This chapter is part of:

The Dynamics of Industrial Location: The Factory, the Firm and the Production System
by Roger Hayter, Department of Geography, Simon Fraser University, Burnaby, 2004
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To provide a broader context for the examination of the strategies and location behaviour of individual firms that occurs in the remainder of Part III, this chapter, first, briefly examines the size distribution of firms, which raises the question as why small and large (and medium sized) firms exists in modern economies. Geographically, many manufacturing firms are small and exist at a single site. Others are huge and occupy multiple locations. The second part of the chapter outlines the geographic scope of large firms, particularly with respect to their (internal) employment geographies. The final part of the chapter discusses the 'spatial division of labour' (SDL), particularly with respect to the implications arising from the employment distributions of large firms. Although problematical, the SDL (and related idea of the new international division of labour) does give pre-eminence to the power of corporations in shaping the spatial distribution of employment opportunity.

THE SIZE DISTRIBUTION OF FIRMS

In capitalist economies there is a tremendous range in the sizes of firms. If the great majority of firms have sales of less than $10 million there are a few multinational corporations (MNCs) that have sales bigger than the gross national product (GNP) of medium sized countries. For over 25 years, General Motors (GM) has been the biggest industrial corporation in the world. Its sales of over $120 billion per annum in the early 1990s (and $168 billion in 1995) were significantly larger than the GNP of countries such
as Norway and South Africa and about twice the size of countries such as Greece or Portugal. Even after over a decade of downsizing GM still has more employees (around 709,000 in 1995) than Iceland has people (around 500,000). It has more research and development (R&D) employees than most universities have faculty. GM is not simply big, it is a colossus.

The existence of corporate giants and impressive variations in the size distribution of firms have been important characteristics of industrial economies throughout this century, even if not popularly discussed until the 1960s (Barber 1968; Galbraith 1967; Servan Schreiber 1967). In the early 1900s in the United States, for example, the 100 largest manufacturing firms accounted for over 40% of industrial output (Wilkins 1970). Similarly, by then, high levels of economic concentration existed in the leading industrial sectors in which a relatively few, large firms ('oligopolists') accounted for the lion's share of production and markets. Indeed, the rapid emergence of oligopolistic and even monopolistic market structures led many, including Marx and others of a more conventional view, to anticipate the demise of the small firm.

Yet, a size distribution still exists. More specifically, in capitalist economies, and for most industrial sectors, the largest firms (and factories) are typically very few while the smallest firms are typically very many. Indeed, in many economies and sectors it has long been suggested that as firms increase in size the number of firms declines in a more or less steady way (Hart 1962). That is, the relationship between the number and size of firms can be summarily represented by a positively skewed distribution or as a population pyramid (Figure 8.1). In this context, a well known hypothesis is Gibrat’s law which states that among a population of firms, the rate of change of (average) firm size (in any particular size class) is independent of size. From this perspective, while individual firms may experience different growth and decline experiences, the net effects of these variations among a population of firms offset each other to produce a stable size distribution over time (Hart 1962).
Regardless of the particular form of statistical relationships, the traditional explanation for the size distributions of firms emphasizes the effects of internal economies (and diseconomies) of scale. In this model, firms only differ in the extent to which they take advantage of economies of scale. An alternative 'dual economy' model (Figure 8.3), while recognizing the importance of technological forces or 'imperatives' for the growth of firms, emphasizes a basic distinction ('segmentation') between large and small firms in terms of motivation, structure and behaviour. Moreover, the nature and extent of business segmentation can vary among societies, even at similar levels of development.

The economies of scale argument

Simply put, economies of scale occur when the average cost of production declines with increasing size of activity. Similarly, diseconomies of scale exist when average costs of production increase with increasing size of activity. In theory, for firms, (or factories) the relationships between output levels and efficiency, as measured by the average costs of production can take on various shapes (Figure 8.2; see also Figure 2.5).
From this perspective, within an economy or industry, the size distribution of firms reflects the differential effects of (dis)economies of scale on factories and firms. Thus, big factories which are able to realize economies of scale (plant or factory level economies of scale), imply firms of at least equal size to finance, control and operate them. In addition, the potential for reductions in the average cost of production with increasing size of firm (firm level economies of scale), implies that large multiple plant firms are more efficient than small single plant firms. Diseconomies of scale recognize that at some point increasing size may become ‘inefficient’ with respect to either factories or firms. In this regard, it might be noted that, in addition to factors operating within factories and firms, market size may also place limits on the realization of economies of scale.

In summary, the size distribution of firms exists in an economy or industrial sector because of highly variable opportunities to take advantage of economies of scale. Small firms exist either because factory and firm level economies of scale are extremely limited or, even if technically possible, cannot be exploited because the market is not big enough. On the hand, if economies of scale are substantial and the market is big enough, at least a ‘few’ large factories and firms can exist. Medium sized firms exist because there are possibilities between these two polar situations.
The bases for (dis)economies of scale are well known (Robinson 1931; Bain, 1956; Scherer 1980). Thus, at the factory level, it is argued that big factories are better able than small factories to specialize their work forces according to specific tasks thus allowing workers to increase productivity by improving their dexterity, eliminating time losses involved in moving between different tasks and creating possibilities for developing specialized machinery. In addition, fixed costs, which by definition do not vary with output levels, will necessarily contribute towards economies of scale as they are spread over a larger output. Such fixed costs refer, for example, to payments for plant, machinery, municipal services and infrastructure while labour recruitment and training costs are also a form of fixed cost. If bigger machines can be designed which generate a bigger increase in output than in cost (of purchase) then economies of scale can also be realized. Factories may be able to further exploit ‘technological’ economies of scale if, for example, integrated processes permit savings in energy while if linked machines produce different sized outputs average costs will be reduced if all machines are kept running all the time which means the firm will require more of the smaller machines.

