The provision of goods and services

Key points

- One significant process driving centralisation in regional Australia stems from the safe and affordable transport for consumers with the widespread adoption of the motor car.

- Better consumer mobility forced retailers and service providers in small towns into competition with retailers in other towns, effectively establishing competitive regional markets.

- Economies of scale and positive feedback loops led to the unequal growth of retailers in larger and strategically-located towns at the expense of others.

- As consumers embraced the concept of pooling their purchases into 'one big shopping trip', competition between similar retailers was replaced by competition between towns.

- The development of chain stores and flow-on effects confirmed the rise of regional centres at the expense of smaller towns.

- BITRE research into regional retailing provides support for the processes outlined, with patterns of availability and price incentives consistent with the theory and an empirical model which confirms the key parameters.

Introduction

Previous chapters discussed the overall decline in the number of towns, and the rise of major regional service centres. These are interlinked and the result has been the formation of large regional centres that dominate economic activity amongst smaller towns and villages in the surrounding hinterland. The pattern has occurred across all landscapes: in inland, coastal and remote areas.

One key component of this is the provision of goods and services. This chapter looks at the mechanisms at work in the delivery of goods and services between 1911 and 2006 and how they shape local and spatial economies. In particular, the chapter will examine the motivations and the consequences of action by particular economic groups, including consumers, private service provider businesses, workers and governments.

This will be supported by an empirical analysis of retail prices in regional Australia, examining the spatial differences in prices, availability and structure of delivery for many of the goods purchased by Australians every day.

Goods and services and the process of centralisation

The key issue for this chapter is the role of goods and services delivery processes involved in this very large (and inherently costly) change of spatial form. As noted in Chapter 7, the small town/larger regional centre dichotomy was well established by 2006. The structure in 1911 was very different. Hence, let's start with a theoretical appreciation of the retailer and service provider markets of 1911 and work through what may have happened in the face of changing circumstance.

A collection of isolated markets

In 1911, many small towns with similar functions serviced local residents and businesses. Towns typically sustained small scale local manufacturers, along with retailers and service providers.

The focus was the provision of goods and services to the local market, which effectively was the town and all those for whom the town was the closest centre. This often included a strong agricultural workforce who complemented the town's own residents. Not surprisingly, local stores tended to be operated by local interests, usually an owner-operator.

This structure of scattered small towns with an occasional larger centre reflected the difficulty of personal transport for potential customers in a landscape where the dominant basic industry (agriculture) dictated a dispersed workforce/population (See Figure 10.1). Transport for individuals was horses or by foot, with rail for longer journeys. This meant local populations were a captive market. However, the same limited transport also ensured that it was difficult for retailers and service providers to expand beyond the local market, and so their turnover was limited.

Figure 10.1   Towns' customer base areas with high transport costs
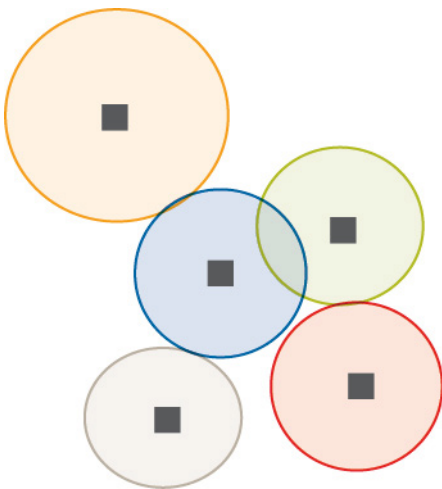
Note: Towns denoted by squares, with the market size represented by the surrounding circles.
Source: BITRE's abstract representation of town customer base areas.

