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Firm Ownership, FOEs, and POEs

Alice H. Amsden

## Firm Ownership, FOEs, and POEs

## Alice H. Amsden\*

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### Abstract

Where the theory of free competition reigns, developing countries should open their arms to investments from all types of enterprises in order to maximize jobs. Ownership, measured by votes of shareholders or boards of directors, is immaterial to performance. Matters change drastically, though, when competition depends on monopolistic assets and market theory no longer rigorously holds. Then, ownership matters. Foreign owned enterprises from developed countries can 'crowd out' privately owned enterprises from developing countries. They can break their back before they have a chance to acquire their own assets. FOEs in direct competition with POEs are not necessary for economic development to flourish, and it is dangerous for a promising POE to confront a privileged FOE in its own back yard, often with the backing of the FOEe's powerful government. In this paper it is argued that because assets differ systematically between FOEs and POEs in their respective stages of evolution, FOEs may not contribute more to economic development in monopolistic industries than POEs. Indeed, the best POEs in the fastest growing emerging economies (e.g. Korea's Samsung, India's Tata, and Brazil's Embraer) tend to be more entrepreneurial than FOEs. The paper discusses the contribution of POEs *vis-à-vis* FOEs to economic development in emerging economies.

Keywords: entrepreneurship, foreign investment, firm ownership, industrialization JEL classification: L22, L52, L26

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## **Abbreviations**

FOE	Foreign-owned enterprise
POE	Privately-owned enterprise
SOE	State-owned enterprise
CEO	Chief executive officer
RCA	Radio Corporation of America
GDP	Gross domestic product
GNP	Gross national product
WTO	World Trade Organization

### 1 Introduction

In perfectly competitive markets, the nationality of a firm's owner does not matter for economic development. A foreign-owned enterprise (FOE) from a developed country or a privately-owned enterprise (POE) from a developing country are equally capable if both have access to the same inputs and marketing opportunities (ignoring state-owned enterprises (SOEs) and tiny enterprises). Where the theory of free competition reigns, developing countries should open their arms to investments from all types of enterprises in order to maximize jobs, as many Asian countries did using export processing zones. Ownership, measured by votes of shareholders or boards of directors, is immaterial to performance.

Matters change drastically, though, when competition depends on monopolistic assets and market theory no longer rigorously holds. This happens specifically in 'mid tech' industries such as shipbuilding, steel, and heavy machinery, and 'mature' high tech industries, such as calculators, computers, and cell phones, after millions of units from advanced countries have already been sold but demand is still booming. Knowledge, brand names, political clout, and other sources of market power vary by firm and influence market outcomes. Then, ownership matters.

Because FOEs have controlled more competitive assets than POEs since the first Industrial Revolution, they have gained the upper hand and the respect of the elite business schools, which tend to view them as the best policy choice for backward countries to follow. FOEs are highly productive, the argument runs, and somehow transfer knowledge (measured by 'spillovers') to local enterprise, so invite them into your midst.

But this outlook has turned out to be extremely short run. FOEs can 'crowd out' POEs. They can break their back before they have a chance to acquire their own assets, and the acquisition of their own assets may be far better for economic development than FDI, or joint ventures. 'Foreign firms' do pass on important information to newcomers, but not through FDI. Foreign firms that are teachers tend to be vendors of parts and components located in third countries. They help by giving all their customers a roadmap of their industry. FOEs in direct competition with POEs are not necessary for economic development to flourish, and it is dangerous for a promising POE to confront a privileged FOE in its own back yard, often with the backing of the FOE's powerful government (a role Washington played in the foreign dominated Latin American automobile industry, for example).

Because assets differ systematically between FOEs and POEs in their respective stages of evolution, we would argue that FOEs may not contribute more to economic development in monopolistic industries than POEs. For one, they can not create the highest managerial talents, which are always kept at home in corporate headquarters. The skills and salaries of the chief executive officer (CEO) and other top managers are never located abroad. Nor can FOEs 'globalize' a developing country in the form of outward foreign investment. In order for a developing country to invest abroad, it must have its own companies.

