. Others have advanced similar arguments for Mexico. While debate continues about methods of railway financing, about the cost and efficiency of services, and about whether government should have become involved earlier as a regulator and operator of the system, few would now challenge the position of Coatsworth. Namely, for a backward economy like Mexico, railways were indispensable[15]. Even if many lines were initially constructed to facilitates commodity exports, or imports of manufactures, the aggressive construction strategy of individual companies physically integrated most regions of the republic. By the 1890s, the railway system was triggering

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Brazil: five centuries of change (New York 1999) pp.86-88.

[14] W.R. Summerhill Order against Progress: government, foreign investment and railroads in Brazil, 1854-1913 (Stanford 2003) p.187. See also: N.H. Leff *Underdevelopment and Development in Brazil: Vol II: Reassessing the Obstacles to Economic Development* (London 1982) pp.100-1,116, 117-8.

[15] J.H. Coastworth 'Los ferrocarriles, indispensables en una economía atrasada: el caso de México' in E. Cárdenas (ed.) *Historia económica de México* (Mexico 1992) pp.201-29; S. Kuntz Ficker 'La mayor empresa privada del porfiriato: el Ferrocarril Central Mexicano, 1880-1907' in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.39-64; A. Grunstein Dicker 'Surgimiento de los Ferrocarriles Nacionales de México, 1900-1913: ¿era inevitaables la consolidación monopólio' in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.65-106.

an exponential growth in demand for transport services[16]. Contemporary opinion in the Argentine, Brazil, Mexico and elsewhere certainly assumed that the 'transport and communications revolution' symbolised by the railways and the telegraph would 'make' domestic markets[17]. Of course, railways were a mixed blessing. By the inter-war decades, textile mills in southern Brazil were protesting about loss of market share to larger manufacturers based in São Paulo, firms that were taking advantage of the improvement in rail communications to penetrate neighbouring regional markets[18]. Presumably *paulista* textile mills were more efficient than *gaúcha*.

The size, location, and structure of the market was critical to the early development of textile manufacture - in Latin America no less than elsewhere. The growth of the money economy in the centre-south of Brazil induced a shift in the location of production. Until the mid-nineteenth century, mills were concentrated in the north-east. This is explained by proximity to both raw material supply and market. Raw cotton was grown in the north and north east of the country. Local production was largely geared to a captive segment of the market - slaves. Until the expansion of coffee cultivation in the south, the bulk of the slave population was centred in the sugar zone in and around the province of Bahia. Cane for export was raised along the coastal plain, cotton in the low country immediately behind, and in the drier, neighbouring northern provinces. By the early nineteenth century, plantations concentrated land and labour on the production of sugar,

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[16] S. Kuntz Ficker 'La mayor empresa privada del porfiriato: el Ferrocarril Central Mexicano, 1880-1907' in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.53, 61.

[17] R. Weiner *Race, Nation and Market: economic culture in Porfirian Mexico* (Tuscon 2004) pp.50-1; C.M. Lewis 'Railways and Industrialisation: Argentina and Brazil, 1870-1929' in C. Abel & C.M. Lewis (eds.) *Latin America: economic imperialism and the state* (London 1985) PP.201-5.

[18] H. Jochims Reichel A indústria têxtil do Rio Grande do Sul, 1910-1930 (Porto Alegre 1980) pp.72, 73-80.

buying in cheap local cotton cloth for the workforce. Urban centres were supplied mainly by imports; up-country markets by handicraft and domestic production. By the 1880s, the centre of gravity of textile manufacture had shifted south. In the mid-1860s, five of the nine cotton mills in Brazil were situated in the city of Bahia: twenty years later, only 12 of 48 mills were located there. In 1885, 13 mills were operating in Minas Gerais, 12 in Rio de Janeiro, and nine in São Paulo. Mills in the south were larger and employed more advanced technology[19].