With limited access between towns, retailers and service providers had some monopoly power in local markets. Diagram (a) in Figure 10.2 shows the likely situation facing many small town retailers. However, it is unlikely that firms would have been able to charge pure monopolist prices, especially in larger towns, because of existing competitors, the threat of new entrants and the relatively common use of mail-order catalogues. Other broader factors restricting the potential for very high prices were the relatively low levels of wealth (compared to today), a possible commitment to providing affordable prices for customers who were also friends and neighbours, and a limited population size. In these situations a limited demand against relatively high cost structure may have resulted in low or even zero profits above normal returns (see Figure 10.2b). The situation for many retailers in small towns in 1911 will likely have been an unstable monopoly (due to the threat of entry) making small above normal profits. Larger towns will have been able to sustain multiple sellers of products, allowing some competition within the town. In these cases we would expect lower prices locally.

The multiple monopoly structure shown in Figure 10.2 was only sustained while transport costs for the consumer to access alternative markets remained high. However, over the ensuing century the cost of moving goods and people decreased substantially, particularly for personal transport. The introduction of the car led to a viable alternative to horse-based transport: an option that was taken up enthusiastically.

The steady and persistent increase in the number and use of cars in Australia was documented in Chapter 6. The shift in transport mode continued to influence travel patterns even in the latter part of the twentieth century. It reduced the costs of travel, cut the journey time and raised the number of trips a person could take. Smailes (2000) illustrates this change in South Australia, drawing on travel pattern survey data from 1968–69 and 1992–93. A 'substantial reduction in mean travelling times', cut roughly three hours from travel times for peripheral locations to Adelaide, with the greatest falls being along major highways (Smailes 2000, p.161). This brought a substantial proportion of the Upper South-east into easy contact with Adelaide, which fundamentally changed shopping patterns towards suburban shopping centres (Smailes 2000).

Figure 10.2   Small town monopolies of 1911
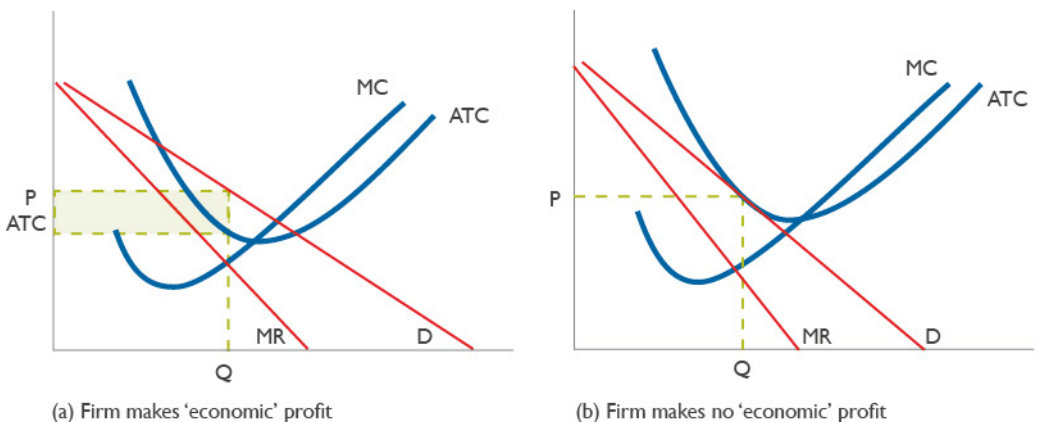
(a) Firm makes 'economic' profit   (b) Firm makes no 'economic' profit

Note: D – Demand curve; P – Price in the market; MR – Marginal revenue; MC – Marginal cost; Q – Quantity in the market; and ATC – Average Total Costs.

Source: BITRE's representation of monopolistic competition.

Changes in consumer shopping patterns

The 1911 consumer had a limited shopping choice. Where home-grown or crafted supplies did not meet family needs supplies were purchased locally at the nearest town (for rural dwellers). Consumers faced higher prices and a lack of variety in both the range of goods and the number of competing stores.

Over time, however, several changes enabled consumers to explore other options.

- Personal transport improved as walking or horses were replaced by motor vehicles and the roads were upgraded. Both continued to improve and accessing more distant stores became an option for increasing numbers of consumers.