At the level of the firm, large multi-plant firms exploit economies of scale by spreading the fixed costs of expensive managerial functions such as marketing and distribution and research and development (R&D) over the larger output generated by multiple factories. As firms build or acquire more factories each factory can use, for example, the firm’s existing marketing and distribution channels which brings down the average costs of production. Related economies of scope, which define the ability to utilize existing resources for alternative purposes without significant transition costs, may also exist. In addition, big firms enjoy bargaining advantages, for example, with suppliers, consumers and financial institutions which can translate into lower costs. Furthermore, large firms can withstand high levels of uncertainty, especially in relation to large, complex projects involving substantial investment. Finally, once a few firms have become large in particular markets, high levels of fixed costs in plant, equipment,
marketing and distribution channels, and R&D constitute important ‘barriers to entry’ to new firms or to medium sized firms wishing to participate in the same markets.

As operations increase in size, possibilities for economies of scale can be exhausted and average costs level-off or even increase to create diseconomies of scale. In factories, possible causes of such diseconomies include technological limits on machine size, problems of supervision and communication and labour alienation over excessive specialization. Transportation costs may also impose a constraint on size as big factories require longer supply lines and bigger market areas. In firms, diseconomies of scale relate to the costs of administration, or ‘governance,’ and the issue of ‘bureaucratization.’ Thus, decision making in large firms inevitably becomes more complex, time consuming and subject to formal rules of procedure as committee structures comprising many individuals with differing mandates feed into decision making structures. In addition, within bureaucracies, combinations of opportunism, personality differences and obsequiousness can undermine trust and effective communication, thereby having an adverse effect on productivity. Similarly, lack of effective communication within the firm may lead to misinterpretation and even contradictory policies.

The dual economy argument

According to the dual economy argument, economies comprise, on the one hand, giant corporations which represent ‘planning system firms’ and, on the hand, small firms represent ‘market system firms’ (Figure 8.3). As Taylor and Thrift (1983, 1983) note, planning and market system firms are qualitatively different; they perform different functions, they have different strategies and structures, and their social rationale is
different. They are literally different institutions (Galbraith 1967). In Robertson's (1928: 85; Malmgren 1961: 399) metaphorical terms, corporations exist as “islands of conscious power in [an] ocean of unconscious cooperation like lumps of butter coagulating in a pail of butter-milk."

Figure 8.3
Dual Model of Business Organization

In the dual economy model, the size distribution of firms is not simply a sliding scale of technological opportunity, constrained only by market size, over which firms increase in size by progressively moving down an average cost curve as markets permit or by stepping to a new, slightly lower average cost curve as technology permits. Rather, planning system firms exercise greater control over their own destiny. Certainly, among planning system firms economies of scale are important and the need to realize productivity gains by increasing scale of operations is a significant impulse underlying their growth. Indeed, according to Galbraith (1967) large scale business organizations are an inevitable consequence of the 'imperatives of [modern] technology' which is extraordinarily expensive, highly uncertain and requires conscious long term planning by large groups of highly trained specialists in very large scale organizations. Yet, it cannot be assumed that the largest firms are the most efficient firms. In many economies and industries, there is evidence that firms (and factories) grow to sizes that are far in excess of the notion of ‘minimum efficient size’ and even to sizes where diseconomies of scale
may be present (Scherer 1980; Blair 1972). A recent reminder that the biggest does not equate with the most efficient is the debate within GM about whether or not to break up the company in order to increase overall profitability and efficiency (Taylor 1996). Indeed, there appears to be no obvious limits to the corporate size and no mechanical rules for determining an optimal size distribution for firms. In the dual economy model, planning system firms seek to grow not only to pursue efficiency but for other reasons, including to gain access to resources, to reduce uncertainty (over, for example, access to markets, rival behaviour, supplies), to gain bargaining power and for growth itself (Baumol 1958; Marris 1964; Penrose 1959; Starbuck 1965). From this perspective, efficiency and size are not related in a simple linear fashion.

In the dual economy model, planning and market system firms are different and, to some extent, separate. Thus, some types of small firms are ‘laggard’ and ‘craft’ firms which provide traditional products in small markets and essentially exist outside the ambit and concern of planning system or core firms. At the same time, as Edwards (1979: 73) notes, 'core firms cast a giant shadow over small firms.' The nature of the shadow cast by large over small firms does vary depending on whether the latter are 'satellites' which for example, have direct business links with core firms, 'loyal opposition firms' which directly compete with large firms, or dynamic small firms which manufacture new products and which are potential acquisition targets for the core firms. For satellites, planning system firms control their markets while for the other small firms core firms potentially dominate whether intentionally (for example, through acquisition) or unintentionally (for example, following the closure of a large plant which reduces local demands).

The issue of subcontracting explicitly raises the question of the boundaries of firms and whether or not core firms should manufacture a product themselves or subcontract. This issue is at the heart of the nature of production systems and will be examined in Part IV of this book. In the meantime, the fact that the size distribution of
firms varies among societies at least raises the suggestion that this question generates different answers.

*International variations in firm size distributions* - If economies of scale are the sole or predominant force affecting the size distribution of firms then this size distribution should be more or less the same among industrialized countries. Instead, we see substantial variations. Thus, small firms are considerably more important in the German and Japanese economies than they are in the US or UK (Table 8-1).

<table>
<thead>
<tr>
<th></th>
<th>Employment</th>
<th></th>
<th>No. of Firms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% SMEs</td>
<td>Total</td>
<td>% SMEs</td>
<td>Total</td>
</tr>
<tr>
<td>Japan</td>
<td>74.4</td>
<td>13.3m</td>
<td>99.5</td>
<td>874,471</td>
</tr>
<tr>
<td>U.S.</td>
<td>46.9</td>
<td>17.8m</td>
<td>96.2</td>
<td>348,385</td>
</tr>
<tr>
<td>U.K.</td>
<td>39.2</td>
<td>4.9m</td>
<td>97.0</td>
<td>141,617</td>
</tr>
<tr>
<td>W. Germany</td>
<td>60.0</td>
<td>10.5m</td>
<td>99.2</td>
<td>515,917</td>
</tr>
</tbody>
</table>

Source: Based on Patchell 1991:52-54.
Note that small and medium sized enterprises are defined somewhat differently: Japan: < 300 employees; U.S.: < 250 employees; U.K.: < 200 employees; W.G.: < 300 employees.

