The context of change—history, geography and infrastructure hangover

Key points

- The basic shape of the settlement pattern of Australia has persisted over time. Most towns in 2006 already existed in 1911, with new towns in the minority.

- Physical geography has been important for determining the location of industry, transport hubs and amenity areas (coastal environments in particular).

- Historical decisions concerning infrastructure and service placement influence settlement patterns. The mechanisms behind history's role in settlement pattern change relate to:

  » Incremental change, created from many independent decisions made by a range of people involved in business, government and the community

  » Path dependence, in which an initial chance occurrence is reinforced, creating an entrenched pattern of development

  » The impact of infrastructure, networks and other elements of the built environment as the physical manifestations of history

  » The role of other existing, inherited factors which act in a similar way to infrastructure (e.g., personal networks, customs, expertise, existing services).

Introduction

> 'Though an age may have some new towns, the community cannot on any large scale afford to sacrifice the old towns and start afresh elsewhere in conformity with current geographic values or social standards…the past weighs heavily on the present' (Smailes 1966, p.52).

Towns are built and maintained through the many decisions of many people over time. While this report is concerned with understanding change in the pattern, part of the story is the persistence of its shape, and how history and geography guide the change.

The history of many towns shows that the initial reasons for establishment have become obsolete, with advancing economic and social circumstances. However, as settlement patterns

cannot change at the same rate as human activity, the pattern is in a process of constrained flux. Geography and history provide context for this change, and typically slow the rate of change.

Persistence in the settlement pattern

As observed in Chapter 4, the basic shape of the settlement pattern has been maintained over time. While towns may have changed in size, most towns in 2006 already existed in 1911, with the creation of new towns being relatively uncommon.

Once towns are created they tend to persist, and the usual way for the settlement pattern to change is through towns changing their relative population sizes, rather than the wholesale creation of new towns and desertion of others. When changes in circumstances have been pronounced, towns have responded by changing functions.

Even declining towns have a degree of persistence—which can be observed in the typically long process of decline. This tenacity is due to geography and history, and how the current decision makers react to them.

The role of physical geography in the settlement pattern

The importance of geography in industry and transport determined early settlement patterns, while mineral finds and amenity (especially in coastal environments) were important for towns established in the twentieth century.

Land that could produce more was taken up by farming, with pastoral activities taking up more marginal land and bigger areas. Value was given to transport hubs and ports central to the transport system of the time. Activity was also influenced by access (for example, in relation to natural barriers such as the Great Dividing Range, rivers and the ocean, islands and areas cut off in the wet season).

Most of the large inland cities such as Broken Hill, Bendigo, Ballarat, Mount Isa and Kalgoorlie-Boulder were established for the purposes of mining and for some, mining is still a major factor in their existence. At the time of establishment, these inland cities were distinctly disadvantaged in terms of overland transport, but this was overcome because of the wealth generated from the mines.

More recently, attractive areas (beaches, rainforests, snowfields and so on) have capitalised on natural assets, either for tourism or amenity-seeking permanent residents. Some towns have long benefitted from their amenity, being older tourist areas (like Woodend and Marysville in Victoria), while some have experienced a resurgent interest (for example, Kangaroo Valley), emphasising amenity features when previously they had a different focus such as agriculture or fishing.

Polèse (2013) makes the point that Australia has a lot of natural amenity areas, and so the actual locations of amenity towns are not determined by a few key regions—as there are many appealing spots along the coast. His argument is that location (specifically, proximity to large

centres) is key because the 'abundance' of other 'sea and tree' options means that the amenity itself is not the key factor in the growth of particular amenity areas. Amenity is a factor that determines growth on the coast; other factors determine where on the coast that growth occurs.

Smailes (1966, p.48) makes a similar point, focusing on Britain, where '[c]onsiderable stretches of coast show little differentiation in site conditions, so that the advantages of one spot over another are not significant as compared with the overriding influence of other factors that affect the incidence of urban development. As with…flat terrains in rugged country, it is where site advantages are localised, exceptional features, and not of widespread occurrence, that they become a decisive influence'.

People's relationships with geography, effective land use, and the values they place on different natural features develop over time. The ability to change the land and work it more productively influence which areas can be settled.

The use of the land has been affected by:

- the knowledge and understanding of geography
- the ability to use land effectively or change it (driven by innovations and technological advancements)
- the changes made (clearance of Mallee land, for an early example, or irrigation schemes, the built environment, networks)
- specific discoveries (most notably mineral and gas discoveries).

There are also many cases of the original function becoming obsolete or an aspect of geography losing its advantage (such as a river port) and yet towns have mostly persisted. Once geography is altered—through the establishment of a town, or a transport network—then the context of future decision-making has changed.

The role of history in the settlement pattern

Polèse (2013, p.13) discusses how the city which dominates early on is likely to keep its primacy 'unless dislodged by remarkable circumstances'. Size advantage is 'the outcome of decades, sometimes centuries, of accumulated investments in infrastructures and institutions'. He also points out that this infrastructure and size advantage has a reinforcing effect, such as in the case of transport networks centred on major cities, and smaller cities around a larger one increasing the larger city's potential market size.