- Technological progress and the spread of electricity and refrigeration meant new goods (such as refrigerators and freezers) became available for households and businesses. This allowed perishables to be stored at home, reducing the need for frequent trips for supplies.

- Other technological innovations, particularly in communications, facilitated more day to day contact outside immediate localities, so that consumers became better informed about new goods, techniques and trends.

- Improved transport allowed local rural economies to focus more on supplying goods for sale outside the region instead of for local or at home consumption. This provided income and facilitated the distribution of new products and regional economies became more specialised and trade more important.

The most telling of these changes for small towns and rural residents was the increased mobility due to the automobile. While other factors contributed to shopping in other locations, the motor car made it possible. A long-standing barrier was removed and goods not available locally were now accessible. The impact was described by Gibbons and Overman (2009, p.37): 'lowering transport costs can increase competition forcing firms to lower mark-ups. This leads to a welfare benefit to consumers and can also lead to a real resource saving to society'. Even when goods were available locally, the car allowed consumers to explore other options. They could compare quality and price in other centres.

The geographical impact was to shift from a collection of isolated, scattered towns (see Figure 10.1) to an economic landscape where consumers sometimes had a number of centres within their effective transport range. Figure 10.3 provides a stylised spatial representation of the new situation. Consumers now had choices, while sellers faced increased competition from other towns.

Figure 10.3   The effect of better customer transport
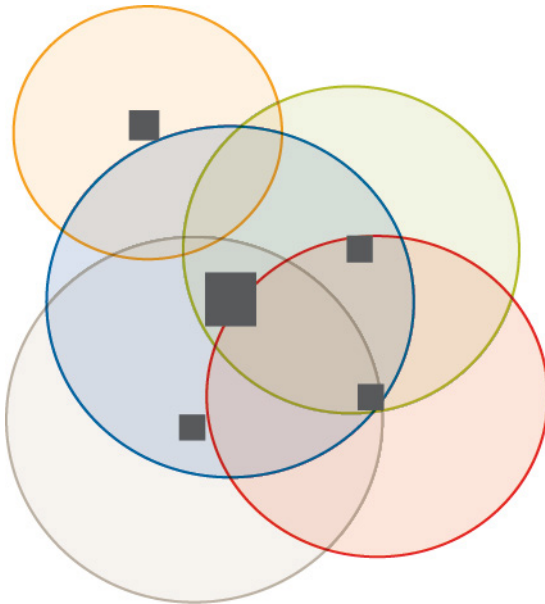
Note: Towns denoted by squares, with the market size represented by the surrounding circles.

Source: BITRE's abstract representation of town customer base areas.

The change in customer base areas described in Figures 10.1 and 10.3 had implications for suppliers also. The fundamental impact was the increase in a firm's market size, but there were differing ongoing implications for retailers, depending on the size of their existing customer base and the ease with which they could access new customers.

Like all businesses, retailers and service providers have a mix of fixed and variable costs. A large proportion of the variable costs are the wholesale price of their goods and their freight costs. Fixed costs include rent, wages, advertising, phone, electricity etc. To be profitable in the long term, the supplier must charge (on average) a margin above the wholesale cost of goods sufficient to cover the fixed costs of operation. If the turnover is relatively high, this margin can be relatively small. However if turnover is low, the amount that the retailer needs to add to each item to meet the fixed cost has to increase. Prices must be higher in order for the business to break even. For small businesses with a single operator there is often a minimum cost structure. Most retail businesses in Australian small towns of 1911 operated as a single operator, but the relatively high costs this involved would, in the absence of competition, have been passed on to customers. Businesses in larger towns are likely to have operated on a larger scale consistent with a larger customer base and/or having already been subject to competition from other businesses in the town. In either case they would have had the capacity for, or have already been, offering lower prices than their small town counterparts.

