
CHAPTER THREE

ESTABLISHING A CONTEXT FOR THE ANALYSIS OF URBAN FORM OUTCOMES AND PATH DEPENDENCY

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THE NEED FOR CONTEXT

Clearly it is important to place within the correct context the decision-making processes that lead to the path dependent spatial outcomes. When examining urbanisation processes, recognising the importance of the urban setting within which the decisions are made is a necessity. Frost (1991), in promoting the advantages of a comparative approach to historical analysis of urban form, notes that "in most city histories, 'deep' research into the complexities of an individual case prevails. Rarely are attempts made to establish a context whereby cities may be compared"¹⁰⁵. He notes how important comparison with other cities is when assessing a city's sense of difference and whether individual cases conform to or diverge from a standard pattern¹⁰⁶. While making substantial comparisons with a number of cities is beyond the scope of this study, the value of comparative analysis and the importance of setting the context in which the comparison is made, is recognised¹⁰⁷.

In setting the context for urbanisation, it may prove useful to highlight some of the possible approaches taken in studying urbanisation. Logan, et al (1981) noted

¹⁰⁵ Frost, L., "Nineteenth century Adelaide in a global context", *Australian Economic History Review*, Vol XXXI, No. 2, September 1991, pp 28-44; quote at p 28

¹⁰⁶ Also refer to Fogarty, J. P., "The Comparative Method and the Nineteenth Century Regions of Recent Settlement", *Historical Studies*, No 76, 1981, pp 412-429

¹⁰⁷ noting the concerns of Lloyd, 1995, p76, "Economic History and Policy: A Critical Historiography of Australian Traditions" in J. A. Moses (ed.) *Historical Disciplines in Australasia: Themes, Problems and Debates*, *Australian Journal of Politics and History*, No. 41. Special Issue, 1995, pp 61-79

a number of potential approaches to the study of urbanisation in Australia¹⁰⁸.

Firstly, to desegregate the city into functional components for more detailed analysis¹⁰⁹. For example, this might involve examining components such as housing, transportation, and employment, then analysing the processes that affect each and the interrelationships that operate between them. This approach, while simplistic, is useful as it provides a systematic rigour to the study of urban form.

Other approaches listed by Logan (et al) include examining the sectoral or multiple nucleated patterns of urban form. This approach examines major land use activities, such as commercial, industrial and residential, and how these land uses interact with the major transport and communication corridors. Examining the sectoral pattern of urban form has similarities to the functional component approach, although it relies more heavily on theoretical descriptions of urban form such as that outlined in Central Place Theory or other earlier concentric zone models¹¹⁰. Alternatively, a more political economy approach to the study of urbanisation processes would describe the city as a resource system, and in this system economic agents compete for scarce resources. The economic, political and social forces act to increase the inequalities in the metropolis¹¹¹, or as Stillwell notes "large cities provide a framework within which the inequalities

¹⁰⁸ Logan, Whitelaw and McKay, *Urbanisation: The Australian Experience*, Shillington House, Melbourne, 1981

¹⁰⁹ see Neutze, *Urban Development in Australia*, George Allen and Unwin, Sydney, 1977

¹¹⁰ see Park, R.E, Burgess, E.W., and McKenzie, R.O., *The City*, University of Chicago Press, Chicago, 1925

¹¹¹ see Sandercock, L., *Cities for Sale*, Melbourne University Press, Melbourne, 1975; or Sandercock and Berry, *Urban Political Economy: The Australian Case*, George Allen and Unwin, 1983

inherent in the capitalist system are given a spatial dimension"¹¹².

Logan (et al) criticises these approaches as they are primarily directed towards the metropolitan city, rather than to the urban system as a whole. While the major cities are seen as the centre of the economy for most western nations, and as a result command attention, they argue that the major cities themselves are largely the product of economic processes that involve metropolitan and non-metropolitan production centres. These centres have developed, in the Australian context, since the beginnings of European settlement. There is a close relationship between the national economy and the national system of cities and towns. Thus, a wider view of the urban system is required for a fuller understanding of urbanisation and the influence of European settlement on urbanisation. This latter point might be defined as the impact of settler capitalism on decision-making and corresponding urban form outcomes¹¹³.

In undertaking this study, awareness will be required of the major influences on the size and shape of the cities. Setting the context for a spatial application of path dependency would not be complete without highlighting these influences. Areas to be covered include: the historical legacy of earlier settlement decisions,

¹¹² Stillwell, F., *Australian Urban and Regional Development*. ANZ Book Co., Sydney, 1974 , p 119

¹¹³ for more details on settler capitalism refer to Denoon, D., *Settler Capitalism*, Clarendon Press. Oxford, 1983; McCarty, J.W., "Australia as a Region of Recent Settlement in the 19th Century". *Australian Economic History Review*, Vol 113, No. 2, 1973, pp 148-167; Alexander, M.L., "Australia: A Settler Society in a Changing World", in J. Walter (ed), *Australian Studies: A Survey*, Melbourne, 1981, pp 49-69

population growth and change, the impact of innovation in transportation, as well as the role played by market forces on the urban pattern.

SETTLER CAPITALISM CONTEXT

The focus of this examination of path dependency will be within the Australian urbanisation experience. The theory of Settler Capitalism provides a useful context in which to place Australian urbanisation, particularly when developing an explanation of the early urban pattern upon which all latter urban development is overlaid. While a number of other theories have been developed to explain the macro-economic structural history of regions of recent European settlement, for example World Systems Theory¹¹⁴ or Fragment Theory¹¹⁵, Settler Capitalism is particularly useful as it works at the socio-economic level, explaining the interaction of capitalism and the settler experience. The theory readily brings together the inter-regional similarities (and differences) within labour, land and capital and can be readily applied to the urban experience¹¹⁶.

¹¹⁴ see Schwartz, H., *States Versus Markets: History, Geography and the Development of the International Political Economy*, New York, 1994; McMichael, P., "Settler and Primitive Accumulation: Foundations of Capitalism in Australia", *Review*, Fernand Braudel Center, No. IV, 1980, pp 307-34

¹¹⁵ see Hartz, L., *The Founding of New Societies*, New York, 1964; Bolton, G. C., "Louis Hartz", *Australian Economic History Review*, Vol 13, No. 2, 1973, pp 168-76; Hirst, J. B., "Keeping Colonial History Colonial: The Hartz Thesis Revisited", *Historical Studies*, No. 82, 1984, pp 85-104

¹¹⁶ see Denoon, 1983; Lloyd, C. "Capitalist Beginnings in Australia", *Areana*, 1987, pp 35-55

It is noted that comparison of settlements should be made between regions, rather than nations or colonies¹¹⁷. Geo-political boundaries may be convenient for descriptive purposes, however, it is not the countries that become integrated into the world economic system. Rather it is regions within these countries that integrate and develop through the pressures of international capitalism. Settler Capitalism theory will provide a useful context for highlighting this integration and development for the Australian urban experience.

The theory of settler capitalism considers the development (or transfer) of capitalism in settler societies which leads to an explanation of the structures, events and processes that formed the socio-economic history of these regions of recent European settlement. It considers the factors of production (land, labour, and capital) in the settler society context. Depending on the interpretation or style of economic history applied¹¹⁸ this context can include the socio-economic structure as well as the large-scale set of decisions, actions and exchange that form the capitalist economy. This structure includes behavioural aspects as well as the institutional arrangements in which they occur¹¹⁹.

Lloyd (1987) notes the distinctive combination of features of the production process in the settler societies. These included extensive land, livestock and, usually, minerals; capital intensive primary production for export; rapid growth

¹¹⁷ See Fogarty, 1981

¹¹⁸ Lloyd, C., 1995a, pp 61-2

¹¹⁹ Lloyd, C., 1995b, p 3

of commercial cities; mainly free immigrant wage-labour; and large amounts of metropolitan capital in association with local elites¹²⁰.