The degree to which change is possible is also a product of history, with early flexibility of where to place towns (often determined by geographic or chance factors) soon firming. Fujita and Thisse (1996, p.372) argue that '…we seem to have a putty-clay geography: there is a priori a great deal of flexibility in the choice of locations but a strong rigidity of the urban structure once the process of urbanisation has started.'

In Australia, this is most obvious in the capital cities. Statham (1989, p.13) reports that three months after Sydney was established, an arguably better location was found with the discovery of Rose Hill, but the decision was made not to move. Similarly in Tasmania, Governor Arthur's

desire to move the capital early on was thwarted because of the cost of new government buildings.

Statham (p.15) also argued that 'some of the features that founders thought advantageous became liabilities over time', but that 'in each case a momentum appears to have set in which precluded locational change'. Therefore it seems that Fujita and Thisse's (1996) 'putty-clay geography' firmed quite quickly.

History shapes and limits change in the settlement pattern. One way to think about history's role is that it creates a limiting, evolving context by which future decisions are made. This is a continuous process, because each new decision slightly alters this context.

The effect of gradual change is to create a set of circumstances facing each decision-maker that differ quite markedly from those that would occur if the decision was to be taken on a new site. Some results of this include:

• Towns which are still close together because they needed to be in the past—but would not be settled like that today (for example, towns established along railways to provide regular water for steam trains).

• The original historical context for the establishment of a town may no longer be applicable but activity still persists in the location.

• The presence of services in a town which have been there historically, but would not be initiated in a town that size today.

Incremental change

Settlement patterns arise and continuously change because of many decisions by many unrelated parties over time, each pursuing their own priorities. Very few actually focus on the effect they have on the shape of settlement. For individuals and households, these decisions revolve around where to live, shop, work, and access services. For business and governments, the decisions concern where to invest, or where to provide services and infrastructure. For all of these, there is also a question of how long to stay with an earlier decision or make a new one. Most of the time, people are not making active decisions, but continue to operate as they are—essentially a tacit decision to maintain the status quo.

The small impacts of many decisions lead to changes that are necessarily marginal and incremental. People make decisions based on the existing system, and their decisions then slightly alter the system: for example, if a person from a small town gets a job in a nearby regional centre, it makes shopping and dropping off kids to school there more convenient, but also slowly shifts activity away from the smaller town.

Vergne and Durand (2010, p.738) argue that '[i]nstitutions tend to evolve incrementally rather than radically, so yesterday's rules of the game are often very similar to today's rules'. This can gradually create bigger change, but it will be shaped by existing context and will not create a pattern that looks the same as starting from scratch.

Faster and larger change (such as shocks, for example, the closure of a mine or a natural disaster, or large government projects) can interrupt the existing pattern. For example, irrigation projects and transport networks have changed the nature of the landscape—but this

type of change is atypical. Decisions about large projects are often made based on the existing context. Following damaging shocks such as weather events, there is typically an expectation—successful or not—of a return to the status quo.

Path dependence

Path dependence is one of a number of processes that describe how history shapes and limits outcomes. Although only a partial explanation, it is a very powerful force and is a useful concept when considering the development of settlement patterns.

Definition

The concept of path dependence describes a process where early decisions, advantages or chance occurrences become increasingly locked in, until the resultant outcome or pattern is difficult to escape. Page (2006) defines path dependence as having the following characteristics:

- *Increasing returns:* 'the more a choice is made or an action is taken, the greater its benefits'

- *Self-reinforcement:* 'making a choice or taking an action puts in place a set of forces or complementary institutions that encourage that choice to be sustained'

- *Positive feedbacks:* 'an action or choice creates positive externalities when that same choice is made by other people'

- *Lock-in:* 'one choice or action becomes better than any other one because a sufficient number of people have already made that choice' (Page 2006, p.88).

The example often quoted is the emerging videocassette recording industry in the late 1970s. This market started with two competing, basically similar, but incompatible formats: VHS and Beta. The industry had positive returns for each of the manufacturers. That is, a larger numbers of recorders of a particular format in homes encouraged more video outlets (both sales and rentals) to stock more pre-recorded tapes in the same format. This in turn led to the format being more attractive to potential machine buyers, thereby increasing the number of machines—and so on. In the event, the VHS format obtained a small edge in the market at an early stage which transformed into an advantage that allowed it to virtually take over the entire VCR market.

A spatially-focused example concerns the Australian colonies' development of their own rail networks with different gauges (rail width), creating a legacy of incompatibility across the states (Puffert 2001). Early on, the gauge chosen by each colony varied with local preference. Over time, the rail network became focused more on national connectivity, meaning that the incompatibility created problems. However, the path dependence created within each of the state networks effectively discouraged standardisation. This path dependence was due to positive feedbacks which sustained the different networks.