As consumer transport options increased through the twentieth century, competition increased—not because there were more retailers overall, but because consumers had access to retailers in more than one town. The level of market power of each retailer in their own town was reduced but the size of their potential market increased if they could attract customers from other towns. Over time they became part of a larger regional marketplace

with competitors that, like them, had established customer bases in their own town—a form of imperfect competition. Each retailer's customer base was influenced by loyalty, convenience and home town preference. The cost of travel to other locations gave an advantage to local shops. Customers between towns would weigh the relative costs of travel to alternate centres. The situation slowly changed from one of monopoly constrained by potential entrants to one of increasing, but still imperfect, competition.

The simple fixed and variable cost model of retail business shows the basis for different prices in regions supporting towns of different sizes. Larger towns with larger numbers of customers tended to have retailers with (at least the need for) lower margins than those in small towns. This was a product of their location near a larger number of established customers which enhanced their ability to achieve economies of scale. They had the capacity to offer lower prices (and/or make a larger profit) and had a clear competitive edge over small town rivals. This competitive advantage allowed them to attract more consumers, raising the firm's turnover and generating further economies of scale that lowered costs. In contrast, a firm in a small town found their customer based deteriorated but fixed costs remained the same.

Figure 10.4 provides a graphical illustration of the initial change brought about by the new ability of consumers to move across what were formerly separate markets. A firm positioned in a larger town (market) experiences an increase in demand (the demand and marginal revenue curves move to the right[41]) because people have been able to access their products more easily. This leads to an increase in sales and the level of extra-ordinary profit.

In contrast, the small town firm is experiencing a loss of demand (demand and marginal revenue shift to the left) because their customers are able to access the larger centre (with cheaper and a greater variety of goods). The shift in demand will reduce the extra-ordinary profit and may result in a loss to the firm.

Ultimately firms can continue to trade only if there is sufficient demand to cover costs. In the short run, sunk assets and the ability to defer maintenance and capital replacement costs may complicate the issue. However in the long run there must be enough demand to cover the cost of providing the service. Many small town firms were in this position.

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41 The graphs show a shift of the demand and marginal revenue curves. This is consistent with an even distribution of customer preferences across all locations. While in reality the assumption is unlikely to be universally held, it is probably the most likely outcome. In any case the validity of the assumption makes no material difference to the outcome of analysis.

Figure 10.4   Demand swings as markets are combined
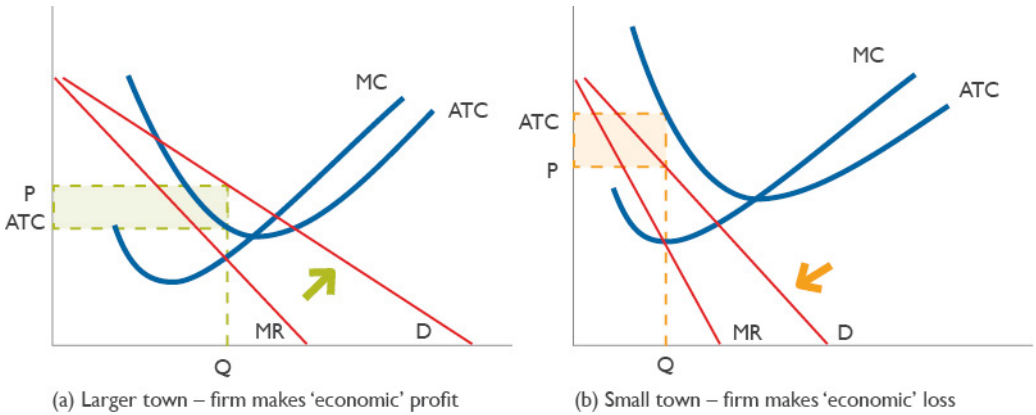
(a) Larger town – firm makes 'economic' profit   (b) Small town – firm makes 'economic' loss

Note: D – Demand curve; P – Price in the market; MR – Marginal revenue; MC – Marginal cost; Q – Quantity in the
         market; and ATC – Average Total Costs.
Source: BITRE's representation of monopolistic competition.