The factors of production can be analysed from a demand and supply perspective, as highlighted by Maddock and McLean (1987). On the supply side, factors of production were accumulated. This occurred with the expansion of the natural resource base through the opening up of new farmland and mineral deposits; through the expansion of the population via immigration and natural increases; and through the agglomeration of domestic savings and investment and the importation of foreign capital via borrowings or direct investment¹²¹.

Aggregate demand was stimulated by both domestic and external sources. High population growth stimulated consumer consumption and building and construction - particularly in urban centres¹²². These urban areas become centres of commercial activity, rather than manufacturing centres, as in the case of the European cities. Mills and Hamilton (1985) present the example of a number of major US cities that initially developed, not as manufacturing centres, but as commercial centres. They were largely collection points for agricultural products bound for export, and distribution points for imported manufactures¹²³.

¹²⁰ Lloyd, C., 1987, p 49

¹²¹ Maddock and McLean, *The Australian Economy in the Long Run*, Cambridge, 1987, p 9

¹²² *ibid*

¹²³ Mills, E and Hamilton, B., *Urban Economics*, 3rd edition, Scott, Foresman and Co., Illinois, 1984, p 20

McCarty (1973) noted that capitalist economies were begun as soon as possible after initial settlement¹²⁴. They attracted labour and capital, participated in international trade, and outstripped their tropical neighbours¹²⁵. These settlers were working towards the ‘golden age’¹²⁶. Capital investment from external, especially British, sources flowed and while “imperialism was a problem for much of the world, British imperialism seemed rather to protect than to threaten settler societies”¹²⁷.

Investments in infrastructure such as railways and improved shipping enhanced access, competitiveness and economic growth. European migration provided labour and reinforced the then dominant European culture. Unlike earlier European conquered territories, especially those in tropical areas, indigenous populations did not provide a major local labour source¹²⁸. Similarities with European societies were the demographic features, economic structure and the sale of labour in the market. In addition, the “salient features of dominion capitalism” include exports consisting of mainly primary goods produced with advanced technologies; industrialisation being principally based on the low-level processing of primary products or import substitution behind tariff walls. They highlight the strong position of multinationals; and the primary economic and

¹²⁴ McCarty, 1973, p 150

¹²⁵ Denoon, D., “Understanding Settler Societies”, *Historical Studies*, No 73, 1979, p 514

¹²⁶ Denoon, 1983, pp 207-8

¹²⁷ *ibid*, p 211

¹²⁸ Lloyd, 1987, p 49

political domination of Britain before World War One, shifting to the USA after WWII¹²⁹.

While the societies' beginnings were strategic (as garrisons or outposts) rather than for productive goals, they were soon organised along capitalist lines. No dependable production existed as the indigenous populations were not strong enough to exploit so as to maintain the conquering settlers. This led to the introduction of a new population into the garrison enclave that slowly spread outwards into the hinterland. With little labour but plenty of land, pastoralism dominated production in the hinterland while the officials and merchants dominated the port. The rise of Britain and free trade, new production techniques, transport innovations and foreign capital all helped add to prosperity. British dominance was seen to be compatible with some local autonomy, however this autonomy, in general, did not lead to the diversification of production. A few export staples remained dominant. Britain tended to influence quality and quantity of colonial production indirectly through market conditions. Despite strong and innovative internal social forces, the prevailing development strategy, with its compatibility with British imperial interests, meant that institutional and political change tended to reinforce the British connections and dependency¹³⁰. The cultural and technological attachments heavily influenced the pattern of urban development.

¹²⁹ Ehrensaft and Armstrong, 1978, p 352

¹³⁰ Denoon, 1983

THE EXISTENCE OF CITIES

Historical events play an important role in the founding of some cities, however, for most cities, continued growth will depend on a number of economic factors. Some cities, for example, begin by fulfilling a strategic defence role, building up around a fort or castle. Alternatively they may start primarily as an administrative centre, as in the case of Canberra or Washington. However, the growth of most cities is founded on their strategic location for trade, port cities are a ready example of this. The City of London was founded at the point furthest upstream where both the River Thames could be crossed and ships trading with Europe could reach. The later relocation of the seat of government to nearby Westminster accelerated this growth, which in turn attracted more commerce and then more manufacturing¹³¹.

For a settlement to expand and grow, a number of economic characteristics need to be met. Mills (1972) narrows down this list of characteristics to (i) that there is scale economies in the production of goods and services, and (ii) that regional differences exist in the natural conditions that affect production, utility and the cost of interregional trade. This is also referred to as regional comparative advantage. Mills says that city sizes are determined by public and private decisions regarding the trade-off between the two sets of characteristics of scale economies and regional comparative advantage. "Within this framework the

¹³¹ Evans, A. W. *Urban Economics*, Blackwell, Oxford, 1985

function of cities is to facilitate production and exchange by proximate locations of a variety of economic activities"¹³².

Scale economies in transportation makes large-scale trade and market centres efficient. When returns to scale in production exist, centralisation of the production process occurs until production size results in decreasing returns to scale¹³³. O'Sullivan notes that scale economies arise because of factor specialisation and indivisible inputs. An input has a minimum efficient scale; for example, if the input was cut in half the total output of the two halves would be less than that of the whole. Equipment, too, cannot often be efficiently scaled down for individual users¹³⁴.

O'Sullivan also gives a simplistic example of scale economies at work in urban areas. A factory in an urban area can increase output so long as it can underprice 'home' producers. The market area for the factory is the area where the factory costs plus travel costs are less than home production. The further away from the factory the goods travel, the higher the transportation costs, thus limiting the overall market area.

With increasing returns to scale, large quantities of goods are produced at limited locations. Suppliers of inputs will find it advantageous to be located near their

¹³² Mills, E. S., *Studies in the Structure of the Urban Economy*, The John Hopkins Press, London, 1972, p9

¹³³ O'Sullivan, 1993

¹³⁴ *ibid*

principal clients, the firms with scale economies¹³⁵. Originally, factories experienced problems with both the quality and quantity of supply of external inputs for the production process. Factories found it to their advantage if multiple suppliers were located nearby. After the adoption of higher quality standards, with the result of greater certainty for producers, production was more easily able to move through the urban hierarchy¹³⁶.

The supplier of inputs to the factory can be classified as being in the producer services sector. Inputs need not be exclusively 'hard' inputs such as a machinery component to be assembled at another site, rather inputs could also refer to technological know-how and the availability of skilled labour for specialist tasks. These 'external' economies of scale also assist in the lowering of training costs¹³⁷. In some cases, as Kivell notes, advances in information technology, which were thought to have de-emphasised city centre locations, actually only proved reliable in the city centre¹³⁸.

The need for highly specialised inputs may lead to business clustering. Employees will also find it advantageous to locate near the factory, as will the consumers of the goods produced. A multiplier effect is created when this process is continued through to include the suppliers of the suppliers and the

¹³⁵ Mills, 1972

¹³⁶ Lever, W. and Champion, A. "The urban development cycle and the economic system" in *The Spatial Impact of Economic Changes in Europe*. Lever, W. and Bailly, A. (eds), Avebury Press, Aldershot, 1996

¹³⁷ Evans, 1985

¹³⁸ Kivell, P., *Land and the City: Patterns and Processes of Urban Change*, Routledge, London, 1993

producers of other goods consumed by the original consumers - all finding it advantageous to locate near to each other, further enhancing the agglomeration in urban areas. Under scale economy models, when equilibrium is reached it will produce an agglomeration with land values, population densities and output ratios falling outwards from the centre of the urban area¹³⁹.