As Puffert (2001) argues, these feedbacks were related to network effects. Each new piece of a regional network needed to be the same gauge as the existing network, because the trains which ran on each network were suited only to the relevant gauge. Therefore, as each region's network expanded, the new section used the same gauge as the existing parts of the network. The separate networks continued to grow, as it never made sense for one regional network to

be scrapped to align it with another. None could justify changing their whole system. Therefore, the investment in each of the various separate networks continued to grow.

Path dependence has also been used to consider how history may shape regional economies. Decisions such as the placement of infrastructure, more broadly the built environment, towns and networks, as well as the location of non-physical attributes, such as services and expertise, are some of the legacies of history that can shape a path.

Town size

Many of today's large regional centres are those which had critical functions early on, whether or not these original functions still exist. Large towns often continue to be more competitive unless some other factor intervenes to give a smaller town the advantage. This was the experience of Carcoar which floundered after it missed the first round of rail connections (Chapter 5). Examples of towns that have continued to grow based on an early size advantage include mining towns such as Bendigo and Ballarat, and pastoral or rail towns such as Goulburn.

Path dependence and the large town advantage

The features of path dependence discussed above—increasing returns, self-reinforcement, positive feedbacks and lock-in—ensure that early market share is a critical feature of path dependence.

Very often path dependence relies on circumstances at a single, critical point early in development. This critical point could be the establishment of a town and result from a small event or advantage[38].

Growth is encouraged not just by industry function, but also by other characteristics of path dependence. Each new resident or business creates extra demand for services, which in turn benefits existing residents, and encourages new residents due to a larger range of goods and services. This creates positive feedback.

Bendigo and Ballarat had gold, and they quickly gained population. With population came service industries, housing, and town construction: council offices, banks, churches, and other private and public buildings (and the services they housed). Similar growth occurred with other towns serving critical functions, such as coastal ports. Early network decisions were then made based on connecting these key hubs and the basic settlement pattern became locked in and continued even after the gold rush ended.

---

38 This could range from where people regularly stopped overnight, a decision about where to put an inn, a stop on a coach route, or even the location of a telegraph repeater station. Significantly for path dependence, many of these reasons are totally obsolete for the current function of the town, and based on restrictions no longer applicable today. For example, towns have been established based on the distance between water stops for steam trains, river ports, the hubs of stock routes and the locations of gold discoveries.

Positive feedback benefits for large towns

Positive feedback loops relating to household decision-making benefit large towns in at least two ways: one relating to housing investment, the other to goods and services.

People are attracted to larger centres in part because of the lower prices and greater range of goods and services on offer. As each new person enters a town they increase the demand for goods and services. This in turn makes it more viable for suppliers to increase the range and reduce the price of the goods and services available. This then attracts more people to the town, as illustrated in Figure 8.1.

The mechanics of this pattern will be discussed in more detail in Chapter 10, but the effect is that the overall goods and services offered (and hence the location) become more appealing. Note that these goods and services include both privately provided (retail goods and services) as well as publicly-provided goods such as parks, libraries, health and education as well as social and cultural activities.

Figure 8.1   Reinforcing loop: goods and service availability and population size

Source: BITRE analysis.

Another feedback loop for large towns is created by household decisions about where to invest in housing (Figure 8.2). People are attracted to areas in which housing represents a more certain (lower risk) investment and potentially higher returns, namely capital cities and larger regional centres with good services and diversified economies, rather than smaller towns— particularly those in decline or single-industry towns vulnerable to shocks. Increased investment increases the amount, diversity and turnover of housing, all of which would reduce the risks for future investors. This is often described in terms of increased confidence of investors who prefer larger investment markets with strong levels of both demand and supply and relatively frequent sales. Large and growing towns have a potential for higher returns as future demand for housing in these locations will be greater. Therefore future prices will be assessed as being higher, contributing to higher anticipated returns. This loop is similar to the previous feedback loop, as in both cases increased population is the result of the decision and makes the decision to move in more likely for the next potential entrant.

Figure 8.2   Reinforcing loop: housing investment certainty and population size
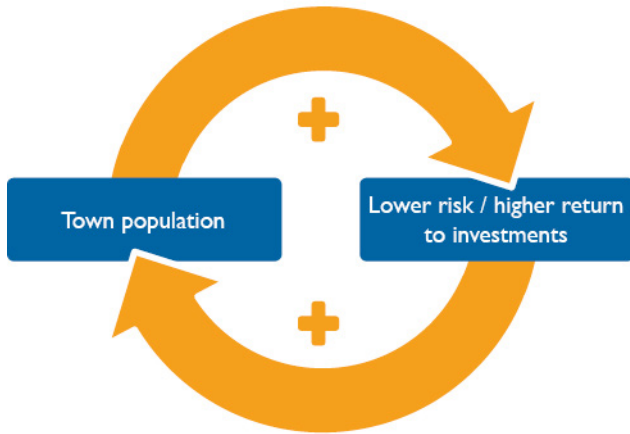
Source: BITRE analysis.