The longer-term impact is pressure for the exit of firms in smaller towns and growth in the size and number of firms in larger centres where established firms are generating above normal profits. This is likely to lead to competition between like sellers in larger towns and even more competitive prices at that location. This will continue until the non-normal profits have dissipated with the entry of new firms. However the new, lower price situation is also likely to reduce the number of small town businesses and increase the number and/or scale of businesses in larger towns.

Essentially, a cumulative causation process is generated from the initial stimulus, as increasing competition reinforces positive and negative feedbacks (see Figure 10.5). Other factors being equal, the result is a virtuous circle in the larger town and a corresponding vicious circle in the smaller one.

Figure 10.5   Negative and positive feedback loops for businesses located in adjacent
               small and large towns
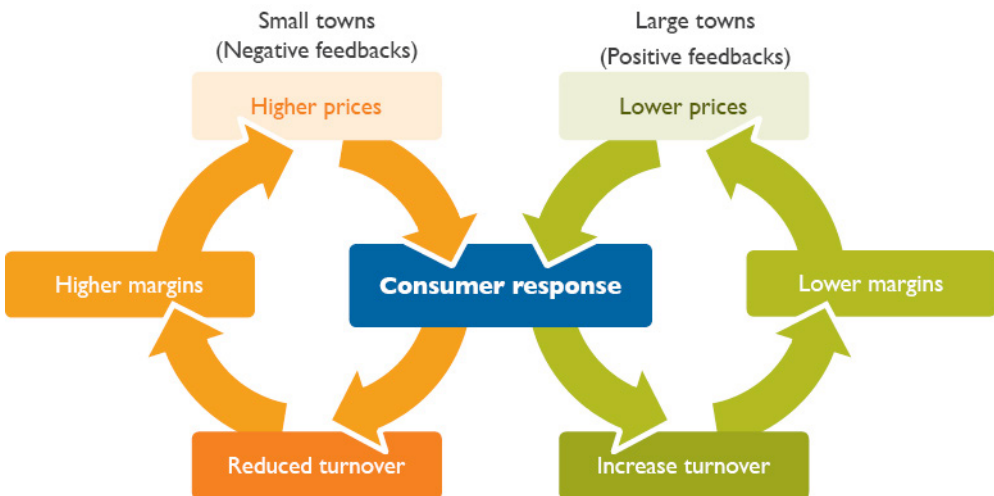
Source: BITRE's abstract representation of market activity.

For the small town business, the best feasible survival strategy is to increase mark-ups (and so prices) on its remaining sales in the hope that sufficient loyal customers will remain to maintain the business. This generates a negative loop for the small town producer—resulting in a vicious circle of higher margins, higher prices, reduced turnover and further reductions in market size and competitive advantage. The alternative—trying to maintain (or increase) turnover by reducing prices—may increase the number of customers and sales, but it will further reduce profitability, as the firm moves from the profit maximising/loss minimising position in Figure 10.4b. Unless there is a change in overall demand, this is unlikely to be successful. However, small town stores may be able to survive if there remains sufficient demand even at higher prices so that at least a normal profit can be made.

While small town businesses had a poor prognosis as regional competition increased, those in the larger centres did not necessarily reap large rewards in the long term. In reality, relatively small and distant competitors in the small towns were often replaced by competitors in the larger centres—and in many instances over time, the new higher customer base in the larger centres attracted large chain stores. Having won the battle for customers with the small towns, many independent retailers lost the war in the larger regional centres.

This analysis only looks at competition between like firms in small and large towns and only examines the impacts of scale and market size on a firm to firm basis. In practice there were many instances of small firms that were intrinsically more efficient and competitive than their larger-town rivals. Theoretically, these firms could have out-competed their opposition and over time gained the benefits of positive feedback in the market. However, as we see in the next section, in reality these firms had the odds stacked heavily against them.

Competition between towns

The theory presented above has treated each firm as a single competitor in its own industry. Bakers would compete with bakers in neighbouring towns, butchers with butchers and so on. However, common sense and the success of large integrated shopping malls tell us that consumers do not base their decisions on where to shop on the basis of a single item. This is especially true if travel costs remain an important consideration. There is an economic incentive for consumers to keep travel to a minimum by doing as much shopping as possible in a single trip. This propensity for consumers to aggregate their shopping into a small number of trips complicated the issue for sellers in small and large towns.