Irrespective of the nature and mechanisms of market consolidation after c.1880, there is little doubt that the consumption of manufactures grew substantially. Whether the expansion of demand was largely quantitative, driven by population growth and monetisation, or qualitative, involving increasing real purchasing power, marketisation had a disproportionate impact on the consumption of basic wage goods. Textiles were among the principal beneficiaries.   As late as the inter-war period, clothes and footwear probably remained the principal item of household expenditure after food and shelter[20]. This explains why, in the 1920s, textiles remained a significant item of imports at the same time as cotton textile mills constituted the largest branch of domestic manufacture in many countries[21]. The paradox of the primacy of cotton textiles in the import schedule, and position as the dominant branch of industry was hardly peculiar to Latin America. Textiles and clothing have been consumed - and produced - in all parts of the world for many thousands of years. Even in developed economies, until quite recently, the

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[19] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.35-8.

[20] A.J. Bauer *Goods, Power, History: Latin America's material culture* (Cambridge 2001) pp.157-60; S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) p.165 - a 1939 survey gave the following schedule of average household expenditure in urban centres, Housing - 21.1%, Food - 55.3%, Clothing - 8.9%, the proportions for rural households were 13.5%, 65.9% and 10.% respectively.

[21] A.J. Bauer *Goods, Power, History: Latin America's material culture* (Cambridge 2001) pp.140-1.

manufacture of clothing still took place within the household[22]. Arguably, what makes the continent distinct is that factory production came late and that Latin America has hardly featured as a major international supplier of cloth - as opposed to fibres. Although some are major producers, and many benefit from the comparative advantage of domestic raw material supply, Latin American countries are conspicuous by their absence from the list of major world exporters of textiles until the very end of the twentieth century[23]

The Labour Problem

As indicated above, Latin America cannot be characterised a labour rich region - even following the ‘population explosion’ of the 1950s and 1960s when countries like Brazil, Colombia Mexico and Peru manifest some of the highest rates of population growth in the world[24]. While, by the 1970s, population densities were very high in Haiti and parts of Central America, elsewhere population/usable land ratios remained low by international standards.

On the ever of Independence, and before the emergence of the modern industry, owners of textile sweatshops (*obrajes*) in Mexico moaned about labour scarcity. It is a moot point whether, in relatively densely populated area, the problem was one of an insufficiency of labour supply or of an underdeveloped labour market. Were prospective employers unwilling (or unable) to offer a wage sufficient to create/clear

[22] J. Singleton *The World Textile Industry* (London 1997) p.12.
[23] Labour Office *The World Textile Industry: economic and social problems: vol. I* (Geneva: Studies & Reports Series B No. 27, 1937) pp.70-102; J. Singleton *The World Textile Industry* (London 1997) pp.14-17.
[24] A. Maddison *The World Economy: a millennial perspective* (Paris 2001) p.242: annual rates of population growth in Mexico average 3.11 percent through the 1950s and 1960s, compared with 2.10 and 2.11 for China and India respectively; the 1950-1973 continent annual average rates of population growth are, for Latin America, 2.73 percent, and for Asia (excluding Japan) 2.19 percent.

the market? During the eighteenth and nineteenth centuries, anecdotal evidence - traveller accounts and official reports - present dual images of scarcity and a indolent, itinerant work-force. While complaining about lack of labour availability, *obraje* owners defended low wages on the basis of production costs and worker preference. Substitutes - cloth from the handicraft sector and imports - limited what consumers would pay for locally produced woollens[25]. Hence, argued colonial *obraje* owners, raising wages would simply price their goods out of the market. Owners also subscribed to prevailing wage theory: worker demand for money was limited. Increasing wages (even if that were possible) would simply reduce the supply of labour as there was little workers needed to purchase in the market. Free wage labour and market incentive would not realise the required supply of labour[26]. The principal characteristics of the workforce were ethnic (and to some extent, social) diversity, and its coerced nature. Depending on period and place, the mix of *obraje* workers generally included the follow categories: indians, *castas*, indentured 'apprentices', slaves and convicts[27]. A similar profile endured in the early national period with, probably, an even higher proportion of the workforce composed of the ubiquitous widows and orphans, as complains about the quality and scarcity of labour continued[28].

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[25] E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) p.194. Artisans and domestic handicraft workers probably supplied most consumer demand for textiles in Mexico until well into the late nineteenth century.