In addition to these loops, larger population centres attract people for employment reasons—both diversity and at least perceptions of higher wages and better prospects. This results in a similar feedback effect.

Importantly for future growth, these mechanisms also operate in towns that receive a boost to population at any point and then benefit from continued growth due to these mechanisms. We observed this in the case studies in Chapter 5, where (for example) amenity towns were able to outgrow some older-industry based centres. Hervey Bay, for example, has grown into a large coastal centre. While the initial attraction was mainly natural amenity, each new resident enabled more businesses and services, which created extra appeal for future residents and some very rapid growth.

Infrastructure

Infrastructure is a base for economic growth and social progress. It is an investment in the physical systems and structures in a location, and more broadly it can also incorporate more intangible aspects such as social capital.

An important characteristic of infrastructure is its immovability. As infrastructure cannot provide services anywhere but locally, the optimal location is important and 'the combination of immobility with long life duration means that infrastructure investments will shape the economic geography, or regional policy, of a country for decades' (Prud'homme 2004, p.5).

Infrastructure choices are based on the motivations of the investment decision makers in businesses, households and government. Infrastructure investment decisions made by business and households are typically different to those made regarding community infrastructure. A household's infrastructure can include an investment into housing, while the private business sector invests in (for instance) factories, fixed machinery, sheds, produce handling plant, and so on. Decisions are made to maximise private utility and profit respectively.

Community infrastructure is an important contributor to the well-being of residents, as all communities require some basic infrastructure to maintain a quality of life, such as roads,

electricity, water and sewage, telephone, schools, health services and recreational facilities. Government is a major source of community infrastructure and makes decisions based on a range of objectives such as economic development, perceived community priorities and equity and efficiency issues.

Infrastructure investment decisions shape the future pattern of development and are made within the context of the accumulation of past decisions. Infrastructure investment in long-term assets leads to development down one path rather than another (David 2007). Man-made infrastructure can act in the same way as the geographic and natural resource endowments of a location, since once established they often form a base for future development. This is particularly true where large and expensive infrastructure is in the form of networks, whether they be road, rail, communications or electricity distribution.

Some characteristics of infrastructure help to explain why it is so important in driving the shape of future decisions. Prud'homme (2004) discusses characteristics of infrastructure including transport, communications and utility networks but excludes other infrastructure such as schools and hospitals. The latter have less longevity and the services are more labour-focused (Prud'homme 2004). The key characteristics of infrastructure include:

- Its key function in providing services (for example, the distribution networks of dams and canals to provide the service of irrigation)
- Its lumpy nature (i.e., it needs to be complete to be useful), in which adjustment to gradual demand is difficult
- Long timeframes, both in construction and lifespan
- Its place-specific nature (immobility), as discussed above
- That the services public infrastructure provides are related to market failure (public goods, externalities, natural monopolies, merit goods)
- That it is used by households and enterprises (Prud'homme 2004).

Infrastructure can outlive its original function, and be abandoned or repurposed. 'Infrastructure hangover'—the continued existence of infrastructure whether it is well-used or not—provides towns with resilience in terms of retaining or attracting population. People can 'rediscover' or repurpose a town later at a lower cost, because the infrastructure still exists.

Some towns in decline later found a new function as arts-focused, amenity or lifestyle towns, tourist towns or commuter towns. They were able to recover from decline due to changing circumstances such as an increasing focus on amenity. In some cases this was partly based on infrastructure such as attractive historic buildings, or was due to being positioned in an area with inherent advantages such as natural amenity. Daylesford in Victoria was rediscovered as a spa town in the 1960s after a period of decline, and was able to capitalise on its physical assets, natural amenity and history. Mount Beauty, also in Victoria, was established to accommodate workers on a hydro-electricity scheme, and then moved to tourism due to its natural beauty. Both were able to do so more easily because of the infrastructure from earlier times.

Some infrastructure is more adaptable than others. Housing is a particularly 'generic' and flexible form of infrastructure, in that it can be used by people in a range of circumstances (for example, it can house workers for any type of industry, retirees, and so on). Other infrastructure is more specific, particularly when limited to a particular function or industry. The more that specialised infrastructure is already in place, the more closely tied the industry is to that area, since a move