I would argue that the best of POEs in the fastest growing emerging economies (e.g. Korea's Samsung, India's Tata, and Brazil's Embraer) tend to be more entrepreneurial than FOEs. FOEs

today are bureaucratic—they operate with relatively dense levels of management and continue to cookie-cut a single model throughout the world that has proved to be highly lucrative for them but not necessarily for emerging economies. Bureaucracy can be measured by a number of signatures, review boards, management layers, or people thrown at a problem. For now, during a growth phase when most POEs enjoy both family ownership and professional management, they display a highly dynamic entrepreneurship. Akin to what Schumpeter said, they formulate novel ideas (locally), coordinate resources, enter and exit 'new' (for them) industries at lightning speed (a highly profitable skill unmentioned by Schumpeter), and restructure industries in a creative way that in labour abundant countries does not involve the mass lay-offs typical of American retrenchments (China's restructuring, say, of the First Auto Works, involved only modest redundancies).

The thin layer of bureaucracy in POEs improves information flows. With fast transmissions of information, POEs have perfected the asset of short time to market, especially in Asia. They are super quick in picking new industries to enter and then designing the integration of parts and components to win the global race to market. In the case of one POE in the Indian pharmaceutical industry, it reached the market faster than the Indian subsidiary of the multinational that had invented the drug in the first place (Mourshed 1999). POEs, not FOEs, should take credit for industrialization in the developing world. Industry by industry, they diversified forcefully and fast. In the process, they themselves became highly diversified as business groups.

## 2 Business groups

POEs have tended to take the form of diversified business groups because, unlike specialized firms in advanced countries with revolutionary technology, POEs from developing countries are still competing without worldclass products and know-how. It is too risky for them to specialize in a single technology family. In almost every market, they are behind the technological frontier and must move from industry to industry as opportunities arise. To do so, POEs must develop alternative skills, not just to do battle with FOEs but also to compete against other POEs from developing countries, all of which depend on low wages to compete. Long hours and voluntary or involuntary overtime help developing countries reach consumers at record speed, but only skills, not hours of work, differentiate the best.

The diversification process itself holds the key to group success. The more groups diversify, the greater their experience and acquired skills at diversification (or 'project execution', from buying technology to starting up operations; Amsden and Hikino 1994). This allows them to get a headstart over other entrants into the 'new' industries (and services) that their governments open or that they capture from overseas. Groups can enter these 'new' industries with great speed and low cost aided by project execution skills, in a virtuous circle.

The greater the scope of their operations, the greater the visibility of a group, and the greater its ability to attract the best talent to reach world norms of productivity at the industry-wide level. This talent brings the diversified firm the production know-how that specific industries require. Expertise in many industries gives groups an advantage with large, multiproduct vendors that provide them with further knowledge and better industry-level capabilities.

The swiftness of POEs, which raises profitability, stems partly from their membership in a business group that is managed by a single owner, who knows where resources lie and who can transfer them from one subsidiary to another. The fungibility of resources among the subsidiaries of a single group, especially capital ('cross-investments'), makes it difficult for FOEs to engineer takeovers of POEs, which is why they are disliked on Wall Street (Lawrence 1993). Instead of searching for the right person for a job on the market, which takes time in the developing world, the group can find a cachet internally from one or another subsidiary. Groups even harbour a captive market for individual subsidiaries. The employees of Korea's groups bought their life insurance and their automobiles from sister subsidiaries.

Groups benefit from the inter-sectoral learning made possible by the absence of operating in a single market (Dosi 1988). Paint problems in automobile making can benefit from the experience of solving paint problems in the shipbuilding industry—both within the scope of a group such as Korea's Hyundai. A business group in the developing world today is typically in its first, second, or third generation of family ownership (a sixty-year cycle roughly). It is free from bureaucracy at the top while enjoying professional management at the bottom and middle. Joint ventures are regarded in much of the business school literature as a compromise between FOE and POE, good for both, but the protracted negotiations that joint ventures typically involve slow decisionmaking. Decisionmaking is far faster in a diversified group, or an alliance of national domestic groups, than in a foreign joint venture: compare the speed of entry and operations in China's automobile industry of Cheri, a national champion, and joint ventures involving General Motors and Volkswagen.