Scale economies can be applied to all nature of commercial activity, including professional services such as legal firms, finance and other highly specialised business services. Mills notes in many of these examples, when demand per customer is small, scale economies are only exhausted at very high demand levels that can only be provided by the largest of cities¹⁴⁰. Some activities with specialised services will require accessibility to a large number of potential customers. These activities may find locating at the city centre to be the most advantageous given that the city centre usually has the best access to the maximum coverage of the urban area.

Subregional centres may provide the most suitable location for firms selling lower order goods that have a localised customer base. Being close to the customer, and avoiding the higher transportation costs created by distance and congestion, sees an important role for the subregional centres in the urban hierarchy¹⁴¹. Exporting manufacturers, not to be so dependent on local customers, will find the access to the most efficient transport routes to be a factor

¹³⁹ Mills, 1972, noting Losch, A. *The Economics of Location*, Yale University Press, 1954

¹⁴⁰ Mills, 1972, p 8

¹⁴¹ *ibid*

more relevant for locational choice. Mills notes that without scale economies, production can take place on a very small scale near each consuming location, and population and production densities would be uniform¹⁴².

Regional comparative advantage refers to differences in productivity that generates comparative advantages that are large enough to off-set transportation costs¹⁴³. These regional differences might include differences in natural conditions that effect production, peoples' utilities, as well as the cost of interregional trade¹⁴⁴. Natural conditions that fall directly into a peoples' utility function can also impact on regional comparative advantage. For example, leisure tourism is dependant on good scenic quality and cultural activities, while recreational tourism requires more interactive natural features such as beaches, surf, or ski slopes. Climatic conditions, such as consistently warm weather, also adds to a regional comparative advantage, a fact often heavily promoted by the endowed region¹⁴⁵.

With comparative advantage, trade between regions is desirable. Differing production function properties, differing tastes, or the endowments of non-producing factors of production, will all lead to some regions being better suited to the production of particular goods than other regions.

Regional variations will effect both production and interregional trade. As a

¹⁴² Mills and Hamilton, *Urban Economy*, Scott, Foreman and Co, 1984

¹⁴³ O'Sullivan, 1993

¹⁴⁴ Mills, 1972

¹⁴⁵ i.e. the entire Queensland Travel and Tourism Bureau advertising campaign

result, regional agglomeration will gravitate towards those locations where the transportation of goods is cheapest. Areas of high accessibility, such as ports or sites near major land transport routes, will be the focus of agglomeration¹⁴⁶.

O'Sullivan (1993) notes that comparative advantage is based on the notion of opportunity cost. One region may have an absolute advantage in producing all goods, however, the opportunity cost of producing one good relative to another may be higher than that from a region that does not have a comparative advantage in any production process. Thus, the second region may have a comparative advantage in production while not enjoying an absolute advantage¹⁴⁷.

INFLUENCES ON THE SIZE AND SHAPE OF CITIES

Historical Decisions - Garrison Settlements and Ports

The historical circumstances that prompted settlement and the physical environment in which the settlement is located has a profound impact on the shape of future development. Garrison towns spread forth from the initial military facility, and face the physical constraints of a site chosen, in part, because of its strategic location.

¹⁴⁶ Mills, 1972, p 6

¹⁴⁷ O'Sullivan, 1993

In the Australian context, Sydney, Brisbane and Hobart all developed from garrison towns. Each of the sites of these cities were chosen because they provided a combination of (i) deep water access - not a surprising condition given that they could only be accessed by sea, and that the sites were chosen by naval or marine officers; (ii) a good supply of fresh water was available; and (iii) each site could be readily protected - in keeping with the primacy of the garrison's function. Lieutenant Governor David Collins chose Sullivan Cove for the site of Hobart, rather than the original base as set up by the original New South Wales expedition party because, not only did it have deep water access and a good supply of fresh water, but also the site, with its moderately rising terrain, could command all approaches¹⁴⁸.

The upstream site for Brisbane differs from the more common port city examples - the Brisbane being chosen over its northern rival at Port Curtis and Port Bowen¹⁴⁹. After initially locating at Redcliffe on Moreton Bay, the site for the garrison was moved seventeen miles upstream from the mouth of the river. At this site there was an adequate supply of fresh water - unlike the original Redcliffe site, and deep water access. The final site was also on a narrow spur formed by the Brisbane River, making it more easy to secure from attacks by the indigenous population¹⁵⁰.

¹⁴⁸ Statham, P. *The Origin of Australia's Capital Cities*, Cambridge University Press, Sydney, 1989, p10

¹⁴⁹ Johnson and Gregory, in Statham, P. (ed.), *The Origins of Australia's Capital Cities*, Cambridge University Press, Sydney, 1989, Chapter 12

¹⁵⁰ Bird, James, *'The Foundations of Australia's Seaport Capitals'*, *Economic Geography*, Vol 41, No. 4, October 1965

When the pace of urban development outstripped the original garrison function of the settlement, the suitability of the sites were tested. With Mt Wellington dominating the Hobart site, the town developed linearly along the Derwent River. A limited amount of space for city centre activities meant rents were high and residential uses were pushed out of the commercial areas¹⁵¹.

In the case of Brisbane Town, after the western districts were opened up to free settlers after 1842, problems with the Brisbane site soon lead to the development of other commercial areas challenging for dominance. The development of South Brisbane outpaced Brisbane Town until at least 1850 because of a ready supply of flat land and despite similar rents. New settlers moved into the Fortitude Valley area away from the constraints posed by the Brisbane Town site¹⁵².

Settlements that began in Australia as ports for the transportation of mainly primary products from the hinterland to market, faced structural changes as suburbanisation grew. Examples at hand include Townsville and Gladstone, both smaller regional centres that developed from an initial port function. Commercial activity was developed adjacent to the port, as was community infrastructure and other activities associated with town centres. However, as these settlement's grew, particularly towards the end of the 20th century, the old commercial town centre progressively became more remote from the settlements geographic centre. In the spirit of the capitalist city, property developers were able to build large and more centrally located regional shopping centres, providing services

¹⁵¹ Rimmer, "Hobart: A Moment in History" in Statham, P. (ed.), 1989, pp 129-138

¹⁵² Johnson and Gregory, 1989, p244

closer to the residential population than the old town centres. With the removal of a significant proportion of the retail function of the city centre, the old commercial centres increasingly become stagnant, and the community infrastructure under-utilised.

Demographic Change, Population Growth and Age Structure

One of the theories of urban growth, as listed by Evans (1985), considers cities growing to serve the population within their catchment or market areas. Any increase in the population within the hinterland, or the market area, means that it is economic for the new services required for this increased population to be located within the existing urban areas. This might be considered as one of the principal reasons for the continued urban growth of Australia's major cities, however, it would appear unlikely that this is the only driver of urban growth.

Mills also notes that urban growth has tended to mean, in most discussions, population growth. Yet discussion of growth in terms of the national economy refers to growth of national income. This assumption implicitly means that urban growth is best measured by population growth. The logic behind this statement being that if a town experiences a rise in income per capita, a reflection of a high demand for labour, this increased demand will quickly be dampened by immigration¹⁵³.

¹⁵³ Mills, 1985, p 86

Apart from rapid urban growth, N. G. Butlin (1971) highlights that over the past 200 to 300 years, urban Western Societies have been transformed from a predominance of agrarian activity to industrial-commercial specialisation. Yet the Australian experience of urban growth does not readily fit with this tradition¹⁵⁴. Urbanisation was not based on industrialisation as was the case in European examples - that was to occur later. But by 1891, two thirds of the Australian population lived in towns and cities, up from around 40% (eastern colonies only) in 1860. Butlin notes that the rapid urbanisation that occurred during the 1860-1900 period laid down the basic urban pattern of the modern, highly urbanised, Australian community.