to a different location will likely entail significant additional cost to establish new infrastructure while the existing infrastructure is likely to have little value to an alternative industry.
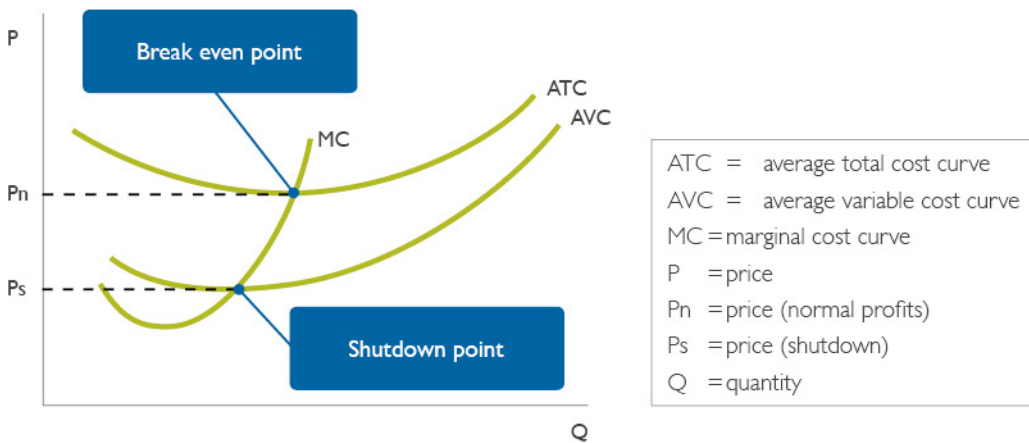
Sunk costs

A strong influence on decision-making are the sunk costs associated with infrastructure. Sunk costs are costs which have already been incurred, cannot be changed by current decisions, and so cannot be recovered (Arnold 2013, p.202). Their importance can be seen through both business transactions and community development.

For an operating business, many of their fixed costs are 'sunk' and while they are able to at least cover variable costs they will continue to operate.

Consider a local business. Figure 8.3 shows the short-run supply curve for a firm, and its break even and shutdown points. Theoretically, for a firm to enter a market, it should be able to make normal profits. The firm makes a profit at or above the break-even point, where the marginal cost equals the average total cost (Pn) (as total cost includes normal profits). However, in the short term, an existing firm will continue to produce even when the price is below total cost, as long as it is above the variable cost (Ps).

Figure 8.3   Short-run supply curve of a firm with break-even point and shutdown point

ATC	=	average total cost curve
AVC	=	average variable cost curve
MC	=	marginal cost curve
P	=	price
Pn	=	price (normal profits)
Ps	=	price (shutdown)
Q	=	quantity

Source: King (2012).

In towns experiencing regional competition, it is likely that the price of goods will fall (see Chapter 10 for more discussion). However, in the short run, businesses will continue to operate at a loss if they can still price above the variable cost curve. While in the long run, the business may disappear, it is likely to continue in the short or medium terms. Very often the business will continue until the retirement of the current owner.

This aids persistence for declining towns, firstly because it explains one reason why people hold on to their existing (unprofitable) business. However, it also discourages new entrants because the firm is making a loss. As a consequence, as existing facilities wear out and are not replaced, a town experiences a loss of services over time rather than a sudden drop. For example, a town's local doctor may continue to practice in the town rather than move to

another location but a new doctor will not enter into the market because the market size is too small to cover his or her entry costs.

Even in locations where a firm makes a profit, a new business considering entry can be deterred because of the costs of new infrastructure are included in his investment decision, where they judge that the incumbent firm would discount them in a competitive environment.

Overall, the effect of sunk costs is the retention of the status quo (or the appearance of it) in the face of change, but it can conceal some underlying difficulties.

Industry and related activity

Persistence of a particular industry is not just about infrastructure but also the expertise of the local labour force and the presence of other supporting firms around it. This can make it difficult for a town to change.

The investment of local production in one location affects decision-making for upstream or downstream firms in the same production process, and can further develop local activity and infrastructure. Examples include the location of timber mills near wood plantations, fish canneries near ports, stock and station agents where there are major sale yards, car component manufacturers close to assembly plants and so on.

This creates a potential for entrenching activity in a particular region. The existence of infrastructure and related industries to support local production encourages it to continue in the same place. In addition, the local production also encourages the related activity to continue, creating a mutually supportive network in a particular location.

Agglomeration and clusters

Investigations of industrial agglomeration in the case of Australia have found it to be low and generally found in metropolitan locations. For example, a study by Leahy et al. (2010) into geographical agglomeration in manufacturing for Australia found it to be less common than in other industrialised nations. Another industry found by Beer et al (2003) to have agglomeration was the producer service industries located in Sydney and Melbourne. Hence, 'as Sydney and Melbourne have the largest number of specialist producer service firms, and the only critical mass in the country in some of them, this naturally attracts others' to take advantage from the economies of scales available (Beer et al. 2003, p.123).

Similarly, the large clusters described in the literature are less evident in Australia. As Beer et al. (2003) state the only internationally-recognised Australian clusters are in the wine industry such as the Barossa Valley and the Hunter Valley. In fact, much of the work to investigate clusters has been based on case studies of successful locations with 'the same fairly limited set of places recurring in the literature' such as Silicon Valley, Boston's Route 128 and Cambridge (Boddy 2000, p.316). These locations are unique and are 'atypical as case studies' so it is not surprising that the presence of clusters is on a very small scale within regional Australia (Boddy 2000, p.316).