[26] R. J. Salvucci *Textiles and Capitalism in Mexico: an economic history of the obrajes, 1539-1840* (Princeton 1987) pp.97-8.

[27] R. J. Salvucci *Textiles and Capitalism in Mexico: an economic history of the obrajes, 1539-1840* (Princeton 1987) pp.104-11.

[28] D. Keremitsis *La industrial textil mexicana en el siglo XIX* (Mexico 1973) pp.27; G.P.C. Thomsom *Puebla de los Angeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) p.198; S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) p.122; W.Suzigan *Indústria brasileira: origen e desenvolvimento* (São Paulo 1986) p.118. As in Japan, Europe and the USA, the ability to recruit 'cheap girls' was as a cost advantage that under-pinned early factory production. In Brazil, this comparative advantage was stressed by owners of rural mills, it was less often cited by city-based industrialists.

The structure and character of late colonial and early nineteenth century textile mills in Brazil differed little from that of Mexican *obrajes*. Until the 1850s, and reflecting the general structure of the 'labour market', textiles mills in the north-east relied mainly on slave labour: non-slave workers were described as 'costly and inefficient'[29]. After the 1860s, as the rapid expansion of coffee cultivation in São Paulo bid slaves away from other regions and from the urban economy, textile mills tended to employ 'free' workers, mainly women and 'apprenticed' children[30]. Labour recruitment was a recurrent concern of *mineiro* cotton mills in the 1870s. Besides drawing on a pool of 'free' rural and craft workers, the mills employed slaves, 'conditionally' freed slaves, *libertos*, 'indentured' labourers (*inquilinos operários*), and generally 'marginal' groups - minors, widows and orphans[31]. Here, as in the provinces of Rio de Janeiro and São Paulo, there was a tendency to construct worker barracks. Whether this was due to the rural location of many of the early mills (often described as *fábrica-fazenda*), a desire to instil discipline, or labour scarcity, continues to be debated[32]. Certainly it was a solution to problems of recruitment and retention, and security of daily labour supply. As late as the 1930s, it was observed that the development of the Brazilian cotton textile was being held back by labour scarcity - ' ... as much on account of quality as quantity ...', and employers continued to

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[29] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.63-4;
[30] W.Suzigan *Indústria brasileira: origen e desenvolvimento* (São Paulo 1986) p.118.
[31] E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) p.161; D. Giroletti *Fábrica: convento e disciplina* (Brasilia 2002) pp.106-10.
[32] E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) pp.157-8; S. de O. Birchal *Entrepreneurship in Nineteenth-century Brazil: the formation of a business environment* (London 1999) pp.50-6. Both texts stress the rural location of many early mills, often located on the fazendas of the principal shareholders.

inveigh against worker ineptitude and lack of motivation, though the credibility of these protests may be questioned[33].

Employer complaints about native worker indolence and indiscipline echoed throughout Latin America, and were a constant of the period. From the 1820s to the 1880s, officials and travellers in Brazil commented on the movement of people in rural areas: workers were observed to be perpetually on the move, and usually described as vagrants[34]. The assumption was that natives lacked the capacity - discipline - for regular work, and were culturally opposed to selling their labour. The same refrain was still to be heard at the other end of the continent at the beginning of the twentieth century. Espousing Darwinian racial determinism, Porfirian ideologues represented *el indio* as an inferior worker due to 'antiquated customs' which spelt an inability to acquire a capitalist work ethic[35]. At the beginning of the modern textile age, Mexican mill owners looked abroad for labour, certainly skilled and sometimes unskilled[36]. Similarly, mill owners in Brazil sought to recruit immigrant workers, who were valued for their 'discipline', and not only for skilled positions. Stein labels one of the earliest cotton mills a 'cosmopolitan factory': the workforce of the Santo Aleixo mills consisted of 17 Brazilians, five Italians , two English, two North Americans and 83 Germans[37]. While Santo Aleixo may have been exceptional in the