The 1860-1900 period saw rapid growth of capital equipment in communications, pastoral activity and residential facilities. It also saw manufacturing growing at an 'extraordinarily rapid rate'¹⁵⁵. The Australian population was heavily urbanised before rapid industrial expansion, however Butlin notes that this industrial expansion was directly and indirectly stimulated by urbanisation. The population growth in towns had a higher proportion of dependants than in rural areas. Occupations outside agrarian activities became more formalised and specialised, and were more frequently located in urban commercial areas. There was also a net inflow to urban areas from rural areas of persons involved in agrarian pursuits¹⁵⁶.

¹⁵⁴ Butlin, N. G., *Investment in Australian Economic Development: 1861-1900*, Cambridge University Press, 1971, p 181

¹⁵⁵ *ibid*, p 182

¹⁵⁶ *ibid*, pp 182-3

Demographic structural changes may also impact upon the urban fabric, although not to the degree or intensity experienced through large-scale migration.

Increases in the rates of marriage, associated increases in household formation and rises in birth rates, influenced the growth of urbanisation. Pent up pressure from housing shortages resulting from immigration and demographic changes encouraged extensive investment in residential construction. Between the 1860s and the early 1880s this saw substantial city growth through suburbanisation, particularly in Melbourne but also in other Australian cities. Butlin calculates that in this period, gross residential investment accounted for more than one third of total private and public capital formation in Australia and absorbed between 3% to 7% of Gross Domestic Product¹⁵⁷.

While the immigration associated with the gold-rush was heavily weighted towards adult males, later immigration was more balanced, and the male demographic dominance faded. The high birth rate in the 1860s reflected the easing of the high masculinity rate of the general population, and also led to a distorted age structure which moved through the rest of the century. This anomaly created varying demands for housing. Demand for residential building moved ahead of population growth, particularly in the 1880s, reflecting proportionally more people moving into the principle age group that generates new demand for housing¹⁵⁸. Accordingly, city building activities would have been skewed towards residential construction and support infrastructure.

¹⁵⁷ *ibid*, p 211

¹⁵⁸ *ibid*, pp 239-40

Market Forces - Demand and Supply

Despite the variety of reasons behind why a settlement might be established - for example the garrison and port towns previously discussed - the size of most urban areas are invariably determined by market forces¹⁵⁹. Businesses find investment opportunities having higher returns in urban areas as compared to rural locations, while individual households find opportunities for employment and access to services better in the urban areas¹⁶⁰.

Logan (et al) noted that urbanisation is a way of organising space as part of the production process¹⁶¹. The relationship between modes of production and the urban system is one that brings together the land, labour and capital required to sustain production on a profitable basis¹⁶². Apart from the role in the production process, urban areas are also important to the distribution and supply of a wide variety of public and private sector goods and services. Access to these goods and services - such as employment, health, transport, information, cultural and recreational facilities, and social contacts¹⁶³ - have a significant influence on personal utility functions, and impact on locational decision-making.

¹⁵⁹ Mills and Hamilton, 1984, p 7

¹⁶⁰ *ibid*

¹⁶¹ *ibid*, p 8

¹⁶² *ibid*

¹⁶³ Logan et al, p 11

Land's role within the production process, as noted by Kivell (1993) has a number of characteristics that separate it from other inputs:

(1) Land can be considered to be in fixed supply because no more can be created. This holds true in densely settled areas, those areas with the best access which are generally the most sought after. Given the existing high densities it is difficult to further develop these areas. More 'urban land' can be created on the fringe of the city or town. However, this land is often part of a different land sub-market and is not readily interchangeable with inner city land¹⁶⁴. More land can be created through reclamation projects, however, this total quantity of land that can be created through the method is relatively small.

(2) There is no cost to the supply of land itself, the costs relate to supply of infrastructure to ensure the land can be utilised for the desired use. Costs are also imposed in ensuring that exclusive use of the land can be gained.

(3) Each parcel of land is unique in terms of scale and location, and accordingly can not be 'exactly' replaced by another parcel of land.

(4) Land is stationary, although the cost of transportation to and from it may be subject to change over time.

¹⁶⁴ Kivell, 1993, pp 13-4

(5) In the urban context, land is virtually indestructible and as such is ‘uniquely permanent’. Land may be damaged; chemically contaminated land has only a limited number of safe uses. However, the use of non-contaminated land is restricted by government regulations, and the buildings on the land have a limited lifespan. Yet despite these constraints, land as a space in the urban environment remains¹⁶⁵

The aforementioned list of characteristics implies that there is a high degree of inelasticity in the supply of land¹⁶⁶, therefore demand might be considered to largely determine the price of land. However, while constrained, supply-side aspects of land do have some influence on price and market outcomes. These features, as highlighted by Kivell, include:

- Supply is influenced by the planning and development controls implemented by Government;
- Physical constraints of land quality may limit supply; and
- The monopoly power of land owners, and their willingness or reluctance to become involved in development processes influences land supply.

Within the urban area, demand factors are determined by individual agents including industries, retail and office based firms, private households and government agencies. Harvey (1987) provides a number of base assumptions about possible general parameters of land demand and land price in the market

¹⁶⁵ *ibid*

¹⁶⁶ *ibid*, p 15

economy. These include: (i) resources are allocated on the basis of prices, costs and profits.; (ii) firms and households have preferences for settling in particular locations, and these preferences are reflected in the price/rent they are prepared to pay for the use of the land; (iii) owners of land sell/let to the highest bidders; (iv) knowledge of the market by buyers and sellers is sufficient to provide competition; (v) there are no dynamic changes to the transport system - transport costs and technology remain stable; and (vi) there is no government interference in the market¹⁶⁷.

The latter two points would only be applicable in a static urban environment. Changes to technology and transport accessibility do influence the desirability of land for differing uses. Government land use policy is rarely static, and only through concepts such as existing use rights and precedents is it possible to allude to static land use.

Harvey (1987) also compiles a list of key factors that help determine land use in a market system where firms and individual households seek to maximise profitability and utility. The first two factors relate to accessibility - (i) general accessibility and (ii) special accessibility, as conferred by agglomeration economies. Harvey considers 'general accessibility' to encompass all transport cost impacts that influence land values. This includes both the revenue earning capacity of different locations and the movement costs (including time) of particular sites. The firm's 'general accessibility' to the factors of production and

¹⁶⁷ Harvey, J. *Urban Land Economics*, 3rd edition, MacMillan, 1992, p207

to markets are also considered. While for the individual households ‘general accessibility’ to employment, goods and services are focused upon¹⁶⁸.

‘Special accessibility’ refers to the effect on location decisions resulting from external economies concentration or complementarity. Harvey refers to the ‘external economies of concentration’, or agglomeration economies¹⁶⁹, as being the advantages gained from having a ready supply of specialised labour, or availability of common services. Diseconomies of concentration can all be prevalent, for example traffic congestion and pollution, and these may reduce a location’s accessibility. Complementarity refers to the benefits gained through personal contacts or congregation of similar enterprises that can tap into each other’s trade market and enhance the reputation of the locality in a particular field¹⁷⁰. Concentration of residential uses encourages the provision of social infrastructure such as schools, hospitals, recreational and cultural facilities.

Harvey lists a number of additional factors that influence land use structures. These include historical development, topographical features and size. Both historical development and topographical features have been mentioned in previous discussions. ‘Size’ refers to the fact that only in large urban areas is it possible to support certain specialised features.