Several hypotheses have been suggested for the low presence of industrial agglomeration and cluster formation. These include the small size of the overall economy, a large degree of foreign

ownership, dominance of resource-based exports, limited industrial specialisation and a lack of critical mass, especially at the regional scale (Beer et al. 2003; Boddy 2000 and Leahy et al. 2010).

Networks

Historically, networks have reinforced the settlement pattern in some cases, and changed the competitive relationship in others. Networks are all about connectivity, and so a town within a network is part of a larger system, and its place in the network determines its advantage. Major network infrastructure includes linkage infrastructure (transport and communications) and distributive infrastructure (water, electricity, gas). Due to the interconnected nature of networks, their persistence is likely to be stronger than for other, standalone infrastructure.

As transport networks evolved, they created different opportunities and costs for towns. A key part of the discussion in Chapter 3 was the development of rail hubs that then became major centres of activity. This advantage was sometimes maintained after the road network became more important.

Networks have a role in services offered and the way that goods and services are accessed, and can reinforce the existing settlement pattern. Lee (2003) observes that during the railway boom of the 1870s and 1880s, in New South Wales and Victoria 'there was a clear overall plan…to build railway systems centred on the capital cities', which maintained their dominance. Statham (1989) points out that while the rail systems 'did have a striking impact' on the cities, the capitals already had primacy before this and so the rail systems can be considered a reinforcing element.

However, Queensland railways are more decentralised, with lots of separate, smaller railways, which reflected the influence of widely distributed pastoralists and, to a lesser extent, miners and farmers, whose goods went to many ports (Lee 2003). This can be seen in the shape of the Queensland settlement pattern today, and the large regional centres along the coast with links inland. Lee (2003) also reports that Tasmanian railway development was focused both on Launceston and Hobart.

For towns, one aspect of networks is how fundamental the section of the network relating to them is. The more vital a network component, the less moveable (or removable) it is. One example is transport networks. If a town is part of the rail system, and the system declines, then the 'removable parts' are likely to be those on the fringe, branch lines whose removal (i.e., shutting down a service) will not affect the larger system. Even when the station patronage itself might be marginal, if it is on a vital part of the network (for example, on the main line between Sydney and Melbourne) then it is more likely to continue. These same key areas of the network, due to their greater connectivity, are also likely to experience greater patronage. This is similar to towns that act as key hubs on the road network (for example, linking several highways).

Unlike other infrastructure discussed, the decision makers for networks, such as governments and utility-owners, are generally in control of (and considering) the larger system in their choices. The objectives for the system are often not just regional but subject to larger state or national interest.

Networks are typically subject to path dependence, both technologically and spatially. Because networks are systems, the nature of piecemeal change restrains large changes, as component parts must all fit together.

Networks often have hubs and nodes whose geographic location is difficult to move unless the whole network is replaced. An example is the location of a new power station to replace an existing outdated one. The design of the power network will almost certainly suggest that the new plant be located near the old one.

Road networks create nodes where particular industries (often transport related) may prosper, as can the intersection of different networks—for example the gas and power networks at Uranquinty, in New South Wales, facilitates a gas-fired power station. Once industries establish at the node, the network is strengthened to meet their needs in that location.

Once in place, it can become difficult or cost prohibitive to transfer networks to new locations or disperse activities. Path dependence is created on the location of future activity. They can be added to, but radical change becomes difficult. When a road network is established, incremental change builds on that network, rather than reinventing the existing system. Transport systems also interact with town growth. Troy (2004, p.9) highlights that '[t]he original and subsequent subdivision patterns developed around transport and access routes [have]….reinforced the structural centralisation exhibited by Australian cities'.

Public infrastructure

There is far more to public infrastructure than networks. While networks in the settlement pattern are often large pieces of state or national infrastructure, there is a range of other public infrastructure provided on a regional or local basis. This includes everything from national parks, schools and hospitals to courthouses, local roads, libraries and bridges. Like other infrastructure, once in place it tends to be long-lasting and influences the location of activity.

Public infrastructure is often related to the provision of the public services that it supports, such as education, health services and policing. These services now have some characteristics of networks, as they are larger systems controlled by central decision-makers for state or national objectives.

The availability of this infrastructure and related services locally is partly a product of history. Infrastructure decisions have been made in a variety of specific historical contexts.

The presence and quality of existing infrastructure for services (for example, the school or hospital buildings) can influence service placement or retention. This is important as the existence of such infrastructure is an enabler for the service to continue. In an otherwise comparable town which lacks this infrastructure, there is a more difficult case for commencing a service. Another key factor is that the infrastructure and the services it supports may have been established when the spatial distribution of services was different.

Key pieces of public infrastructure can also influence decisions by firms and households. The choice of location for public infrastructure has enabled activity in these areas, including private development. Importantly, though, the presence of infrastructure cannot itself create a demand for activity.