POEs tend to have more knowledge of the local business environment than FOEs. Charles Kindleberger argued as early as 1970 that proximity creates advantages for the national investor. But he was writing before the mass migration of Third World managers and engineers to study, live, and work in advanced countries, permanently or temporarily. This coming and going between continents has given leading POEs two types of knowledge, not just one. The people who know their own native environment also know the richest economies abroad. Managers born in India or Brazil, for example, who then study or work in the United States, acquire a unique take on globalism that Americans, knowing only one culture and one language, do not have. Diversified business groups have excelled especially in mature high tech industries, or industries with advanced technology whose demand is still growing but whose profitability has begun to fall. When RCA invested in Taiwan and Mexico to manufacture TVs in the 1950s, it opened its own subsidiaries. When Nokia goes to Taiwan today to lower the production costs of its cell phones, it outsources production to Taiwan-owned companies. Taiwan's POEs have their own skill sets, and ramp up quickly to achieve volume in the face of falling profit rates, not least of all by creating internal construction and automation arms to hasten the conversion of old factories (e.g. in textiles) to new ones (in cell phones). Taiwan's POEs excel in integrating the hundreds of parts and components bought outside that comprise, say, a notebook, given their skills in modularity and design (and weakness in designing a single advanced component). Within hours or days rather than weeks, a product made by a POE can reach a FOE, making the wholesale relocation of manufacturing activity to developing countries all the more likely.

This is the gist of the argument that crowding out of POEs by FOEs in monopolistic industries (mid tech and mature high tech) is not development friendly. To celebrate FOEs is to close one's

eyes to the knowledge-based assets of POEs. Now that POEs are growing, their speed to market, project execution skills, and capabilities in assembly make it easier to answer the question of whether or not they can ultimately reach the world technological frontier. Why not, given their assets?

Below, we try to answer the question 'why are POEs more evident in some emerging economies than in others?'. The answers possibly lurk in a few facts of colonialism and decolonization, one of the great events of the 20th century.

#### 3 Decolonization

Some say colonialism was indispensable to enlighten backward people (Ferguson 2003); others say it retarded progress once colonial peoples understood foreign ways. Pre-Second World War manufacturing experience arose in only a few colonies, so as a system of development; colonialism clearly had its limits. Among countries with pre-war manufacturing experience, only a few succeeded after decolonization in freeing themselves not only from foreign rule but also from foreign firms. Those that succeeded in freeing their industries from FOEs became the most successful in the developing world after 1950, another slap in the face to colonialism. POEs were a scarce institution in the colonial world. Manufacturing experience, involving not just physical dexterity but the embodiment of that dexterity in a 'firm'—a complex social entity with knowledge of accounting, finance, labour management, and marketing—was the key to economic development but a scarce competitive asset. No developing country after the Second World War entered the orbit of modern industry without pre-war manufacturing experience, measured by the share of a country's manufacturing in GDP (excluding countries where manufacturing comprised only a single industry, as in the textile industry of Egypt and Pakistan, the oil industry of Venezuela, and the processed foods industry of the Philippines). Only one dozen developing countries managed to acquire diverse pre-war manufacturing experience, and POEs arose only in these countries (Argentina, Brazil, Chile, China, India, Indonesia, Korea, Malaysia, Mexico, Taiwan, Thailand, and Turkey; see Amsden 2001; 2007).

Manufacturing experience derived from three sources: pre-modern know-how that pre-dated Western influence (in China, India, Mexico's woollen industry, and possibly Ottoman Turkey); émigrés, who brought business acumen with them to Latin America (from Europe and the USA) and the Pacific Basin (from China); and colonial companies, which built industries in their own conquered territories. Japan's coprosperity sphere was a hub. Korea was industrialized to act as a bridgehead to Manchuria. Taiwan was belatedly industrialized to help Japan conquer Southeast Asia. As Japan's war drums beat louder, the UK introduced defensive industry in Malaysia, and the Dutch and Americans did the same in Indonesia and the Philippines respectively. Fascist governments in both Japan and Thailand in the 1930s collaborated to build military-related industries.