The 'one big shop' approach

While better personal transport with the motor car reduced the costs of travel significantly, it did not remove them altogether and the cost of accessing day to day goods and services remained (and remains) a significant factor in consumer behaviour. A study undertaken by BITRE in 2006 into regional retail pricing involved speaking with shopkeepers and consumers in 131 towns and cities across Australia (BITRE 2008 unpublished). The BITRE officers involved collected price data on a wide range of consumer items and spoke to many consumers and shopkeepers. They identified a number of consumer strategies aimed at accessing the lower prices and wider choices offered in larger centres. These revolved around reducing the number of trips and combining them with other activities. As can be seen in Box 10.1, these strategies have their metropolitan equivalents and presumably many of them pre-dated the motor car.

Box 10.1   Consumers coping with distance and travel costs—the 'one big shop' approach

The 'one big shop' approach seeks to spread travel costs over as many items as possible by maximising the benefits of shopping in each trip. The Australian Competition and Consumer Commission's consumer grocery study (ACCC 2008) found that of people that travelled less than 1km to their regular supermarket, 35 per cent undertook several small shops per week. Conversely, of those that lived 10 km or more from their regular supermarket only 10 per cent undertook small shops, while 54 per cent only shopped once a week. The 'one big shop' strategy is even more prevalent in remote areas where rural households are geared to storing groceries at home for extended periods (using cool pantries, freezers etc). The effect of this strategy is to distribute the travel and time costs over a larger number of items thereby reducing the overall costs.

A related strategy is for consumers to link everyday shopping trips with trips undertaken for other purposes. For rural people this may mean combining shopping with trips to the doctor or to a livestock sale, social events or a trip for paid work. This practice over time encouraged the centralisation of industry services hand in hand with that of consumer services. Similarly today, rural or peri-urban people commuting to larger centres naturally use these centres to access goods and services.

The 'one big shop' approach shows that consumers are aware of the full cost of purchases and consider travel costs and time as well as the purchase price.

While the 'one big shop' type strategies are widely used by consumers as they lower the cost of transport, they also affect the way consumers go about choosing where to shop. In particular, the consumer no longer thinks in terms of choosing between individual stores for particular items, but rather in terms of the most attractive group of stores that could meet their needs. This means that effectively consumers are choosing between the whole retail centres of competing towns rather than just between individual stores. In making the decision where to shop, the time and cost of travel are still important, as are the combined prices of the package of goods to be bought. However other factors also become important—the range of goods available, overall convenience, other consumer friendly services (for example air conditioning and coffee shops), even entertainment and the existence of social opportunities contribute to the 'whole shopping experience'. The cumulative impact of these factors on the consumer provides positive and negative incentives, which culminate in a single decision regarding which location (town) best meets a consumer's needs for their 'one big shop'.

The new business environment

The effect of this strategy on the behaviour of retailers has been profound. When towns were relatively isolated, they could be largely commercially indifferent to the activities of neighbouring shops in their own town. If they considered them at all in a business sense it is likely that they regarded them as real or potential competitors. However with the regionalisation of the retail market, retailing neighbours became potential partners who could assist (or not) in attracting customers to their town. Increasingly the important consideration in competition became town against town rather than firm against firm.

This had important implications for relationships between businesses. Within any town, the relationships had always been relatively complex. Some businesses were similar and were direct or partial competitors—for example two bakers in the same town or a baker and supermarket. Retailers of non-competing products did not compete for customers, but did compete for staff and for premises.

With the regionalisation of the market, these aspects of the relationships remained, but competing businesses now had a common interest in attracting customers to their town. This common interest existed even between direct competitors since the initial decision of a consumer is not to choose between them, but to choose the location in which to shop. There was a common interest in getting the consumer to choose the group of businesses in your town over the groups of businesses in nearby towns.