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[33] E. Cobos *La industria algodonera en Iberoamérica* (Madrid 1953) pp.129;W. Dean *The Industrialization of São Paulo, 1880-1945* (Austin 1969) pp.152-3.
[34] M.L. Lamounier
[35] R. Weiner *Race, Nation and Market: economic culture in Porfirian Mexico* (Tuscon 2004) pp. 26, 35-41.
[36] D. Keremitsis *La industrial textil mexicana en el siglo XIX* (Mexico 1973) pp.27, 64-5; M. Trujillo Bolio 'La fábrica La Magdalena Contreras, 1836-1910: una empresa textil precursora en el valle de México' in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.245-74.
[37] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.64, 65-6. Not all accounts of native labour were negative. Stein records a view in the 1870s that Brazilians were to be prefered to foreigners as they prepared to work for relatively low salaries, were frugal and industrious, were easy to control and to recruit, see S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio

proportion of foreigners employed, its efforts to secure immigrant workers were not[38].

Recent scholarship has convincingly turned much of this argument on its head, observing that the problem was a lack of work, not of workers. In largely rural economies, jobs were highly seasonal. Was it that labourers would only remain in one place for a little over three months, or was the problem that only a few months work was available?[39]. Workers, led a nomadic existence because there was insufficient employment to keep them in one place. Hence, survival depended on a capacity to secure a subsistence on the frontier. Irregularity of work was not simply a feature of the rural sector. Mill work was also precarious. The early history of the modern cotton textile industry in Mexico and Brazil demonstrates how unstable the demand for labour was, not least due to a low survival rate among firms, and intermittent operation [40]. The financial foundations of many early firms were shaky. Delays in constructing plant were not unusual - blamed on the weather, as much as shortage of funds. Once built, mills might operate only intermittently, due to lack of raw material or power. Disruption of production, lay-offs and closure were not unusual. Birchal notes the intermittent production, and short working life of several early *mineiro* enterprises[41]. Textile mills in Minas Gerais tended to be smaller than their counterparts

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de Janeiro 1979) p.67.

[38] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.64, 65-6.

[39] J. Gelman 'Las condiciones del crecimiento estanciero en el Buenos Aires de la primera mitad del siglo XIX: trabajo, salarios y conflictos en las estancias de Rosas' in J. Gelman, J.C. Garavaglia & B. Zeberio (eds.) *Expansión capitalista y transformaciones regionales: relaciones sociales y empresas agrarias en la Argentina del siglo* XIX (Buenos Aires 1999) p.95; R.D Salvatore 'The Breakdown of Social Discipline in the Banda Oriental and the Littoral, 1790-1820' in M.D. Szuchman & J.C. Brown (eds.) *Revolution and Restoration: the rearrangement of power in Argentina, 177-1860* (Lincoln 1994) p.76.

[40] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.41,43-8, 49-50; G.P.C. Thomson *Puebla de los Ángeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) pp.58, 240-6, 267-9.

[41] S. de O. Birchal *Entrepreneurship in Nineteenth-century Brazil: the formation of a*

elsewhere in Brazil, considerably smaller before the 1890s. It is not clear if small-scale enterprises were particularly vulnerable in volatile markets, or prone to adverse operating conditions. Poor communications (roads impassable during the rainy season), which prevented factories getting products to market, was another cause of the short-time working and failure. Water-powered mills of Puebla were equally liable to disruption during the dry season, or subject to the vagaries of the market, or simply bad luck. La Constancia Mexicana, the first modern cotton spinning factory in Mexico was established in Puebla in 1832 with a loan from the official development bank, the Banco de Avío, to finance the purchase of imported machinery. Over the next three years, events conspired to frustrate the project: cholera decimated the workforce employed in building the mill, machinery was lost at sea, and the delivery of equipment delayed by civil war. Despite these disasters, the firm was responsible for the salaries of foreign technicians. It was four years before the first yarn was produced, and then the company claimed that survival depended on the prohibition of imports. High capital costs, bottlenecks in raw cotton supply, and occasional shortages of water contributed to the catalogue of difficulties confronting early mills[42]. Factory work was as irregular as the market was volatile. Little wonder that workers would not jeopardise subsistence by wholly committing to the labour market. Nevertheless, employers who recognised the rationality of worker survival strategy did not find it so difficult to obtain labour[43].