Latin American émigrés were probably the most successful in transferring know-how, because Latin America had the highest per capita income in the developing world after the Second World War. But post-war decolonization wrought radical change.

Decolonization did not affect Latin America at all because Latin America had gained its independence in the early 19th century. After the Second World War, the same powerful political groups and the same FOEs survived as before (Pirelli was the first multinational to arrive in Argentina in 1917, and still exists). This inertia left Latin America with relatively little space for POEs. Industrial leadership was lethargic until a developmental state arose. Only then did Brazil, for example, create Embraer, Petrobras, and other SOEs.

Starting with India in 1947, colonies slowly got their independence. The first African colony to cast off colonial ties was Ghana in 1957, and the last was South Africa in 1989. But the countries that became fertile crescents for POEs, mostly in Asia, not only shed colonial rule but also kicked out colonial companies. China expropriated them. India drove them out by fear or competition. Korea and Taiwan acquired Japanese properties, especially subsidiaries of big banks. Indonesia inherited around 400 Dutch companies. Malaysia bought British properties on the London Stock Exchange (Amsden 2001; 2007).

In one way or another, these former colonies 'crowded out' foreign firms and created space for their own national POEs to flourish. Those that did not create this space—the Philippines, for example, got rid of American foreign rule but was stuck with uninventive American companies—performed badly.

Virtually all POEs took the form of diversified groups, but there is disagreement about why this business model arose in such a wide range of poor countries. Disagreement has tended to be narrow and one-sided, especially if groups are analysed as market phenomena, without the goal of economic development directly in mind (Khanna and Yafeh 2007).

To let in some fresh air, it is helpful to think of groups as either money machines, that mobilize finance for development (the market approach), or as institutions that build knowledge, skills, and technological capabilities (the institutional approach). Some say groups arose to pool family savings when financial markets were weak. But this assumes that savings were scarce rather than 'shy' (savers awaited the appearance of firms with profitable skills to invest in). Others argue that to stay independent from the sorties of FOEs, the group form emerged—as it had done in Japan much earlier—and empowered itself by building knowledge-based assets.

If a country runs a persistent surplus in its balance of payments such that savings exceed investment, as in India from 1835 to 1946, then capital shyness may be said to exist (Das 1962; Banerjee 1963; Maddison 1971; Bagchi 1972). There was no scarcity of investment capital in India, however poor; it was exporting capital. Alternatively, shyness can mean the excess product that a country either does or can produce above subsistence (Riskin 1975), as in preindustrial China. As early as the 1840s, there was substantial qualitative evidence that when profitable opportunities in India and China arose, capital came out of the woodwork, and that the family form of business is not tightly tied to how capital is raised. In the case of India: the early textile mills were not exceptionally costly ventures by local standards. A company could get into operation in Bombay for an investment of Rs. 500,000 to Rs. 1 million or about £50,000 to £100,000 at prevailing exchange rates. This covered cost of land, buildings, equipment, and inventory. Many other types of enterprise projected in the same period involved sums as great or greater. Shares were issued in units of Rs. 2,500 or, more typically, Rs. 5,000. These were not

amounts intended to attract the small investor. Yet the number of people in Bombay with sums to risk in promising enterprises was sufficiently great so that when the Oriental mill was floated in 1854 with paid-up capital of Rs.1,250,000 divided into 500 shares of Rs. 2,500, no one was permitted to subscribe for more than four shares. (Morris 1983: 575)

According to a partner of Tata Sons and Company, India's largest group: 'The public in India, especially in Bombay, are ever ready to put their money in mill concerns started by individuals or firms who have a reputation for honesty and efficiency, and who have a good deal of mill experience' (Chandavarkar 1994). With a successful business in textiles, Tata was able to raise money from the private sector in 1907 for a large steel mill. 'The total Capital of the new Company was subscribed by the Indian public in a remarkably short space of a few weeks, the number of shareholders being about 7,000' (Fraser 1919).