¹⁶⁸ *ibid*, p 213

¹⁶⁹ see Mills, 1972

¹⁷⁰ Harvey, pp 213-4

The nature of demand for land itself maybe considered to constitute two components¹⁷¹. Firstly, demand is driven by those who wish to use land directly, and secondly, it is driven by those wishing to invest in land to gain an increased value derived from future expectations. Much has been written on the impact of property investors on the use and value of land, particularly in Marxist analysis¹⁷².

The demand and supply characteristics of market forces, as they relate to land, have a complex system of interactions that produce the urban pattern. The wider nature of society, past, present and future, is highly influential as are the site characteristics themselves. Firms and households are required, directly or indirectly, to take these factors into account, as well as a host of other market based factors such as location, availability of goods and services, transport accessibility, specialist facilities, neighbourhood quality and other social factors¹⁷³.

Transportation

One of the most influential impacts on the urban form is made through changes to the transportation pattern. A change in the intra-urban transport system, be that

¹⁷¹ Kivell, p 15

¹⁷² as noted by Kivell, p 15; Goodchild and Munton, *Development and the Landowner*, London, George Allen and Unwin, 1985

¹⁷³ all sourced from Kivell

through changes in costs, speeds or routes, will have a significant impact on the location decisions made by firms and households¹⁷⁴.

As discussed previously in the example of the Australian port and garrison cities, transport and accessibility was critical to the siting of these and many other cities. River crossings, rivers, sheltered harbours and road intersections often facilitated the siting of settlements¹⁷⁵. Within the urban areas themselves, urban transport and urban development are closely integrated, but this integration is not a means to an end: without the right social, commercial, or, in the case of the garrison towns, the right military imperatives, urban development would take place elsewhere¹⁷⁶. Brindle (1995) warns against putting faith into physical determinism which might be readily applied to new transport systems or routes as that assumes a given physical environment will produce a desired urban and social outcome. He notes that transport, particularly the introduction of railways, tramways and the mass ownership of automobiles, had the effect of reinforcing urban expansion, but there was no inevitability about the urban expansion itself.

Brindle notes Giannopoulos and Curdes' conclusion that all transport innovations have influenced the form and extent of the development of the urban area (they examined), but none of them determined the urban form completely. The

¹⁷⁴ Evans, A., 1985, p 101

¹⁷⁵ see Mumford, *The City in History*, Penguin Books, New York, 1961

¹⁷⁶ Brindle, R., "Transport technology and urban development", in *Technological Change and the City*, Troy, P. N. (ed.), The Federation Press, 1995, pp 32-55

influence of innovations on urban form is high in an early stage of development, and lower in dense and built-up towns¹⁷⁷.

The comments from Brindle, Giannopoulos and Curdes that play down the influence of transport on the urban expansion, alluding to transport infrastructure being just the tool of urban form, do indicate the randomness of the impact on the urban pattern of investment in transportation. While there may be no inevitability about the urban expansion through transport innovation, there is also no inevitability that the resultant urban form itself would be desirable. Indeed, given the uncertainty surrounding resultant urban patterns, perhaps it is not surprising that often the opposite is true¹⁷⁸.

Technological innovations in transportation, with corresponding changes in travel times and costs, provide a good illustration of the dynamic nature of the urban pattern¹⁷⁹. Cities 'evolve' over time¹⁸⁰. It is also worth noting that changes to transportation systems can effect land use in distant areas as well as in local areas¹⁸¹.

¹⁷⁷ Giannopoulos and Curdes, "Innovations in urban transport and the influence on urban form: An historical review", *Transport Review*, Vol 12, No.1, 1992, p 15 - as noted by Brindle, 1995, p40

¹⁷⁸ see Mumford, *The City in History*, Penguin, New York, 1961, and *The Myth of the Machine.*, Penguin, New York, 1967. Much of Mumford's venom was driven by what he saw happening to his native New York City, in particular through the mass construction of motorways, bridges and tollways, and through the activities of Mumford's nemesis Robert Moses. Robert Caro provides an extensive biography on Robert Moses titled *Robert Moses and the Fall of New York*, Routledge, New York, 1976.

¹⁷⁹ Harvey, 1992, discusses dynamic change as one of the key factors that help determine land use, pp 215-6

¹⁸⁰ see Geddes, Patrick, *Cities in Evolution* Williams and Nogate, London, 1915, for an historical background for this concept

¹⁸¹ Brindle, R. noting Meyer J.R. and Gomez-Ibanez, J. A., *Auto Transit and Cities*, Harvard University Press, 1981

Neutze (1981) notes that the effects of the transport system at different periods in the city's history can explain many of the features of that city¹⁸². The initial dense settlement of Brisbane, Sydney and Hobart, because they developed as walking cities, illustrates this point, but these cities are not alone in providing this example. Most of the 19th century cities followed that pattern.

Most commuting in the early 19th century in particular was done by foot, although there were some people able to afford transport by horse and buggy. Trading with the outside world in bulk was done by water. Mills and Hamilton (1984) note that overland transport by horse and wagon was perhaps 100 times more costly than by ship or barge travel¹⁸³. Given that most workers had to walk to their employment prior to the development of affordable mass-transit, this severely constrained where they could live. Building technology in the early 19th century generally limited residential construction to two or three stories¹⁸⁴. As water borne transport had such cost advantage, employment tended to centre on waterways and principally the port. As a result, the walking city was constrained from extending more than five kilometres inland from the waterway (based on an hour walk at a moderate pace). Residents of cities with large populations had to endure cramped living conditions, as dwellings had a very high occupancy ratio. Infrastructure for water delivery and sewerage disposal, while possible, was often prohibitively expensive. Given the close proximity of residences to industry

¹⁸² Neutze, M., *Urban Development in Australia*, Revised edition, George Allen and Unwin, Sydney, 1981

¹⁸³ Mills and Hamilton, p 19

¹⁸⁴ *ibid*

required in the walking city, and the high population densities, health conditions in these cities could readily be compromised. This description could be applied to the Sydney of the 19th century¹⁸⁵.

The introduction of the omnibus, initially a large horse-drawn vehicle with seating for around 12 persons, allowed the more affluent to live away from the town centre. The cost of the fare was generally prohibitive for regular use by much of the workforce. However, with the introduction of the railways, the opportunity existed for large numbers of workers to live away from their employment, and consequently the city spread outwards. Railways also reduced the cost of interregional trade by land, and in a number of regions across the world opened up the hinterland for development.

The development of the tram, initially horse-drawn and later electrified, provided a fast and cheap service for a large number of patrons. This mode of transport had a significant impact on the residential location options of the greater bulk of the labour force. This transport innovation heavily influenced the shape of the city and facilitated large scale urban expansion¹⁸⁶. In fact, as Brindle notes, promoters of the expansion of electric tram services were often the property developers of distant residential allotments¹⁸⁷. Given the nature of the fixed rail system, a large number of employees could be collected over a sizeable area and delivered to a small area, primarily the Central Business District. This transit

¹⁸⁵ see Fitzgerald, S., *Rising Damp*, Hale and Iremonger, Sydney, 1987

¹⁸⁶ Hamilton and Mills, p 21

¹⁸⁷ Brindle, 1995, pp 40-1

method not only enabled the city to spread out further than ever before, it also reinforced the primacy of the central core of the city¹⁸⁸

With the coming of mass ownership of the automobile, employees could move away from the public transport routes. If a city had a radial rail network, as was (and still is) the case with Sydney, the automobile enabled the ‘filling in of the gaps’. This transportation system had a significant impact on land use and the density of development. Particularly on the city fringe, lower residential and commercial densities were prevalent, encouraging urban sprawl.