While the statistical definition of the small firm sector, or more precisely in this case the small and medium sized firm (SMEs) sector, does vary, numerous other studies have consistently reached the same conclusion, including in comparisons of the same industry. There seem to be some national or cultural factors, as well as economies of scale, affecting the size distribution of firms. That is, to some extent the size distribution of firms involves choice. From this perspective, Japan and Germany are societies who have ‘chosen’ to give greater priority to the role of SMEs in the manufacturing process than
either the US or the UK. Indeed, historically, core firms in Japan have relied more on subcontracting than core firms in the US.

There is little evidence to support the idea that national variations in the size distribution of firms relate to national variations in competition' or 'anti-monopoly' or anti-trust policies which are designed to confront problems arising from high levels of corporate concentration (and too little competition). In most industrial countries, including the US, the UK, Germany and Japan various forms of these policies have been established. For the most part, however, these policies are practiced on an *ad hoc* basis. Occasionally, mergers between already giant firms are prevented and in the US a few mammoth corporations have been forced into 'smaller,' if still huge, companies. After 1945, the US used its anti-trust laws to break up the Japanese Zaibatsu 'groupings' while the Japanese government also stimulated competition among its firms. Whether the threat of anti-trust action results in implicit, self-imposed constraints on the growth of firms and so exercises a broader influence on the size distribution of firms is more debatable. In the US and the UK, for example, merger and acquisition activity has been a major cause of corporate concentration. In addition, governments have supported the growth of large firms, both domestic 'champions' and by encouraging foreign investments by MNCs. Whether any of these polices have exerted a systematic effect on national variations in the size distribution of firms, however, is debatable.

Rather, national variations in firm size distributions have deep historical roots. In the case of Japan, for example, Fruin (1992) argues that since the beginning of the country's modern drive to industrialization in the Meiji Period manufacturing firms have favoured highly specialized strategies and to rely on each others' specialisms. Such strategies, in this view, were strongly encouraged by the energies required to learn technologies already developed in the west (see also Patchell 1991). In the case of the UK, it is now widely recognized that the small business sector has long been of relatively less importance compared to comparable countries (Bolton Report 1971; Dewhurst 1989;
Moreover, Dewhurst (1989) rejects the view that small firms in the UK have been discriminated against by government policy. Instead, he suggests that manufacturing industry as a whole, and small manufacturing businesses in particular, have a negative social perception, particularly in the area of production, and have attracted less capable individuals than more desirable occupations (see also Weiner 1982). While social attitudes to entrepreneurship are changing the UK is still 'trying to correct a huge negative bias against such organizations' (Dewhurst 1989: 78).

In most industrialized countries, there is evidence that the small firm sector is playing a greater role, for example, in relation to total employment (Loveman and Sengenberger 1991). In the US, for example, Fortune reported that the sales of the largest 500 firms declined from 55 per cent to 42 per cent of total sales between 1978 and 1988 and that their share of national employment declined from 17 to 11 per cent in the same period. At the same time, the number of new firms in the US is on the rise (Birch 1979). In the UK, in the early 1980s the birth rate of new firms rose considerably while the death rate remained the same (Burns 1989: 32). The basic pyramidal structure of the size distribution of firms remains, however, and the biggest firms remain very big. In this regard, it might be noted that management discussions to possibly break up GM, whose 1995 sales were $168 billion, would still leave four very large companies, probably all within the largest 100 industrial companies in the US (Taylor 1996).

THE GEOGRAPHIC DISTRIBUTION OF EMPLOYMENT WITHIN BIG FIRMS

The size distribution of firms is mirrored by variations in the geographic scope of firms. Company regions, to use McNee's (1958) term, vary greatly in size including the extent to which they straddle local, regional and national boundaries. While many firms are single plant operations others control from two to many hundreds of plants of varying sizes.
which are geographically dispersed in a variety of patterns. Several models have attempted to generalize the spatial form of long run corporate expansion paths, usually by the identification of geographically defined stages of growth (Hakanson 1979; Taylor 1975; Watts 1977). Hakanson's model, for example, anticipates that firms first, establish a strong local or regional base, then grow nationally and finally internationally (Figure 8.4). In this model, sales linkages through sales offices and sales agents first extend the firm's knowledge of more distant places and give direction to investment in new factories.

In practice, many firms have created significant regional cores to their activities and have subsequently become major national companies before investing in foreign countries. There are also alternative expansion paths and wide variations in the extent to which equally large firms are geographically diffuse. The geography of the behavioural environments of firms are not only shaped by distance decay effects around existing centres. As firms become larger, growth by acquisition and merger typically becomes more important so that the geographic scope of operations can occur in 'big leaps.' In addition, locational adjustment at existing sites continually occurs as firms expand, modernize and change some sites while closing others. Watts' (1980b) detailed analysis of planning system firms within the UK brewing industry, for example, reveal some interesting differences in spatial trajectories and morphologies of national firms. Perhaps, the most significant criticism of models of the evolving spatial morphology of firms is that they do not adequately address underlying causal processes and isolate firms from their environmental context, focusing solely on 'spatial' distribution (Hayter and Watts 1983:169). At the same time, actual (changing) maps of corporate activities provide useful points of departure for analyzing processes of location change within the firm and raise interesting questions, not least with respect to the spatial division of labour.