China's potential economic surplus in 1933 was also estimated (by Riskin 1975) to be very large, possibly more than 25 per cent of gross national product (GNP). Given the operations of 'compradors' (merchants to foreign business), 'contrary to the generally held view, an important reason for China's relatively slow economic development in the 19th century was not the scarcity of capital, because large amounts of Chinese funds were readily available' (Hao 1986: 348). The Chee Hsin Cement Company, for example, allegedly had no trouble raising capital after the turn of the century. Its 29 shareholders held diversified portfolios, with interests in other industries, commerce, and banking (Feuerwerker 1967).

Rather than being dirt poor, the problem was high risks from low skills. In India, only five of the pioneering textile firms of the 19th century survived until the First World War. Out of a total of 97 mills erected in Bombay between 1855 and 1925, twelve were burnt down or else were closed and dismantled, sixteen transferred their managing agencies voluntarily and 45 went into liquidation and were reconstructed under other names (Rutnagur 1927). There occurred a very large number of company failures, with the result that 'the Indian investor, habitually shy, became shyer still' (Das 1962: 162).

Causality thus seems to run from 'no skills' to 'no money' rather than the reverse, both before and after decolonization. Shyness of capital seems to characterize much of Africa today, according to studies of Canada's North-South Center in Ottawa.

There was huge speculation before the Second World War, even in Japan, but in commodities such as cotton and silk, not financial instruments. After the Second World War, the stock markets in India boomed. But this only goes to show that groups could get the capital they wanted without family strings attached.

Skill intensity differentiated groups in developing countries from conglomerates in the USA, which regarded their affiliates as an asset to buy and sell. The business groups of the developing world, by contrast, regarded their affiliates as long term commitments, to be nursed to health rather than put up for adoption if sick. Few affiliates until very recently could be bought or sold. Thus, most group characteristics do not fit the market paradigm, but have proved to be development friendly despite an enormous amount of angry criticism of their structure and strong government ties. The developing countries where POEs became strongest were the

developing countries with the longest history of manufacturing experience. and not trade or free markets. Decolonization was most developmental when it included the expulsion of FOEs.

#### 4 Services

As manufacturing migrated in ever increasing numbers to developing countries, the FOE found a sanctuary in services. It had a helping hand from the Great Powers, ranging from the US Treasury, which pressured emerging economies to open their markets and allow foreign takeovers, to the most expensive business schools, which supplied the rationales for doing so, to the WTO, rewrote the regulatory rules for privatizing government-owned services and operating private services along Western accounting and financial lines. How did POEs fare, when their own presence in the service sector of FOEs was negligible, a hindrance to their imitative learning?

Three points about national ownership in the service sector emerge from Taiwan. First, the Taiwanese government promoted national ownership in services as it had done in manufacturing, despite global cries for laissez faire. It bet on the speed of learning and skill formation of its groups to keep services in national hands. It won from the US government a five-year reprieve before some services were opened to FOEs. This gave them time to speed up learning. Second, the big national players in services became mainly old business groups, not specialized national service providers. (The top ten companies in retail, wholesale, and department stores, the largest service subsector, were all groups.) Third, many groups transferred know-how to services from traditional industries (Amsden and Chu 2003).

In the case of cell phone services, all groups built up their operating systems within a year, and then, three months later, entered into fierce price competition with each other. 'Ramp ups and start ups were extremely fast by world standards', an advantage gained from older industries (Amsden and Chu 2003: 137). In sectors where financial assets were lacking, local firms allied with each other. Foreign joint ventures grew, but alliances were viewed as a faster route to market entry, especially in financial services and telecommunications.