The automobile and the truck weakened the primacy of the central core of the city. Outer ‘regional’ centres grew in size, particularly regional shopping centres which could operate closer to the residential client and not have to pay the high land costs of the city centre. The automobile made cross regional journey to work patterns realistically possible, further weakening the CBD’s primacy.

The improvement in transport flexibility experienced through the automobile also had (and still has) a number of negative impacts. The large sums required to finance extensive road building programs, congestion costs and diseconomies of scale, as well as significant pollution concerns, all have emerged through the proliferation of the automobile.

¹⁸⁸ Mills and Hamilton, 1984

Changes in transport technology have also influenced industry location.

Industrial estates require access to a major roadway, rather than a water way or port. Port functions in particular have changed dramatically since the late 1960s and early 1970s through the development of containerisation. Containerisation of shipping has impacted on how air, road and rail terminals are organised. Small wharf operations were no longer able to operate as efficiently as the larger ports. In Sydney this has seen the closure of a number of Sydney Harbour based wharves, which were also experiencing traffic congestion problems, and the expansion of the Port Botany facility¹⁸⁹

CONCLUSION

In attempting to set the context for urbanisation in Sydney, complexity of the urban system is revealed. From the settler capitalism perspective in which the city first developed, through to the factors that influence the size and shape of all cities, the broad spectrum of factors to be considered illustrates the difficulty to be experienced when theorising over the pattern of urban development.

The rise of the city as a commercial centre, linking its hinterland to the global economy, with high population growth stimulating consumption and urban construction, was linked to the city's position in the settler capitalism system.

¹⁸⁹ Rimmer, P. J. and Black, J. A., "Land use transport changes and global restructuring in Sydney since the 1970's: The container issue" in *Why Cities Change*, Cardew, Landmore and Rich (eds.), George Allen and Unwin, Sydney, 1982

Within this system continued city growth was (and still is) dependent on economic factors such as scale economies and regional comparative advantage. These factors are influenced by historical location decisions, demographic structural changes, population growth rates, the demand and supply of land, and transportation considerations.

The case study city, Sydney, can be regarded as a city that was founded and developed within the settler capitalism system. The next step will be to summarise the city's early phases of development to finalise the context for the final chapter where path dependency theory is to be applied to post WWII urbanisation of Sydney.

CHAPTER FOUR

A (VERY) BRIEF SUMMARY OF THE HISTORY OF SYDNEY

A (VERY) BRIEF SUMMARY OF THE HISTORY OF SYDNEY

CASE STUDY - SYDNEY

The pattern of urban growth and development of metropolitan Sydney is to be examined in an effort to reveal urban outcomes that may indicate path dependency. It is hoped that Sydney, given its rapid urbanisation from initial settlement in the late 18th century through to the present day, will provide examples of sequential decision making that would have been influenced by 'events', external or otherwise, and the legacy of decisions made in an earlier time. As a first step, the following passage provides a brief preamble to the history of Sydney. While most of the early urban history focuses on the central core of the city, the entire metropolitan area is of interest to this study and will be examined in due course. Focus of this brief summary of the history of Sydney will mainly be in the 1788 to 1945 period. This is intended to set the scene for the latter analysis of post WWII Sydney and the role of path dependency in influencing Sydney's urban form.

Initial Settlement

The Sydney Cove site was finally chosen as the site for the New South Wales settlement by Phillip as it contained all the essential elements required of a garrison town: it had a ready supply of spring water; an excellent protected

harbour with deep water access close to shore; and was in part an elevated site free from swamps and undrained areas¹⁹⁰

From an initial settlement of 1024 convicts and soldiers, Sydney had grown to a population of 29,000¹⁹¹ by 1840¹⁹². By 1851, the population of Sydney had risen to 50,000, one quarter of the total New South Wales population¹⁹³.

Sydney shared with the other Australian capitals similar economic, political and cultural roles. Urban workers in the 19th century in Melbourne for example, as described by Davidson (1978), were relatively well paid. Food was cheap, heating costs low, and the mild climate meant that "the urban population were strangers, equally to luxury and poverty"¹⁹⁴. However, Kelly (1978) and Fitzgerald (1987)¹⁹⁵ note that such good economic welfare did not always translate into a satisfactory standard of living and quality of life for all in Sydney¹⁹⁶.

¹⁹⁰ Fletcher, B., "Sydney, A Southern Emporium" in Statham (ed), *The Origins of Australia's Capital Cities*, Cambridge University Press, 1989, p 52

¹⁹¹ This estimate refers only to the European population

¹⁹² Birch, MacMillan, *The Sydney Scene*, Melbourne University Press, Melbourne, 1962

¹⁹³ Fry, "The Growth of Sydney", in *Australian Capital Cities*, edited by J. W. McCarty and C. B. Schedvin, Sydney University Press, 1978, p 29

¹⁹⁴ Davidson, G., 1978, *The Rise and Fall of Marvellous Melbourne*, Parkville, p 184, as noted by Frost, 1990, p 14

¹⁹⁵ Fitzgerald, S., 1987; Kelly, M., 1978, "Picturesque and Pestilential: The Sydney Slum Observed 1860-1900, in Kelly (ed), *Nineteenth Century Sydney*, pp 66-80

¹⁹⁶ Frost, 1990, p 14

Street Layout

The Sydney street layout reflected the pattern developing elsewhere in areas of recent European settlement. Noting Mumford (1961), "the standard gridiron pattern was an essential part of the kit of tools a colonialist brought with him for immediate use. The colonialist had little time to get the lay of the land or explore the resources of a site: by simplifying spatial order, he proved for a swift and roughly equal distribution of building lots"¹⁹⁷. This was the case for Sydney. The initial street layout was a grid pattern, modified to make allowance for topography, and the location of the main government installations were cited before full consideration of the final street layout was made.

Even the redesigns undertaken during Macquarie's tenure did not alter the location of the principal streets¹⁹⁸. Early sketches of the first settlement show tents and early buildings in roughly straight lines parallel or perpendicular to the waterfront¹⁹⁹. Phillip had stipulated that the principle streets be at angles to permit free circulation of air, the uniformity of building was to be preserved, and that the building of narrow streets should be prevented²⁰⁰. Despite these best of intentions, the streets around Sydney Cove were largely unplanned²⁰¹; however, further south the more traditional 'gridiron' layout emerged.

¹⁹⁷ Mumford, 1961, p 224

¹⁹⁸ Solomon, R. J., *Urbanisation, the Evolution of an Australian Capital*, A & R, 1976, p 29

¹⁹⁹ Sketch map of Sydney Cove on 1st March 1788, as printed in Spearritt and De Marco, *Planning Sydney's Future*, Allen and Unwin, NSW Department of Planning, Sydney, 1988, p 3

²⁰⁰ H.A.R., I; p 48

²⁰¹ Statham, 1989, p 17

Early Regional Development

Within the Cumberland Plain, a number of townships developed. Parramatta, at the head of the harbour, grew rapidly. With better agricultural soil population was greater than that of Sydney town until after 1800²⁰². During Macquarie's governorship, the townships of Liverpool, Campbelltown, Richmond,

Wilberforce, Pitt Town and Castlereagh were established. While all still exist today, their respective roles in the metropolitan system vary dramatically.

Parramatta is the metropolitan area's 'second' CBD with approximately 35,000 people employed there as at ABS Census 1991. Liverpool and Campbelltown are regarded as key sub-regional centres²⁰³ with employment in the order of 12,000 and 7,000 as at 1991, respectively. Richmond in many ways still operates as a country town, not yet engulfed in the urban sprawl of Sydney, the other towns however barely exist today.