Housing as infrastructure

Most of the analysis and examples above have been based on industry. From a town perspective, a very large part of private infrastructure is houses. This has essentially the same characteristics as industrial infrastructure, being durable, lumpy and place-specific. In contrast to the variability in population, infrastructure investment tends to be long-lasting. This means that potential mismatches and price changes are common.

The same effects discussed above for industrial infrastructure should also be considered in the context of housing. Housing investment will be considered in more detail in Chapter 9.

Housing legacies

As a town declines and becomes less appealing to prospective house purchasers (because it has less to offer them—whether in terms of amenity, employment, access—and represents a poor investment), the price of housing falls.

Consequently, the town and its infrastructure—particularly the low-cost houses—become attractive to people seeking a low cost of living. Some people are able to trade opportunity and job options for this lower cost. Typically, these newcomers are not reliant on location for their income: retirees, teleworkers, the unemployed, social security recipients, and so on. This can result in regions with levels of high socio-economic disadvantage.

This phenomenon known as 'welfare led migration' has been described by a number of authors (for example in Murphy et al. (2002, p.11)). It results from the disparity in housing prices that is evident, particularly in towns in declining agricultural areas. The houses originally accommodating working families no longer serve that function and prices fall. People on low incomes, particularly those outside the labour market, are attracted to these areas by the relatively low cost of rent or ownership of existing housing. For example, a study by AHURI found that the most significant factor in whether welfare recipients would move from a metropolitan to non-metropolitan location was housing affordability (see Box 8.1).

Box 8.1	Welfare-led migration

A difference exists between types of benefits in welfare-led migration. Morrow's (2000) analysis into the migration patterns of those on assistance found that Disability Support Pension (DSP) and Single Parent Pension (SPP) clients have a stronger tendency to move to areas of greater social disadvantage with overall lower incomes and government transfers making up a much higher proportion of the regional income. In addition, SPP and DSP clients tend to move towards areas with lower degrees of accessibility, although not necessarily to remote or very remote areas.

However, savings from lower house prices may be somewhat offset by increased retail costs (see Chapter 10). While welfare led migration may have a positive effect by increasing demand for retail goods in the small town, it is also likely to increase the number of people subject to the higher local prices, along with less availability and variety.

Administrative and social entrenchment and service legacy

Services, social and organisational structures and other town features can operate in a similar way to infrastructure as discussed above: as context and legacies of history, shaping future decisions[39]. These structures and services represent the 'status quo', and while able to be changed, the process can be slow and met with resistance.

The status quo bias and the endowment effect

In decision-making, people have a bias towards the status quo over other options (Samuelson and Zeckhauser 1988). The continuance of an existing state has a 'psychological advantage' over change, and consequently, ideology and related systems (for example, social systems) are slower to change than, for example, technology (Eidelman and Crandall 2009).

This 'status quo bias' encourages stability by introducing inertia (or friction) 'into otherwise frictionless economic models of resource allocation' and can contribute to the difficulty of changing government policy (Samuelson and Zeckhauser 1988, p.44). People are not always at a decision-point, but only consider making change at particular junctures. For towns, this gives favour to existing structures and processes, or 'the way things are done'. The emphasis on the status quo encourages persistence of population in its current distribution—a countering effect to mobility and change—but also the systems underpinning it, and the services provided.

A related concept to the status quo bias is the endowment effect, in which people value losses more than gains. Both are concerned with loss aversion, and both are anomalies in rational economic decision-making (Kahneman, Knetsch and Thaler 1991). The significance of the endowment effect is a stronger value placed on what exists—or the services that have been historically available.

Existing service delivery mechanisms

Services have some similar characteristics to infrastructure networks, and they require infrastructure to exist, as discussed earlier. Services can be provided by private industry or government. Health, education and mail services, for example, are determined by central decision-makers, but have historical legacies in the way they are provided.

Like private suppliers, governments need to make decisions regarding the range, quantity and location of services provided to the public. Obvious judgements include the location of schools and hospitals, but similarly, spatial choices are required in relation to the provision of services such as social security and industry support. The objective of universal service provision favours retention of services in smaller towns. However the financial advantages to government of centralising services into larger centres creates a strong opposing incentive and results in difficult choices for government.

As voters, residents are able to exert political pressure for public services to be maintained, and therefore, these services can be politically very difficult to remove or change.

---

39 Similar, but separate, inherited properties are the characteristics of the town, such as the main industries, income range or level of education of residents. These are also part of stability and persistence, and the limits on a town's ability to change. For example, we can see persistence in areas of entrenched disadvantage (and advantage).

The status quo bias can impact on service provision in two ways: one is the policy-makers themselves would tend to favour the status quo of services historically available, and the other is that those receiving the service would favour its retention more strongly than those without a service wishing to gain one.

Historical availability of a particular service creates the potential for otherwise similar towns to differ in service levels. Towns which have historically had a particular service, such as a primary school or doctor, may be able to maintain the service, whereas a similar-sized town without this history may find it difficult to acquire.