A company in the textile and construction industry, Ruentex, founded RT-Mart International, along the lines of Costco, the American mass wholesale warehouser. After it opened its first store and bought two others, Ruentex quickly ramped up to a total of sixteen stores to acquire brandname recognition and good vendor service. A year later it opened its first outlet in China, which soon expanded to eleven outlets in all. Speed came from Ruentex's traditional construction and development arm, which designed and built Ruentex's retail outlets. Capital to finance diversification into services came from Ruentex's old textile business, which had also invested in a financial securities company and then, the first global Taiwan fund. Once in finance, Ruentex formed a partnership with Aetna Insurance and then bought shares in the Sinopec Bank. The old economy thus became a bridgehead to services, given the suppleness of business groups. Due to differences in skills, some services became completely foreign dominated (advertising) while others fell mostly under local control (fast foods). Overall, POEs kept their grip on the local economy, which maintained steady growth and low unemployment at a time when manufacturing was migrating on mass to the Mainland. As Taiwan's service sector built up capacity in China, service businesses in Taiwan were strengthened. Just as national capital in

manufacturing helped entry into services, so national capital in services helped entry into the Chinese market. Around 60 per cent of total foreign investment in China comes from overseas Chinese POEs.

#### 5 Conclusion

Outside perfectly competitive industries, FOEs and POEs are different animals, at least when POEs are still in their first, second, or third generation of family ownership. The POE is entrepreneurial and the FOE tends to be bureaucratic (an assertion I have not dealt with in this paper). The evidence favors the POE rather than the FOE as the agent of industrialization in the developing world, diversifying from the simplest industries to the most complex, on the basis of latecomer types of skills, especially related to project execution and speed to market.

POEs became strongest in developing countries with pre-war manufacturing experience, whose decolonization involved not just kicking out foreign rulers but also kicking out foreign firms (China, India, Korea, Taiwan, Malaysia, Indonesia, etc.). Space was made for domestically owned POEs to spread their wings, thereby crowding out FOEs and creating the opportunities for developing countries to reach the highest levels of skills and salaries, and to expand overseas. Countries can globalize only on the basis of nationally owned companies. Where the crowding out of FOEs failed to happen, as in the Philippines and Brazil (which never experienced post-war decolonization and where multinationals stayed put), POEs were weaker as an agent of growth. The diversification pattern of national economies was mirrored in the diversification pattern of business groups, the most popular form of POE. As groups repeatedly diversified, they became good at diversifying—that is, they mastered the skills bundled in project execution—ranging from acquiring technology to starting up operations. With few levels of bureaucracy, the group's most talented professional engineers were known to top management, and could be mobilized for new ventures quickly, rather than sought on the market. With speed and know-how in starting up new operations, groups became extraordinarily fast to market, from ramping up new facilities to integrating parts and components. Today, countries such as Korea and Taiwan can deliver different varieties of notebooks and cell phones to world markets in a matter of hours. Speed is an indigenous asset.

All developing countries after the Second World War were capital scarce, which suggests that the group form of business emerged to mobilize capital on a family basis. But in many countries like India and China (and in many African countries today), capital was more shy than scarce. Capital came out of the woodwork as groups acquired know-how and lowered perceived risk. This attracted the capital of non-family members. The rise of the group form of business in the developing world is best understood in relation to knowledge-based assets, not finance. In former colonies that ejected foreign firms and at the same time built new entrepreneurial enterprises, globalization began to take the form of brain drain, and then reverse brain drain. POEs soon became blessed with two types of knowledge compared with FOEs: they knew intimately their own native environment and language, and they knew the environments of FOEs, where they studied, worked, and happily lived, and learned English. This contrasts with the limited learning of the US and Japan, which know intimately only their own language and way of doing business. The deep, dual knowledge of the POE argues in favor of its long run success.

A third type of animal is the joint venture between FOE and POE, and it appears as an attractive mutant for economic development. But joint ventures tend to have protracted negotiations between partners and to move slowly (compare the entry of Cheri on the one hand and General Motors and Volkswagen on the other into the Chinese automobile industry). Nor is history in their favour. After all, no joint venture is known to have emerged between David and Goliath.