National employment maps of corporations
During the fordist techno-economic paradigm until the early 1970s, many corporations enjoyed more or less continuous growth. Expanding corporations did close down factories but these closures were typically small plants and part of modernization plans or the rationalizations that followed acquisitions and mergers. From the early 1950s to the mid-1970s, for example, the core firms of the UK brewing industry all expanded their corporate systems especially by acquisition (Watts 1980b). In the case of Whitbread, a national system of breweries was developed mainly by acquiring competitors and while numerous sites were closed two new ones were built and others expanded (Figure 8. 5). By 1976, however, in comparison to the other core firms, Whitbread's plants were relatively smaller and more dispersed, providing potential for more sweeping rationalization (Watts 1980b: 236-9).
Since the 1970s, the employment geographies of large corporations, especially in Europe and North America, have been volatile. While it is often difficult to collect appropriate data, a number of studies have documented employment changes throughout corporate systems within particular nations (see Healey and Watts 1987; Peck and Townsend 1983; de Smidt and Wever 1990) and even internationally (Clarke 1982). The biggest changes, at least in terms of job-shedding, have occurred within corporations in mature industries such as iron and steel, shipbuilding and autos (Peck and Townsend 1984; Townsend 1983). In Europe and North America, employment volatility has also been a feature of corporations manufacturing technologically sophisticated products and products for which consumer demand remains strong. Three examples are provided by Cadbury Schweppes in the UK, Standard Electric in Germany and Philips in the
Netherlands (Figures 8. 6, 8. 7, 8. 8). The latter two are both in the high tech vanguard of companies while Cadbury Schweppes serves stable consumer demands.

Cadbury Schweppes is a diversified food, soft drink and household hygiene MNC whose 22,900 workers in the UK in 1987 represented 60% of its world-wide work force (Healey and Watts 1987). Cadbury Schweppes has four divisions and its plants are scattered throughout the UK although there are concentrations, within the Axial Belt (Figure 3. 4), around London, the west Midlands and the Liverpool area (Figure 8. 6). This is a changing geography, however (Watts 1987: 12). Thus between 1972 and 1984 the firm shed 4,000 workers from this system, almost 60% of which were concentrated in its main production region of the West Midlands. Given that employment gains occurred in several other locations, the West Midlands' share of the firm's employment dropped from 43% to one-third in this time period.
In the case of Philips, the Dutch-based electronics MNC, its internationalization began in the 1930s and by 1939 the firm employed more people abroad than in Holland (de Smidt 1990: 56). After 1950 Philips expanded impressively, increasing its employment from 90,000 to 359,000 worldwide by 1970, when one-quarter of its workers were in Holland (Figure 8.7). Within Holland, its core region around Eindhoven in the south-east of the country accounted for 45% of Philips' jobs in 1945 and 41% in 1973 (de Smidt 1990: 65) as the firm aggressively built, acquired and expanded plants in all regions of Holland, including the development areas. From the late 1960s smaller plants have been closed and since the late 1970s Philips employment map within Holland has changed more dramatically. Comparing 1970 with 1988, for example, Philips has
reduced employment in all regions of Holland, (in contrast to Cadbury Schweppes) more
less evenly between its core region and the peripheral areas (Figure 8.6). As de Smidt
(1990) observes, these losses involved both blue and white collar works and were
combined with a general (but not uniform) shift towards the hiring of more highly
qualified employees within Holland as Philips globally integrates its world wide
operations in each of its major divisions.

Standard-Electrik Lorenz (SEL) is an example of subsidiary company whose
operations are within Germany (Figure 8.8). SEL was part of the international corporate
empire of ITT of New York from 1958 to 1986 when it was acquired by the French based
Acatel SA (Fuchs and Schamp 1990: 82). The acquisition signaled the onset of a major
rationalization of SEL. In particular, the entertainment electronics division was sold off to
the Finnish corporation Nokia, 2,000 jobs shed in the remaining plants and SEL became
more tightly integrated within its new parent company. Geographically, SEL has become more regionally focused on its core region in the Stuttgart area where half of SEL's 22,800 employees work. Most of the plant closures and divestments have occurred elsewhere, including, for example, all its operations in the Cologne-Dortmund area of the Rhine and Ruhr. As Fuchs and Schamp (1990: 84) note, SEL has become a regional multi-plant corporation whose performance is closely monitored by its French parent.

In contrast to Europe and North America, the leading corporations of Japan have largely been able to maintain employment growth trajectories within Japan, at least until
relatively recently. Nissan's closure of an auto manufacturing plant in Tokyo in 1994, for example, was its first. Similarly, in South Korea, recent decades have witnessed unprecedented growth among its leading corporations. A good illustration is provided by Daewoo (Figure 8.9).

![Figure 8.9](image)

**The Daewoo Spatial System in South Korea: Employment Change 1967 to 1988**

Source: Park 1990: 225

Daewoo began as a small (textile) trading company in 1967 and experienced particularly rapid growth in the 1970s, principally by acquisition and merger (Park 1990). Following a brief restructuring phase in the early 1980s, Daewoo embarked on further rapid growth, this time with a greater emphasis on internal growth, and by 1988 had sales of over $15 billion. By this time Daewoo had become a highly diversified conglomerate involved in construction, trade and a wide range of manufacturing activities, notably
heavy industrial and chemical products, steel and metal products, electric and electronic products, machinery, chemicals, vehicles and ships, garments and textiles, and others. Daewoo also had 15 R&D establishments located in Korea and international trading, construction and manufacturing operations in several countries in Asia, Europe, Africa and North America (Park 1990: 219-20). Within Korea, Daewoo has concentrated its growth in the Pusan region, its original location, and the Seoul-Inchon region (Figure 8.9). In addition a few branch plants were located on industrial estates near regional cities such as Kwangju and Taegu to take advantage of labour availability and government support for regional development. So far, Daewoo's national corporate system has expanded in tandem with its growing international operations.