The initial urbanisation that was to occur around Sydney town, away from the port, was to combine both urban and rural uses. As Fletcher notes (1989), urban so blended with rural that to distinguish between the two was extremely difficult²⁰⁴. While the most valuable land remained nearest the harbour - attracting more valuable buildings at higher densities - further away from the

²⁰² Fletcher, 1989, p 55

²⁰³ In *Cities for the 21st Century*, Department of Planning, 1995, they are classified as Secondary Centres after the Primary Centres of Sydney CBD and Parramatta CBD -

²⁰⁴ Fletcher, p 69

harbour larger holdings existed. This created an urban sprawl with scattered buildings occupying a "great extent of ground"²⁰⁵.

Statham notes that in almost every Australian capital, suburban growth took place simultaneously with growth of the city centre. The scattered underdeveloped lots may have been the result of speculators holding on to parcels of land and forcing those looking for cheaper land out into the suburbs. However, in the earliest settlements, as town lots were granted rather than sold, a more uniform development pattern initially emerged. Dispersal was driven, in part, in the early phase of settlement development, by the desire of the wealthy and the poor alike to have a parcel of land large enough to achieve some self-sufficiency²⁰⁶.

Early Employment Pattern

Clustering of occupations and residential types was a feature of early Sydney. The mechanics, shopkeepers and artisans were located on the western side of the town. The worst housing was to be found in the Rocks area, and on the eastern side of George Street through to the higher ground towards Macquarie Street, were the homes the wealthy and civil and military officials²⁰⁷.

²⁰⁵ Fletcher, 1989, p 70, noting Peter Cunningham's notes from his visits to Sydney town in *Two Years in New South Wales*, London, 1827, Vol I, p 40

²⁰⁶ Statham, 1989, p 30

²⁰⁷ Fletcher, p 70

The employment structure within early Sydney, as with a number of other Australian capitals, contained a significantly large service sector. The dominance of government functions in the early settlement contributed to this structure, and generated a relatively high proportion of domestic demand. As Dyster (1978) notes, the prime customer for most domestic trade was the government, particularly through the commissariat. Capital was imported through the government and through the British salaries of the civil and military officials. "It was not until a full generation after the first settlement that urgency was attached to developing a stable export that would consistently earn income for the colony over and above Government expenditure"²⁰⁸.

Demand for domestic services was generated by the civil and military officials as well as the wealthy merchants and professionals. A number of people would have found employment within the personal services sector - maids, cleaners, cooks. Local demand would also have been generated for the importation of necessities and luxuries, in addition to providing a major market for local produce. Transport and port related activities were very labour-intensive and tended to encourage a high employment density near the ports. The early employment structure was dominated by commerce and service related industries. The primary industries of the hinterland were launched through overseas capital and channelled through the city. Manufacturing was strictly small scale, "The town promoted industry, industry did not create the town"²⁰⁹. "Australia, like other regions of recent

²⁰⁸ Dyster, B., "The Discrete Interest of the Bourgeoisie, before the Age of Gold", in *Nineteenth Century Sydney*, Max Kelly (ed.), University of Sydney Press, 1978, p 6

²⁰⁹ Fry, 1978, p 30

European settlement, remained dependent on the old world for heavy industry and manufactures for well over a century²¹⁰.

Transport - Sydney and the Walking City

The principal transport mode for most people in early Sydney was walking. Sydney was a walking city - not surprising given that all settlements in the old world were walking based. The old European cities had narrow, winding streets. The wealthy sought to locate near the town centre, usually conducting their business from there. The poor were forced to live in the undesirable 'suburbs' with the other undesirable activities - rubbish dumps, noxious industries²¹¹. With the considerable population expansion experienced with the agricultural and industrial revolutions, the old walking cities could not cope. The high density areas of the cities, without adequate sanitation and water supply, presented serious health risks²¹². Sydney was no exception. Those who could afford to live in low density and elevated environs, commuted to the city centre from the new suburbs. "Acceptance of suburban living enabled the middle classes to reject the horrors of the packed metropolis without having to give up their slice of wealth that urbanisation had created"²¹³.

²¹⁰ Statham, 1989, p 21

²¹¹ Frost, 1990; Girouard, M., 1985, *Cities and People: A Social Architectural History*, New Haven

²¹² Frost, 1990, pp 22-3

²¹³ *ibid*, p 23

Frost suggests that suburbia was one of England's most successful cultural exports. Sydney, being part of the settler capitalist world driven from Great Britain, accepted this style with enthusiasm. For migrants to Australia from Britain, suburbia was the overwhelmingly preferred location for living²¹⁴. The introduction of affordable and reliable public transport was seen as the key in the evolution away from the 'walking city' with limit for expansion three miles walking distance from employment²¹⁵.

Public Transport and Urban Form

Frost notes that 19th century Sydney, physically and spatially was "very much a product of its rather rudimentary public transport system"²¹⁶. The implications of the poor quality of the public transport system can be seen through a comparison with Melbourne. With a population of similar size, the built-up metropolitan area of Sydney was half that of Melbourne. Half the population of Sydney lived in municipalities with densities greater than 30 persons per acre, compared to 14 persons per acre in Melbourne. The population density of Sydney's most densely settled municipalities at 79 persons per acre was nearly double that for Melbourne's most densely settled municipality²¹⁷.

Sydney, as with a number of other Australian cities, experienced high and sustained growth during the 1860s, 1870s and 1880s. Fitzgerald suggests that the

²¹⁴ Frost, 1990, pp 28-9

²¹⁵ See Mills and Hamilton, 1984

²¹⁶ Frost, 1990, p 34

²¹⁷ *ibid*, p 41

poor quality of the public transport system at that time reinforced the compactness of the city, with the suburbs built during that period containing high population densities²¹⁸. "By 1891, some 86% of the population lived in the central slums and adjoining terrace-house suburbs that included Balmain, Leichhardt, Annandale, Glebe, Newtown, Redfern, Erskineville and Paddington, most of them within a three kilometre radius"²¹⁹.

Initial public transport with Sydney, as with comparable cities world wide, was expensive and time-consuming. Only the wealthy could afford to use it on a regular basis. Ferries opened up development in suburbs such as North Sydney, Manly and Mosman but were also expensive and time-consuming.

Sydney's topography and predominantly unpaved and poorly formed roads made the first form of public mass transit - the horse-drawn omnibus - a hideous transport option. As Frost notes, by the time Sydney's first railway was built in 1855, inner city land was so densely developed and expensive that the terminal ended up at Redfern, three kilometres from Sydney Cove. The existing Central Station was not opened until 1909, and the opening of the underground loop that linked the CBD to most of the then existing railway network was not completed until 1926. The Harbour Bridge opening in 1932 allowed for a direct connection to the CBD from the North Shore. With the opening of the city circle loop, accessibility to the major employment node increased significantly. During the 1920s, construction of detached dwellings within 10 kilometres of the CBD, and

²¹⁸ Fitzgerald, 1987, p 61

²¹⁹ Frost, 1990, p 35

within reach of the rail/ tramway network. Dwelling occupancy ratios fell from 5.2 in 1921 to 4.3 by 1933²²⁰.

Demands for urban public transport were only met when crisis through congestion was imminent²²¹. Wotherspoon (1978) notes that rural members of the Colonial Parliament regularly blocked bills for the improvement of Sydney's public transport as too costly given land values, and that they thought that that money would be better spent on country district rail extensions. When decisions were made, the cheapest options were always favoured²²². A lack of unity in the Sydney based interests also hampered route development²²³.