For whatever reason, labour was a critical and enduring problem for the mills. Various solutions to problems of labour supply and quality were deployed by mill owners. Indeed, rural location was sometimes regarded as a solution to both problems. It is no surprise that the first mills in Mexico were

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business environment (London 1999) pp.84-9.

[42] G.P.C. Thomsom *Puebla de los Angeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) p.240-9.

[43] M.A. Lamounier

set up in Puebla and the valley of Mexico. Probably founded in the late 1830s, La Magdalena was located close to the capital in an area where *obrajes* had clustered in the colonial period. This suggests that the district enjoyed not only reasonably good communication with Mexico City, the most important urban market in the country but, more importantly, a supply of 'textile' workers. The area was also a centre of flour milling, again suggesting the availability of 'factory' labour. Most new cotton mills were set up on sites previously occupied by flour mills. Of course, the area was a centre of cotton growing, and there was water to drive modern machinery purchased in the USA and Belgium, but labour availability must have been an important consideration[44].

The issue of labour quality (training, as well as 'discipline') was addressed in several ways. As indicated above, mills in the valley of Mexico, Puebla, Rio de Janeiro, Minas Gerais and São Paulo recruited workers overseas, not exclusively skilled workers, and established worker barracks. Foreign workers were generally regarded as better suited to factory life. Nevertheless, as in other countries, before the general application of steam power, location and patterns of labour recruitment were powerful influences determining the construction of worker accommodation. Because mills were often sited in rural areas, and single women and children made up a large proportion of the workforce, perforce mills had to provide living accommodation[45]. Regarded as docile and cheaper, women and children had

[44] M. Trujillo Bolio 'La fábrica La Magdalena Contreras, 1836-1910: una empresa textil precursora en el valle de México' in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.248-51; G.P.C. Thomson *Puebla de los Ángeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) p.240-6.
[45] G.P.C. Thomson *Puebla de los Ángeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) pp.336; D. Giroletti *Fábrica: convento e disciplina* (Brasilia 2002) pp.106-10, 119-22; S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.64, 68; E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) p.221; D. Keremitsis *La industrial textil mexicana en el siglo XIX* (Mexico 1973) pp.209-10;International Labour Office *The World Textile Industry: economic and social*

to be ‘respectably’ housed, and schools provided for children - at least in theory. Perhaps reflecting the legacy of the *obrajes*, virtually all early Mexican mill compounds contained several rows of worker housing. Only towards the end of the century was there a tendency in some areas for housing provision to be reduced[46]. A counter-tendency is observed in Brazil, where worker barracks gave way to ‘worker villages’. By the end of the nineteenth century, emphasis was placed on modest behaviour and respectability. Workers should be properly dressed and were to be discouraged from consuming alcohol: the model factory required model workers who would be housed in model developments[47]. By the 1920s, the more profitable modern Brazilian mills appear to have been virtually company towns, or whole city districts, including a range of housing appropriate to status of the employee/worker (or

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problems: vol. I (Geneva: Studies & Reports Series B No. 27, 1937) pp.223, 224. Weid & Rodrigues Bastos maintain that textile production had been considered almost exclusively ‘womens’ work’ since the colonial period but, with the coming of the modern mill, women had lost ground to men. They provide data for the Cruzerio mill in 1921as follows: males - 67 percent, females - 33 percent, but these proportions do not differentiate between adults and children - under 13-year olds may have represented about 12 percent. It is not clear how representative the Cruzeiro factory was. Keremitsis estimates that, in 1880, women composed around 39 percent of the workforce in the cotton textile industry, and children approximately 22 percent. Around 1900, these proportions seem to have been maintained in individual factories, that is, women and children made up between 50 and 60 percent of the labour force, though a national estimate for 1890 places the proportion men at 75 percent, with women and children accounting for an equal share of the balance. Most sources accept that the proportion of women and children in the Mexican industry was lower than that in Great Britain and the USA. For 1930, the ILO gives the proportion of women in the textile industry workforce as 65.1 percent for Brazil (‘children’ [under 21 years] as 35.5 percent), and 22.6 percent for Mexico.