**The significance of foreign operations to giant firms**

Not all foreign manufacturing firms are big. Many small and medium sized firms have established foreign operations. However, historically, overall levels of foreign investment in the manufacturing sector have been dominated by large firms such as GM, Philips, Cadbury Schweppes and Daewoo. Indeed, if for no other reason than the limitations of domestic markets (or resources), as manufacturing firms grow there is typically pressure to internationalize operations by exporting and eventually by investing in foreign based facilities.

In practice, considerable variations exist in the extent to which large corporations have internationalized their operations (Table 8.2). Thus, in the late 1980s Japanese corporations such as Mitsubishi Electric, NEC and Matsushita and the German BASF had less than 10% of their (1985) work forces in foreign operations. Even so, the absolute levels are not minor - NEC, for example, employed about 10,000 workers in foreign plants in 1985. At the other extreme, Nestlé employed almost all of it work force outside
Switzerland, its home country, while BAT Industries of the UK had 86% of its workers in foreign plants. The other examples cited had between 18-53% of their workers in foreign plants, a range which probably captures the behaviour of most giant MNCs with sales of several billion dollars. Simply by virtue of its absolute size, special mention might also be made of GM whose foreign workers totaled over 200,000 in 1985.

Table 8.2

'Vital statistics' of some of the world's leading transnational corporations in manufacturing, 1989 and 1995

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<tbody>
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<td>General Motors</td>
<td>US</td>
<td>126,974</td>
<td>168,829</td>
<td>775,100</td>
<td>709,000</td>
<td>31</td>
</tr>
<tr>
<td>Ford</td>
<td>US</td>
<td>96,933</td>
<td>137,137</td>
<td>366,641</td>
<td>346,990</td>
<td>53</td>
</tr>
<tr>
<td>IBM</td>
<td>US</td>
<td>63,438</td>
<td>71,940</td>
<td>383,220</td>
<td>252,215</td>
<td>40</td>
</tr>
<tr>
<td>Toyota</td>
<td>Japan</td>
<td>60,444</td>
<td>111,052</td>
<td>91,790</td>
<td>146,855</td>
<td>20</td>
</tr>
<tr>
<td>General Electric</td>
<td>US</td>
<td>55,264</td>
<td>70,028</td>
<td>292,000</td>
<td>222,000</td>
<td>21</td>
</tr>
<tr>
<td>Hitachi</td>
<td>Japan</td>
<td>50,894</td>
<td>84,167</td>
<td>274,508</td>
<td>331,852</td>
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<td>Matsushita</td>
<td>Japan</td>
<td>43,086</td>
<td>70,398</td>
<td>193,088</td>
<td>265,538</td>
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<tr>
<td>Daimler-Benz</td>
<td>Germany</td>
<td>40,616</td>
<td>72,256</td>
<td>368,226</td>
<td>310,993</td>
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<tr>
<td>Philip Morris</td>
<td>US</td>
<td>39,069</td>
<td>53,139</td>
<td>157,000</td>
<td>151,000</td>
<td>28</td>
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<tr>
<td>Fiat</td>
<td>Italy</td>
<td>36,740</td>
<td>46,468</td>
<td>286,294</td>
<td>237,426</td>
<td>18</td>
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<tr>
<td>Nissan</td>
<td>Japan</td>
<td>36,078</td>
<td>62,569</td>
<td>117,330</td>
<td>139,856</td>
<td></td>
</tr>
<tr>
<td>Unilever</td>
<td>UK/Nether.</td>
<td>35,284</td>
<td>49,738</td>
<td>300,000</td>
<td>308,000</td>
<td>--</td>
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<tr>
<td>Du Pont</td>
<td>US</td>
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<td>37,607</td>
<td>145,787</td>
<td>105,000</td>
<td>23</td>
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<tr>
<td>Samsung</td>
<td>South Korea</td>
<td>51,215</td>
<td>196,000</td>
<td>--</td>
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<td></td>
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<tr>
<td>Volkswagen</td>
<td>Germany</td>
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<tr>
<td>Siemens</td>
<td>Germany</td>
<td>32,660</td>
<td>60,674</td>
<td>365,000</td>
<td>373,000</td>
<td>31</td>
</tr>
<tr>
<td>Toshiba</td>
<td>Japan</td>
<td>29,469</td>
<td>53,047</td>
<td>125,000</td>
<td>186,000</td>
<td>--</td>
</tr>
<tr>
<td>Nestlé</td>
<td>Switzerland</td>
<td>29,365</td>
<td>47,780</td>
<td>196,940</td>
<td>220,172</td>
<td>96</td>
</tr>
<tr>
<td>Renault</td>
<td>France</td>
<td>27,457</td>
<td>36,895</td>
<td>174,573</td>
<td>139,950</td>
<td>29</td>
</tr>
<tr>
<td>Philips</td>
<td>Netherlands</td>
<td>26,993</td>
<td>40,148</td>
<td>304,800</td>
<td>265,113</td>
<td>--</td>
</tr>
<tr>
<td>Honda</td>
<td>Japan</td>
<td>26,484</td>
<td>44,056</td>
<td>71,200</td>
<td>96,800</td>
<td>30</td>
</tr>
<tr>
<td>BASF</td>
<td>Germany</td>
<td>25,317</td>
<td>32,259</td>
<td>136,900</td>
<td>106,565</td>
<td>32</td>
</tr>
<tr>
<td>NEC</td>
<td>Japan</td>
<td>24,594</td>
<td>45,557</td>
<td>104,022</td>
<td>152,719</td>
<td>9</td>
</tr>
<tr>
<td>Hoechst</td>
<td>Germany</td>
<td>24,403</td>
<td>36,409</td>
<td>169,295</td>
<td>161,618</td>
<td>43</td>
</tr>
<tr>
<td>Peugeot-Citroën</td>
<td>France</td>
<td>24,091</td>
<td>33,074</td>
<td>159,100</td>
<td>139,300</td>
<td>--</td>
</tr>
</tbody>
</table>
The data shown in Table 8.2 are of course a snapshot of a point in time. Changes constantly occur. In GM's case, for example, while its sales rose to over $168 billion in 1995 its employment declined to 709,000. In some cases, firms are becoming 'more' foreign but for different reasons. During the 1970s and early 1980s, ICI, for example, radically restructured its global operations but its employment downsizing emphasized its British-based plants, especially the older ones (Clarke, 1982). In contrast, Japanese MNCs, whose interest in foreign investment was stimulated by the rising value of the Yen, have increased levels of foreign investment while striving to maintain domestic work forces, although in recent years this has become more difficult (Edgington 1994).