Tramways

Steam tramways were seen as a cheap solution to the transport problems of Sydney, and from when the first line was constructed in 1861²²⁴ to 1884 a network of 51 kilometres had been built servicing the existing suburbs. An additional 22 kilometres of track was laid between 1885 and 1889 to serve more distant areas²²⁵. The tramway system proved inefficient and ineffectual in providing any boon in distant villa suburbs as had happened in both Melbourne

²²⁰ Spearritt, *Sydney Since the Twenties*, Hale and Iremonger, Sydney, 1978

²²¹ Frost, 1990, p 60

²²² Wotherspoon., G., "The 'Sydney Interest' and the Rail 1860-1900", in Kelly (ed.) *Nineteenth-Century Sydney*. University of Sydney Press 1978, pp 12-23

²²³ Collins, I. V., "The 'Country Interest' and the Eastern Suburbs Railway 1875-1832", in *Sydney's Transport: Studies in Urban History*, Wotherspoon (ed), Hale and Iremonger, Sydney, 1983

²²⁴ Lennon and Wotherspoon, 1983, "Sydney's trams, 1861-1914: the rise of an urban mass transport system", in *Sydney's Transport: Studies in Urban History*, edited by Wotherspoon, Hale and Iremonger. Sydney, p 113

²²⁵ Frost, 1990, p 38

and Adelaide. It was not until after the turn of the century when trams were electrified and the system extensively expanded that the trams came into their own in Sydney²²⁶.

Reasons for the tramway inefficiency included (i) new suburban lines did not enter the city as they acted as feeder lines to railway stations²²⁷; (ii) tram patrons had to change modes of transport before reaching the CBD; (iii) narrow congested streets were ill suited to trams; (iv) the steam trams could not handle many of the street grades; and (v) the noisiness and dirtiness of the steam trams increased their unpopularity with passengers²²⁸. As a result of these transportation problems, demand for more distant suburban allotments was not strong by the end of the 1880s²²⁹.

Rise of Road Based Transport

The rise of the motor car in the post WWII period has come to dominate the urban pattern, particularly in the outer areas of Sydney. The motor car's impact on the inner urban areas through congestion and pollution has also been highly significant. Major motorways have been cut through the established areas creating heavy traffic corridors and redirecting traffic flows, often in not predicted ways²³⁰. Motor cars are a flexible and convenient transport mode which

²²⁶ Lennon and Wotherspoon, 1983, p 113

²²⁷ *ibid*, p 104

²²⁸ Frost, 1990, p 36; Fitzgerald, 1987, pp 58-9

²²⁹ Jackson, R. V., 1971, "House-building and the Age Structure of Population in New South Wales, 1861-1900", *Australian Economic History Review*, No. 10, pp 143-59

²³⁰ see *Sydney's Future*, NSW Department of Planning, 1993

have proved highly popular. Passenger trips made by private vehicle rose from 13% of all trips in 1946, to 59.6% in 1971 and 70% by 1991 (80% on the weekend)²³¹ ..

Where once the central core of Sydney dominated the region's employment, road-based transport enabled the dispersal of employment to occur to a degree greater than that which had been experienced in Sydney before. Sub-regional centres have grown, and industrial estates now seek easy motorway access rather than port access as would have been the case previously. For the employee, cross-regional journey-to-work patterns are now readily possible, although public transport still dominates peak time travel to and from the Sydney CBD.

From 1945 until the present there has been major physical development within the Sydney metropolitan area. The physical size of the built-up area has also grown rapidly, increasing from 400 square kilometres in 1945 to 1,200 square kilometres by 1981. Daly (1982) notes the impact of overseas and local capital on property development, particularly the surge in office construction that transformed the Sydney CBD in the 1960s and early 1970s. Australian firms built offices to meet their expanded needs, and British insurance firms played a significant role in injecting capital²³².

²³¹ *Sydney Area Transport Study*, NSW Department of Transport, 1974; Transport Data Centre, NSW Department of Transport, 1997

²³² Daly, M.T., *Sydney Boom Sydney Bust*, George Allen and Unwin, Sydney, 1982, p 43

Metropolitan Employment Growth

Metropolitan employment has grown significantly, along with population growth. In 1954, the Sydney Region labour force comprised 858,000 persons. By 1971, the labour force had grown to 1,293,500 persons, and reached 1,563,000 in 1991²³³. A significant proportion of this population growth has occurred in the outer areas of the Sydney Region, with the level of Sydney CBD employment remaining, at best, static²³⁴. The population level within the Sydney Region grew from 1,700,000 in 1947, to 2,977,000 by 1971, to 3,673,000 by 1991²³⁵.

Regulations

Legislative changes in 1948 and 1958 involved lifting development constraints that limited project financial viability and building rental values²³⁶. These changes involved lifting the Land Sales Controls enactments and amending the Landlord and Tenancy Act to permit negotiations of untied rents for buildings. Daly submits that as a result of these legislative changes, 1958 could be considered to be the year the redevelopment of the Sydney CBD began. The office building market has been highly cyclical in the 25 year period since 1970, office floor space has more than doubled, rising from just under 2 million square

²³³ ABS Census counts, employment by industry classification

²³⁴ *Journey-to-Work in the Greater Metropolitan Region*, Department of Urban Affairs and Planning, November 1995

²³⁵ ABS Census figures

²³⁶ Daly, M.T., 1982, p 40

metres in 1970 to just over 4.1 million square metres in 1995. Despite this substantial growth, the CBD's share of total metropolitan office stock had fallen from 72% in 1970 to 46% by 1995. This is an indication of the trend in the suburbanisation of office employment that has occurred in Sydney, as in other cities, since the 1970s²³⁷.

Industrial Restructuring

In the post WWII period there has been a substantial change in the manufacturing and industrial sectors. This has been a global phenomenon, and the urban form outcomes that have been experienced in Sydney have also occurred in many other comparable nations²³⁸.

The traditional view of an industrial area containing factories manufacturing goods for consumption no longer holds true. There has been a significant diversification of activities within industrial zones. Storage, distribution activities, office functions, wholesaling and producers services all could be expected to operate in industrial estates, along with a manufacturing presence. Dispersal of industrial activity has also occurred in the Sydney Region. In the 1960s there were two principal concentrations of manufacturing; (i) in the Central Industrial Area south of the Sydney CBD²³⁹; and (ii) the Parramatta-

²³⁷ Property Council of Australia, *Australian Office Market Reports*

²³⁸ see Searle, G., *Sydney as a Global City*, DUAP and DSRD, August 1996

²³⁹ Sydney, South Sydney and Marrickville LGAs

Auburn-Bankstown LGAs. These six LGAs contained 53% of all metropolitan manufacturing in 1968/69²⁴⁰.

With the reduction in tariffs, industrial restructuring, changing technologies, and major investments in new production techniques, a proportional decline in industrial employment along with a movement westward of a number of plants to greenfield sites has been seen - John Fairfax, Arnotts and Unilever provide examples. Between 1981 and 1991, employment within industrial areas increased by 7.8%. However, despite this growth, the proportion of total Sydney Region employment located in industrial areas fell from 19.3% to 18.4% of all regional employment between 1981 and 1991. Of the industrial area based employment growth, all was located in the outer ring local government areas. Between 1981 and 1991, industrial area employment increased by 34.7% to 100,000 persons in outer ring LGAs. In middle ring LGAs employment fell 3.2% to 52,500 persons over the same period, while in the inner ring LGAs a decline of 6.6% to 90,500 persons was measured. These figures show how the suburbanisation of industrial based employment has continued through the 1980s and early 1990s²⁴¹.

²⁴⁰ Cardew and Rich, "Manufacturing and Industrial Property Development in Sydney", in *Why Cities Change*, Cardew, Langdale and Rich (eds), George Allen and Unwin, Sydney, 1982

²⁴¹ Source, ABS Census 1981, 1991. Transport Date Centre