[46] G.P.C. Thomson *Puebla de los Ángeles: industry and society in a Mexican city, 1700-1850* (Boulder 1989) pp.334-5; M. Trujillo Bolio ‘La fábrica La Magdalena Contreras, 1836-1910: una empresa textil precursora en el valle de México’ in C. Marichal & M. Cerutti (eds.) *Historia de las grandes empresas en México, 1850-1930* (Mexico 1997) pp.258, 268.

[47] D. Giroletti *Fábrica: convento e disciplina* (Brasilia 2002) pp.271-89, 317-24; E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) p.157&ff; W. Dean *The Industrialization of São Paulo, 1880-1945* (Austin 1969) pp.154-6.

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barracks for the unmarried), chapels, schools (with attached residences for teachers), pharmacies, and clubs[48].

Investment by mill-owners in the construction of company towns and factory suburbs addressed more than questions of the physical supply of labour and 'discipline'. The projects were designed to solve problems of labour quality and productivity. New, productive workers would be forged in salubrious model towns and well-regulated factories. Productivity and quality had become important by the inter-war decades as labour costs in the textile sector were reckoned to be high[49]. Textile workers wages in Brazil were said to be closer to Japanese than European levels in the 1930s - though considerably above rates prevailing in India. This accounted for the capacity of the *paulista* industry to capture a widening share of the local market, but not neighbouring markets, save in exception circumstances like the First World War. Nevertheless, employers retorted that relatively low money wages were complemented by several fringe benefits, including educational, medical and recreational facilities for workers and their families[50]. Textile wages in Mexico at the beginning of the twentieth century may have been lower than in the USA and Great Britain, but workers were considerably less productive[51]. By

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[48] E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) pp.157-95. Weid & Rodrigues Bastos provide a wealth of evidence showing the transformation of *fábrica-fazendas* into worker-towns, and the construction of factory-districts, from the 1880s to the 1920, exploring the logic behind owner investment in 'company towns' and 'company suburbs'.

[49] E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) p.49; E. Von der Weid & A.M. Rodrigues Bastos *O fio da meada: estratégia de expansão de uma indústria têxtil: Companhia América Fabril, 1878-1930* (Rio de Janeiro 1986) p.263.

[50] W. Dean *The Industrialization of São Paulo, 1880-1945* (Austin 1969) pp.152-6.

[51] E. Beatty *Institutions and Investment: the political basis of industrialization in Mexico before 1911* (Stanford 2001) p.49; A. Gómez Galvarriato 'The Evolution of Prices and Real Wages in Mexico from the Porfiriato to the Revolution' in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.347-78. Keremitsis calculates that wages in Mexico in 1900 were approximately the same as in Eastern Europe, but lower than in Britain and less than a half of those in the USA: see D. Keremitsis *La industrial textil mexicana en el siglo XIX* (Mexico 1973) p.199.

the 1920s, employers in Brazil and Mexico also viewed with distaste the beginnings of state involvement in worker welfare - factory safety and the provision of social benefits. Model towns - and the range of facilities offered - were a pre-emptive welfare measure, and designed to recruit, train, and retain a reliable workforce.

Concentration and integration was another response to perceived labour scarcity. In Brazil, concentration signalled not only a change in the size of individual firms, it also spelt the geographical centralisation of textile production in São Paulo and Rio de Janeiro, as larger, more capital intensive firms tended to cluster there. Concentration occurred in three periods: the phase of rapid monetary expansion (*Encilhamento*) of the early 1890s; the immediate pre-First World War boom; and the mid-1920s - a period of cartelisation driven by 'dumping'[52]. The new funding regime is neatly captured by the Fábrica Votorantim founded in São Paulo in 1892. Initially intended only as a dying and printing business, within a few years the Votorantim was producing is own yard and weaving its own cloth. When opened, the company was one of the largest, most up-to-date manufacturing complexes in the state, and would later be a pioneer of rayon production in Brazil. A telling feature of the new enterprise was that it was set up by a bank - albeit a bank controlled by coffee *fazendeiros* - rather than as a family business or private partnership[53]. Banks, and the money market generally, were becoming the principal means of funding new ventures - and sustaining the expansion of established firms[54].