McNee (1958) recognized some time ago that the foreign operations of MNCs were integrated with domestic operations. Rapid improvements in communications and production technology and declining tariff barriers, however, have constantly changed the operating environments of MNCs which in turn has encouraged re-thinking about integration. The integration of MNCs has thus become more intimate and varied. Whereas MNC branch plants in peripheral countries once simply provided resources or relatively small assembly plants to serve local markets, they are now integrated in more complex systems. Moreover, MNCs originate from a much wider variety of countries that used to be the case in the 1960s and include countries such as South Korea which not so long ago was classified as part of the semi-periphery.
The significance of acquisitions and mergers

Corporate systems evolve from a combination of internal and external forms of growth, and from rationalizations and closures. From the firm's point of view investments in new plant and equipment at new and existing locations and acquisitions and mergers both serve to meet long run, strategic motivations and provide closely interrelated ways in which corporate systems develop (chapter 7). Thus, both investments in new facilities in new locations and acquisitions and mergers then become focus for subsequent in situ investments. As alternatives to new site location decisions, the potential advantages of acquisitions and mergers to corporations lie in providing for faster, larger scale and less risk growth. Moreover, although an alterantive to choosing new locations, acquisition behaviour as a whole has a distinct geography or to use the terms of Green and Cromley (1984: 299) cities (and firms within them) have 'acquisition fields' (see also Leigh and North 1978). In practice, acquisitions and mergers are extremely influential to the growth of firms and are an important process underlying the reduction of competition and increasing economic and geographic concentration of power. In North America and Europe at least, it is probably difficult to find a major corporation which has not relied on acquisition to grow.

For the individual firm, spatial as well as aspatial considerations are often important criteria by which acquisitions and mergers are assessed. In the case of MacMillan Bloedel (MB), for example, a Canadian forest product giant, the core of its contemporary corporate system in the coastal region of British Columbia (BC) is founded on two major mergers among then leading, rival companies in the 1950s (Figure 8. 10). The mergers restricted competition and increased levels of concentration in wood supply rights, were perceived by MB in terms of pooling complementary organizational and locational resources (Hayter 1976: 219-20). Thus research and development programmes and global marketing networks, to which each firm brought different strengths, were
consolidated and more effectively used. The spatial rationality underlying the mergers
principally derived from the proximity of logging camps, manufacturing facilities and the
optimality of individual manufacturing sites, all of which were on tide-water. Indeed,
even by the 1950s, mergers provided the only way of obtaining such advantageous sites.
Immediately after the mergers, MB was able to rationalize logging systems and flows of
materials between production nodes, and close down smaller facilities.

Prior to the mergers each of the three founding companies had built new facilities
and acquired others. Since the mergers of the 1950s, investments to expand and
modernize, as well decisions to rationalize, have been substantial but virtually all have
been in situ. Apart from a new engineered wood mill built in Vancouver in the late 1980s,
the principal locations of MB in BC are the same in 1996 as they were in 1950, one year
before the first merger.
The evolution of MB's corporate system in BC contains important general experiences. Thus, acquisition and mergers have been vital to the creation of its core region in BC. A similar point can be made for countless other corporations including Daewoo (Park 1990) and Philips (de Smidt 1990). Second, the general structure of MB's core region has remained stable. Third, changes within the individual nodes of the core system have been driven by in situ investments. Fourth, as the Hakanson (1979) model predicts, MB developed by first creating a strong regional core (Figure 8.4).

Figure 8.4
A Model of the Spatial Evolution of Firms

Source: Hakanson 1979: 131-5
In contrast to this model, however, MB's national and international expansions occurred more or less at the same time (Table 8.3). With respect to MB's national and international expansions, two further general points can be made at this time. First, MB has pursued strategies of horizontal and vertical integration and in some cases these expansions have been directly linked to its BC base. Its acquisition of paper box companies in the UK, and to a lesser extent in the US, for example, was to provide a captive market for paperboard it was (then) manufacturing in BC. Second, in expanding outside of BC, acquisition of existing companies has been important. Where new investments have been made joint ventures have been created. It might also be noted that when MB's corporate survival was in question in the early 1980s, it chose to divest several foreign facilities and to consolidate its BC base.

Table 8.3


<table>
<thead>
<tr>
<th>Product and Location</th>
<th>Method of Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vertically Integrated Expansion</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Western Canada:</strong></td>
<td>Acquisition in 1954 of the Martin Paper Box Co. by the former Powell River Co.</td>
</tr>
<tr>
<td>Corrugated container plants in Winnipeg, Regina, Edmonton, Calgary (and Vancouver).</td>
<td></td>
</tr>
<tr>
<td><strong>Europe:</strong></td>
<td>Acquisition in 1963 of Cook Containers Ltd. and Ily-grade Containers Ltd.</td>
</tr>
<tr>
<td>Corrugated container plants in Hatfield, Nelson, and Southall (United Kingdom). Subsequent construction of new plants at West Auckland and Weston-Super-Mare.</td>
<td></td>
</tr>
<tr>
<td>70,000-ton-per-year capacity fine paper plant, Lanaken (Belgium).</td>
<td>Acquisition of a 36% (now 46%) interest in Royal Dutch Paper Mills (KNP), a Dutch fine paper producer, and subsequent $13 million investment in the Lanaken plant completed in 1968.</td>
</tr>
</tbody>
</table>

**Geographical Diversification**

**United States:**
Corrugated container plants in New Jersey and in Baltimore. Acquisition in 1966 of the two plants from the St. Regis Paper Co. and the Mead Corporation.
Integrated forest product complex at Pine Hills, Alabama, with capacity for 270,000 tons of linerboard, 50 MFBM of lumber, and 100 million square feet of plywood.