The status quo also shapes wider expectations, which provide part of the context for which decisions are made. Broadly, the status quo is that governments provide a certain level of key services to citizens. The 'normal' level of services in a town of a particular size can create pressure on decision makers to maintain this level, but the expectation of what is acceptable can change over time. Therefore service levels are partly a reflection of demand, which has changed with a more mobile population, but is also a reflection of ideas about acceptable universal service levels balanced with concerns over efficiency.

Once lost, services can be very difficult to get back—particularly when alternative arrangements are made. It also has reinforcing effects, such as population decline from staff leaving after the closure of a school and people reshaping their activity to reinforce further the shifts in activity.

However, while the above indicates that there are historical influences affecting service delivery levels, there have still been rationalisation in some areas. For example, after corporatisation Australia Post reduced its outlets by 25.6 per cent between 1991 and 1997 (Gerritsen 2000) and transferred a large number of the operations to agency outlets in newsagencies or general stores. While this may have increased overall efficiency, it can have adverse consequence of loss of economic activity from small regional communities (Gerritsen 2000). The rationalisation and withdrawal of public services resulted in a greater degree of concentration of activity into larger regional centres. The resistance that this is met with demonstrates the understanding in towns of the larger effects that this can have on them in the long run.

Social networks

Social networks serve to keep people connected to a town. A shared history, connection to family and friends, to home and more generally, to place—separate to any financial investments—keep people local and give them a desire for the town to maintain its services and do well. In addition to personal connections, social networks include more formal social structures including community groups (sporting clubs, charities, volunteer groups). Social networks can also maintain demand for existing services that have a particular social focus, such as the local pub. These networks also can create amenity, to be discussed further in Chapter 11.

Attachment to place varies with personal circumstances. Some residents are transient, while others have a strong connection to a town. This can be linked to industry—for example, some mining or construction workers may be living in a place temporarily but have stronger ties elsewhere (see Chapter 11). Likewise, even when attachment is strong, there may be other factors that still make a person leave (such as a young person relocating for university).

Strong attachment to place and status quo bias can lead business owners continuing operation and providing services longer than economic reasons would dictate. Small business owners are also residents, and understand the effect that removing their service can have on the population. This can generate social pressure for them to continue, including older service-providers, who may delay retirement when there is nobody to replace them.

While social networks are generally viewed in a positive light, the effect may not always be constructive. For example, the established power structures in some towns may make it hard for newcomers to get involved.

Governance structures

Town governance structures and regulations likewise influence settlement pattern change because they determine the range of possible change—for example, whether there are zoning limits on activity. They can also shape how services are delivered. For example, a decentralised or a centralised governance structure may provide a different spatial pattern of service.

A feature of the shifts in the governance structure at the local level has been the expanding role of local government in service provision (see Chapter 6). However, the expanding role of local councils in communities has resulted in a greater degree of variation in the standard of services, particularly when comparing services provided by a small council and larger councils (SCEFPA 2003).

Approaches to raising local government capacity to meet these increasing demands have included the implementation of 'best practice' and structural reforms such as amalgamations. Generally amalgamations take the form of two or more local authorities combining to make a single entity—often based on having a larger regional centre surrounded by small rural shires (Dollery 2009).

Dollery (2009) provides a summary of the number of local councils from 1910 to 2007–08 (see Table 8.1) to illustrate the scale of amalgamations that has occurred. In 1910, the number of local councils for a population of fewer than 4.5 million was 1067, substantially larger than the 550 local councils servicing over 20 million persons by 2008.

Table 8.1   Local council numbers in Australia 1910–2007

State	1910	1967	1982	1990	1995	2007–08
New South Wales	324	224	175	176	177	152
Victoria	206	210	211	210	184	78
Queensland	164	131	134	134	125	73
South Australia	175	142	127	n/a	119	68
Western Australia	147	144	138	138	144	142
Tasmania	51	49	49	46	29	29
Northern Territory	0	1	6	22	63	8*
Total	1 067	901	840	726	841	550

Note: *Amalgamation pending at time of publication (February 2009).
Source: Dollery (2009).

The main argument for amalgamation is that it enables councils to take advantage of agglomeration processes such as economies of scale and greater access to expertise. Employing a wider range of professionals can potentially improve efficiencies and deliver a more specialist range of services. It is argued that larger councils would be in a stronger financial and human capital position to undertake these increasing roles.

While limited systematic attempt has been made to evaluate the outcomes of amalgamation, it has impacted on the spatial activities of regions through loss of employment and reductions in administration roles for some towns, leading towards a greater degree of concentration (Dollery 2009). Consequently, while local government officials may want to support local communities, a degree of disengagement can result, as they are often unable to reach all small towns because of the size of the local government area (DPCD 2007).

Conclusion

This chapter has discussed the mechanisms by which geography and history shape the settlement pattern and influence change. Factors such as infrastructure, specific industry expertise and personal attachments limit the ability of the settlement pattern to change. This creates a brake on and provides context for the change mechanisms that will be discussed in the following chapters.