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[52] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.109-114, 121-38; W. Suzigan *Indústria brasileira: origem e desenvolvimento* (São Paulo 1986) pp.138-56.
[53] W. Dean *The Industrialization of São Paulo, 1880-1945* (Austin 1969) pp.104, 111, 113, 119; W.Suzigan *Indústria brasileira: origem e desenvolvimento* (São Paulo 1986) pp.141.
[54] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.44, 49-56, 99-105, 115-22; W.Suzigan *Indústria brasileira: origen e*

Haber attributes the surge in institutional funding of business in Brazil to looser banking regulations implemented with the fall of the Empire and the establishment of the Republic in 1889 - events responsible for the inflation of the *Enchilhamento*. Others point to innovations in the law relating to limited liability, and looser monetary policy, in the mid-1880s. The monetary and financial system was already becoming more flexible before 1889[55]. There was a modest proliferation of new privates banks in Brazil in the 1880s, complementing the semi-official Banco do Brasil and limited number of domestic credit institutions and foreign banks already in operation. It would be incorrect to argue that national money markets emerged in Brazil and Mexico after the 1890s, though something approaching an embryonic national credit system was in formation in the Argentine and, possibly, Chile. But access to formal credit was becoming easier, particularly in Brazil. Before the turn of the century, there were small, layered money markets in Rio de Janeiro and São Paulo. Institutional credit was certainly available to favoured enterprises.

Hanley shows how, after the mid-1880s, the São Paulo market provided accommodation to a growing number of businesses. Initially, railways and public utilities accounted for an overwhelming proportion of share transactions. However, from c.1900, textile companies accounted for one of the fastest growth area in stock exchange share dealings. In addition, as a sector, textile firms became one of the most aggressive issues of corporate

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desenvolvimento (São Paulo 1986) pp.129-56.

[55] S. Haber ‘Industrial Concentration and Capital Markets: a comparative study of Brazil, Mexico and the United States, 1830-1930' *Journal of Economic History* LI 3 (1991) 559-580; Z.M. Cardoso del Mello *Matamorfoses da riqueza: São Paulo, 1845-1895* (São Paulo 1990) pp.131-47; S. Topik T*he Political Economy of the Brazilian State, 1889-1930* (Austin 1987) pp.27-57; A. Hanley ‘Business Finance and the São Paulo Bolsa, 1886-1917 in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.115-38; G.D. Triner ‘Banking and Money Markets in Brazil, 1889-1930' in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.223-46. Hanley provides convincing evidence that, in São Paulo, limited companies with a good track record experienced little difficulty raising money in the local market, while Cardoso de Mello catalogues the increasing popularity of share ownership among the *paulista* elite between the mid 1880s and the mid 1890s.

debt - and bonds were becoming an increasingly important form of finance for individual mills[56]. For Haber, relaxation in banking legislation, easy access to joint stock registration, and the growth in institutional credit accounts for the better performance of the textile sector in Brazil, compared with Mexico, from the turn of the century onwards. Brazilian mills were larger and more productive because the credit market was more competitive and because enterprises had easier access to it. In Mexico, there was less competition and less transparency - crony capitalism was the rule[57]. Be that as it may, students of Latin American industrial history concur that firms associated with banks were much more likely to succeed - and survive - than enterprises that lacking formal connexions with the local capital market, no matter how small and imperfect that market might be[58]. It is equally the case the links with banks, and privileged access to finance facilitated cartelisation - notably in Brazil in the inter-war period[59].