Project completed in 1968 for $70 million as a joint venture with the United Fruit Box Co. (which had a 40% interest in the linerboard mill). Became sole owner in 1970 and announced a $10.5 million particleboard plant in 1973.

Corrugated container plant, Odenton, Maryland.

Acquisition in 1971 from the Hoerner Waldorf Co. (Baltimore plant subsequently phased out.)

Ten corrugated container plants in New York, New Jersey, Ohio (two), Illinois, Indiana, Arkansas, Texas, Mississippi, and California.

Acquisition in 1971 of the Flintkote Corporation.

Canada:
180,000-ton-per-year capacity newsprint mill in St. John (New Brunswick).

Acquisition in 1969 of a 54% interest in partnership with Feldmühle A.G. of Germany. The mill (constructed in 1964) subsequently expanded by 180,000 tons per year.

Aspenite mill, Hudson's Bay (Saskatchewan).

Acquisition from the provincial government of Saskatchewan in 1965.

Plywood mill, Nipigon (Ontario).

Acquisition in 1973 of Multiple Plywood Ltd.

Waferboard plant, Thunder Bay (Ontario).


Southeast Asia:
Plywood and blockboard plant, Pekan (Malaysia).


Europe:
Hardwood pulp plants in France (three) and Belgium (one), with a 600,000-ton annual capacity.

Acquisition late in 1973, reportedly securing a 40% interest in La Cellulose d'Acquitaine.

Source: Hayter 1976: 227

Capital, specifically physical capital, in other words, is both mobile and immobile.

MB reveals its mobility by the global reach of its investments and divestments. At the same time, capital's immobility is revealed by the selective nature of MB's investments (and divestments) and, most of all, by MB's constant retrenchment of core facilities within BC for at least the past 50 years.

THE SPATIAL DIVISION OF LABOUR

Market and planning system firms collectively organize the (private sector) spatial division of labour. Two basic types of spatial division of labour (SDL) are distinguished (Massey 1994). First, the sectoral division of labour occurs when regions specialize in
particular industries and all the related skills. Second, the intra-sectoral division of labour occurs when within individual industries firms chose to specialize tasks and occupations by location. It might be noted that the term, 'spatial division of labour' is used in both senses so that its meaning has to be surmised in the context in which it is expressed.

Historically, the underlying division of labour is primarily a sectoral one as during the 19th century the surge of industrialization sweeping through Europe and North America was largely organized by regionally focused firms creating regions specialized on particular industries, or related groupings of particular industries. Thus cotton textile, iron and steel, shipbuilding and engineering, chemicals and lumber regions each developed distinctive ('sectorally specific') labour skills which were organized by distinctive regional populations of firms. Within each region, that is, there was a vertical concentration of all the necessary occupations, ownership and control, decision making and the production skills, associated with particular industries.

The dynamic underlying the intra-sectoral spatial of labour is the growth of interregional and international corporations in the 20th century (Haig 1926; Simon 1960; Hymer 1960). According to this version of the SDL thesis, big corporations, as they increase in size, horizontally distribute different functions and the associated occupations among different regions which provide 'appropriate' location factors. In the most general situation, within each industry, 'control' functions and occupations, notably decision making and research and development (R&D), are spatially separated from 'basic work processes,' to use Simon's (1960) terminology. More specifically, in this thesis, the control functions are concentrated in a relatively few metropolitan ('core') centres while basic work processes are dispersed among a wide variety of ('peripheral') locations. While the SDL thesis was primarily presented within the context of advanced industrial countries (Simon 1960; Pred 1974) the establishment of basic work processes, particularly in relation to resource industries and low skill manufacturing activities, in developing, 'peripheral' countries was recognized (Hymer 1960). More recently, a new international
division of labour (NIDL) thesis has been proposed which is defined by geographical shifts of basic work processes from core to peripheral and semi-peripheral countries thus 'hollowing out' the former (Fröbel, Heinrichs and Kreye 1980; Bluestone and Harrison 1982; see chapter 16). The revision of the new SDL thesis by the NIDL thesis, itself underlain by the emergence of the ICT techno-economic paradigm, implies capital has become significantly more mobile and significantly less committed to particular places.

Locational hierarchies

Within the context of the division of labour within corporations, both the new SDL and NIDL models equate functional occupational hierarchies with locational occupational hierarchies (Massey and Meegan 1979: 207). While the models differ in their implications for the dispersal of basic work processes, both anticipate the agglomeration of control functions at the top of the urban hierarchy. The corporations cited in this chapter, for example, provide examples of locational hierarchies. Cadbury Schweppes, for example, has placed its head-office (and technostructure) in central London and its main R&D laboratory in nearby Reading, the latter neither adjacent to the head-office or to the operating locations which are dispersed throughout the UK (and elsewhere). Similarly, Daewoo has located its major control functions in the Seoul and Pusan regions, Philips' head-office and most important R&D facilities are in the Eindhoven agglomeration. Indeed, the strategies and structures of these firms have contributed towards broader spatial divisions of labour within their respective countries. At a regional scale, MB, with its head-office in central Vancouver, its R&D group in a nearby suburb and its operating facilities spread throughout coastal BC provides a locational hierarchy which contributes to established core-periphery contrasts within the province.