#### References

- Amsden, A. H. (2001). The Rise of 'the Rest': Challenges to the West from Late-Industrializing Economies. New York: Oxford University Press.
- —— (2007). Escape from Empire: The Developing World's Journey Through Heaven and Hell. Cambridge, MA: MIT Press.
- Amsden, A. H., and W. W. Chu (2003). *Beyond Late Development: Taiwan's Upgrading Policies*. Cambridge, MA: MIT Press.
- Amsden, A. H., and T. Hikino (1994). 'Project Execution Capability, Organizational Know-how and Conglomerate Corporate Growth in Late Industrialization'. *Industrial and Corporate Change*, 3 (1): 111–47.
- Bagchi, A. K. (1972). *Private Investment in India*, 1900–1939. Cambridge: Cambridge University Press.
- Banerjee, A. K. (1963). *India's Balance of Payments: Estimates of Current and Capital Accounts from 1921–22 to 1938–39*. Bombay: Asia Publishing House.
- Chandavarkar, R. (1994). *The Bombay Cotton Textile Industry, 1900–1940*. Cambridge: Cambridge University Press.
- Das, N. (1962). *Industrial Enterprise in India*. Bombay: Orient Longmans.
- Dosi, G. (1988). 'Sources, Procedures, and Microeconomic Effects of Innovation'. *Journal of Economic Literature*, 26 (3): 1120–71.
- Ferguson, N. (2003). Empire: The Rise and Demise of the British World Order and the Lessons for Global Power. New York: Basic Books.
- Feuerwerker, A. (1958). China's Early Industrialization: Cheng Hsuan-Huai (1844–1916) and Mandarin Enterprise. Cambridge, MA: Harvard University Press.
- (1967). 'Industrial Enterprise in Twentieth-Century China: The Chee Hsin Cement Co'. In A. Feuerwerker, R. Murphey, and M. C. Wright (eds.), *Approaches to Modern Chinese History*. Berkeley, Los Angeles, CA: University of California Press.
- Fraser, L. (1919). Iron and Steel in India. Bombay: Times Press.
- Hao, Y.-p. (1986). The Commercial Revolution in Nineteenth-Century China: The Rise of Sino-Western Mercantile Capitalism. Berkeley, CA: University of California Press.
- Khanna, T., and Y. Yafeh (2007). 'Business Groups in Emerging Markets: Paragons or Parasites?'. *Journal of Economic Literature*, 45: 331–72.

- Lawrence, R. Z. (1993). 'Japan's Low Levels of Inward Investment: The Role of Inhibitions on Acquisitions'. In K. Froot (ed), *Foreign Direct Investment*. Chicago: University of Chicago for the National Bureau of Economic Research.
- Lieu, D. K. (1936). *The Growth and Industrialization of Shanghai*. Shanghai: China Institute of Pacific Relations.
- Maddison, A. (1971). Class Structure and Economic Growth: India and Pakistan since the Moghuls. New York: W. W. Norton.
- Mathias, P. (1973). 'Capital, Credit and Enterprise in the Industrial Revolution'. *Journal of European Economic History*, 2: 121–43.
- Morris, M. D. (1983). 'The Growth of Large-Scale Industry to 1947'. In D. Kumar, and M. Desai (eds.), *The Cambridge Economic History of India*, Vol. 2. Cambridge: Cambridge University Press.
- Mourshed, M. (1999). 'Technology Transfer Dynamics: Lessons from the Egyptian and Indian Pharmaceutical Industries'. Doctoral Dissertation. Cambridge, MA: Massachusetts Institute of Technology.
- Nakaoka, T. (1991). 'The Transfer of Cotton Manufacturing Technology from Britain to Japan'. In D. J. Jeremy (ed.), *International Technology Transfer*, *Europe*, *Japan and the USA*, *1700–1914*. Aldershot: Edward Elgar.
- Riskin, C. (1975). 'Surplus and Stagnation in Modern China'. In D. H. Perkins (ed.), *China's Modern Economy in Historical Perspective*. Stanford, CA: Stanford University Press.
- Rungta, R. S. (1970). *The Rise of Corporations in India, 1851–1900*. Cambridge: Cambridge University Press.
- Rutnagur, S. M. (1927). *Bombay Industries: The Cotton Mills*. Bombay: The Indian Textile Journal, Ltd.

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