In conclusion, although mills owners were probably confronted by a far from perfect labour market in the immediate post-Independence period, there is evidence of spatial and occupational mobility by the late nineteenth century, not that this necessarily points to the formation of national (as opposed to

[56] A. Hanley 'Business Finance and the São Paulo Bolsa, 1886-1917 in J.H. Coatsworth & A.M. Taylor (eds.) *Latin America and the World Economy since 1800* (Cambridge, Mass. 1998) pp.124-30.
[57] S. Haber 'Industrial Concentration and Capital Markets: a comparative study of Brazil, Mexico and the United States, 1830-1930' *Journal of Economic History* LI 3 (1991) 559-580; N. Maurer & S. Haber 'Institutional Change and Economic Growth: banks, financial markets and Mexican industrialization, 1878-1913' in J.L. Bortz & S. Haber (eds.) *The Mexican Economy, 1870-1911: essays on the economic history of institutions, revolution and growth* (Stanford 2002) pp.23-49.
[58] D. Guy 'Dependency, the Credit Market and Argentine Industrialization, 1860-1940' Business History Review LVIII 3 (1984) 546-9; W. Suzigan *Indústria brasileira: origem e desenvolvimento* (São Paulo 1986) pp.138-56; D. Keremitsis *La industrial textil mexicana en el siglo XIX* (Mexico 1973) pp.154-6; N. Maurer & S. Haber 'Institutional Change and Economic Growth: banks, financial markets and Mexican industrialization, 1878-1913' in J.L. Bortz & S. Haber (eds.) *The Mexican Economy, 1870-1911: essays on the economic history of institutions, revolution and growth* (Stanford 2002) p.46.
[59] S.J. Stein *Origens e evolução da indústria têxtil no Brasil, 1850-1950* (Rio de Janeiro 1979) pp.144-66.

regional) labour markets. In areas such as southern Brazil and the River Plate, after the 1880s, immigration injected considerable elasticity into labour supply and probably enhanced the quality of human capital - immigrants were more literate than the local population. It is difficult to sustain the labour 'scarcity' thesis advanced by nineteenth-century employers. Rather, they were unwilling - or considered themselves unable - to pay wages at a level that would secure workers. On the other hand, there is little evidence that labour costs were low. Recruiting foreigners, and the slow process of training - and retaining - workers in an increasingly competitive urban labour market by c. 1900 would suggest that labour was not 'cheap'. However, scale and concentration may have yielded advantages of agglomeration - the formation of distinct, regional markets of skilled textile labour.

Conclusion

The history of industrial cotton textile production in Latin America is one of growth and effective import displacement before import-substitution industrialisation became a strategy for national development in the 1940s and 1950s. By the end of the nineteenth century, modern spinning and weaving mills were operating in most of the medium-sized and large economies, though imports of yarn and cloth continued to grown. Even before 1913, domestic production was supplying a very large share of apparent home consumption. During the inter-war decades local factories came to supply virtually the whole of the market. Investment in plant modernisation and in factory building was a feature of the 1920s and the 1930s, as was cartelisation.

Export-led growth established the bases for modern textile manufacture, driving the infrastructural and institutional under-pinnings of industrial expansion. As producers of basic wages goods, particularly at the bottom end of the market, local mills enjoyed a comparative advantage once domestic demand had achieved a sufficient scale to warrant manufacture. Currency depreciation, especially in economies like Mexico were on a silver standard until the beginning of the twentieth century, and Brazil which applied a paper currency regime for most of the period, provided an added degree of protection against imports, even before tariff policy became explicitly pro-manufacturing in the 1890s and 1900s in some republics.

The cost and quality of labour certainly exercised mill owners in both countries throughout the period. Labour costs were high by international standards, due to imperfect labour markets and investment costs associated with the recruitment and retention skilled workers. Clearly, mill owners were competing for labour with the dominant export sector. Commodity producers enjoyed a comparative advantage denied to most industrialists: they could offer labour access to land. Irrespective of traditional constructions placed on institutions like coffee share-cropping (the *colonato*) in Brazil or debt peonage in Mexico, recent accounts indicate that rural labour valued the security against price volatility offered food plots - and the opportunity that they provided to produce for the market, and to consume from it.

Ultimately, capital substitution (or, rather, significant outlays of capital) appeared to be the only solution to recruitment, retention and quality. Concentration and agglomeration helped to create regional labour markets, or 'pools' of labour. Productivity enhancing measures like the building of 'model towns' were, however, were far from 'cheap' alternatives in capital-hungry economies. Barracks and model towns facilitated 'supply capture' and 'quality control', but tied up considerable sums that might otherwise have been committed to plant.