There is an extensive literature which provides the rationale for the agglomeration of the control functions of large corporations, especially head-offices and R&D
laboratories or centres (Hayter and Watts 1983; Malecki 1993). In some countries, such as the UK, Japan and Canada, the geographic concentration of head-offices is unusually marked. In the UK, for example, 74 per cent of the head-offices of the 100 largest (by sales) manufacturing firms are in south-east England, principally London (Healey and Watts 1987). In Japan, head-offices are overwhelmingly concentrated in Tokyo and Osaka (Edgington 1994) and, in Canada, Toronto and Montreal have traditionally been the location for over 75% of the head-offices of the country's largest manufacturing firms (Ley and Hutton 1987; Semple and Phipps 1982). In the case of the United States, while head-offices reveal a more dispersed pattern in comparison to the UK or Japan, 'concentration' is still the predominant feature (Borchert 1978; Pred 1977; Ullman 1958). New York, for example, accounted for about 30 per cent of the head-offices of the 500 largest manufacturing corporations in the US in 1972 (Pred 1977: 113) while in terms of value of assets New York's importance increases, to 41 per cent (Borchert 1978: 219).

The geographic distribution of the head offices of the 100 largest manufacturing companies in 1995 in the US is generally consistent with previous studies (Figure 8.11). In terms of number of head offices and the size of revenues controlled, the most important agglomerations of control centres lie within the old Manufacturing Belt (Figure 3.6). The extraordinary size of the largest, led by General Motors, Ford, and Exxon automatically imparts significance to their headquarter locations (respectively Detroit and Dearborn in Michigan, Irvine, Texas). In terms of number of top 200 (manufacturing) firms, New York State, including New York City, comprises the most important concentrations of control centres.
The concentration of head-offices in major centres occurs primarily to facilitate person to person contact among strategic decision makers and the related services they
require (chapter 4). Increasing communication technology seems, if anything, to be reinforcing the attractiveness of established concentrations, at least those at the top of the hierarchy, notably New York, Tokyo and London.

Similarly, the R&D establishments of major corporations favour relatively few centres. Even in the case of the North American forest industry, for example, where production units are widely dispersed among remote locations, corporate R&D laboratories are similar to the overall distribution of industry R&D (Figure 8.12). While there an 'unusual' concentration of forest product R&D in Wisconsin, the major centres of forest product R&D are the states of New York, Pennsylvania and Washington. Government R&D, however, reveals a more dispersed pattern.

Increasingly during the 1950s and 1960s R&D centres were established in separate locations from manufacturing facilities and, to a lesser extent, from corporate head-offices. With respect to the latter trend, in the US at least, many R&D centres, but not all, remained in the same metropolitan area as corporate head-offices but were more likely to
be located in the suburbs (Malecki 1979; 1980). The distinctive geographic distribution of R&D activities reflects a search for particular combinations of location factors notably access to scientists, engineers and skilled labour, access to a variety of cultural, educational and environmental amenities thought conducive to attracting such professionals, and good communications (chapter 4). A further advantage to the physical separation of R&D from manufacturing operations emphasizes the long run strategic nature of R&D which requires that R&D groups do not become embroiled in short run trouble shooting activities at particular manufacturing plants. A related point is that some distance between head-office and R&D centres reduces disruptions caused by too frequent contacts and 'interference' by head-office executives. The locational separation of R&D professionals from manufacturing workers facilitates managerial preferences to 'segment' each group according to different employment policies (Clark 1981).

Core-periphery effects - According to the new SDL thesis, the tendency of international firms to locate head-offices, R&D and related control functions in selected centres and regions simultaneously defines these places as 'cores' or 'metropoles' in two main related ways. First, within the context of the operations of international firms, it is in the cores where decisions are made about the allocation of investment, jobs and technology in the periphery. Second, it is in the cores that the highest paid and most stable jobs are provided. In addition, core functions generate a variety of spin-off jobs many of which also involve high income occupations in a variety of business services such as legal, advertising, computing, engineering and financial services. Moreover, the local wealth generated by core functions can in turn help sustain various 'high order' levels of cultural, entertainment and sporting amenity which in turn help define the core status of regions. Any assessment of corporate control functions should also appreciate their size. Individual head-offices of the largest corporations can employ thousands of people in buildings which occupy the most expensive real estate in the world. R&D programmes
can also be huge and comparable to large scale factories in size. In 1993, for example, General Motors (GM) and IBM invested $7.4 billion and $5.6 billion respectively in in-house R&D and employed more scientists and engineers than even most large universities. While IBM's R&D investments support major programmes in several countries General Motor's R&D is largely within the State of Michigan. Collectively, head-offices and R&D centres provide enormous concentrations of wealth and power.

On the other hand, the tendency of international firms to disperse branch plants producing mature products and commodities among small, isolated rural places simultaneously defines these places as peripheral. Such branch plant operations emphasize manufacturing jobs which are less well paid and stable than head-office jobs (or more innovative manufacturing operations). In addition, any local spin-offs generated by branch plants are determined by overall corporate policies and will typically involve similar functions. At the same time, within the context of peripheral areas, branch plants may offer relatively high paying jobs.

The tendencies of international firms to help create core-periphery contrasts through the internal distribution of corporate functions and the internal division of labour is constrained in practice by a variety of considerations. Thus, the impacts of the traditional sectoral division of labour are still evident as some very large corporations retain parent head-offices and control functions in regions where they were first established; the locational strategies of international firms vary; for example, occasionally head-offices are located in suburbs rather than downtowns and R&D laboratories are established in isolated places; and not all low skilled work is inevitably decentralized to peripheral regions. In addition, it does need to be emphasized that these arguments refer to the internal division of labour and immediate spin-offs. There are many firms and jobs that are not controlled, directly or indirectly, by large corporations while the public sector, including the functions of governments themselves, are also important sources of high
income jobs and decision making power which need not necessarily respond to the same principles of locational hierarchy as the large corporate sector (Tait-Davis 1982).

CONCLUSION

The spatial division of labour is organized by the full size distribution of firms and is subject to change over time. To provide insights into the processes which define the evolving spatial distributions of labour from the perspective of individual firms the next four chapters examine small firms, medium sized firms, and large international firms.