This led to a range of arrangements and strategies from businesses and towns, often through their local government, that were cooperative in nature rather than competitive. Such things as to:

• Undertake joint (town based) advertising and promotion as a place to live and a place to shop

• Design and implement tourism and regional development strategies based on their town

• Actively seek new regional businesses and industries in town to increase the attractiveness of the town and to increase employment and the local population

• Support and sponsor local organisations (sporting, social and charitable clubs)

• Jointly support infrastructure and events to attract customers from outside (saleyards, parks, halls, sporting fields and social facilities, festivals etc).

This lent a renewed common focus and incentive for town-based organisations such as local Chambers of Commerce and industry. They were (and are), however, often unstable as the need for common external purpose could be undermined by the need for local competition. While these activities had common benefit to businesses in town, they shared attributes of public goods in that the benefits were non-excludable. Therefore there was a temptation for businesses to 'free ride' on the efforts of their neighbours.

The impact on firm to firm competition

The increased competition between like businesses that occurred with the emergence of regional markets has already been outlined. Theoretically, businesses in larger towns would have had a price advantage over those in small towns and could out-compete them. In practice, it is unlikely that it ever happened that way. The price differentials involved and the quantities required by individual consumers would, for most items, never justify separate trips. It would simply be too costly in petrol and time for consumers to travel to the best value baker, the lowest priced butcher or their preferred supermarket if these were located in separate towns.

So what was the real effect of competition between like businesses in different towns? It was their contribution to consumer decisions about which town consumers choose to do their shopping. In price terms, we can imagine each business within a town making a relatively small contribution to the cost of one part of the basket of goods and services that the consumer wants. However, all other things being equal, the consumer is more interested in the total

cost of the package and availability. So, if there is no competition from like sellers within a town, there is an incentive for each of the single providers of goods to push their prices up to maximise their profits. This is unlikely to reduce their turnover very much if their fellow retailers in town continue to make the town an attractive place for consumers. That is, there is a capacity for firms to 'free ride' on their fellow storekeepers.

An effective antidote to this behaviour is competition within towns—which is more likely in larger towns than smaller ones. The successful towns will be those that are large enough to have competition between sellers across a range of common goods.

Implications of competition between towns

The regional market is obviously a form of competition, albeit a different one to that described in classical theory and the firm to firm model described above. Its key element is the single consumer decision to choose a centre to shop in, prior to making the trip to the shops. Given this complication, there are economic questions:

- What does this mean for the location decisions of consumers and businesses?
- Does it lead to an economically efficient outcome?
- What are the equity implications?

To answer the first of these questions, Tables 10.1 and 10.2 set out some of the issues that a prospective consumer and business might take into account when assessing a new location. These include some factors that may impact on the consumer choice of centre (Table 10.1) as well as those that impact on the businesses costs and returns (Table 10.2).

Table 10.1   Issues relating to shopping location choice for consumers

Issue	Large or small town favoured
Lower consumer travel costs	Large town (for largest group of consumers)
Large number of regionally competitive shops (anchor stores)	Large town
Greater diversity of goods and services offered by bigger and more shops	Large town
Local competition between businesses	Large town
Attractive facilities to draw customers	Large town (likely)
Attractive specialty shop	Unknown
Overcrowding/parking issues	Small town

Source: BITRE analysis.

Table 10.1 suggests that consumers are likely to choose the larger towns over the smaller ones. Larger towns mean more potential consumers will have low travel costs in terms of both time and dollars. They are more likely to have large shops to attract customers with wider ranges and lower prices. This will be supplemented by more small shop services, such as coffee shops, entertainment and the like. Some shops are likely to face competition from other like traders in their town, leading to lower prices and an added attractiveness to consumers of the town as a whole. Larger towns are likely to have other facilities (libraries, parks, government offices and services etc) that are attractive to customers. Attractive specialty shops may be located

in large or small towns. Small towns are, however, more likely to be parking friendly. This is not prescriptive, but rather suggests that on the balance of probabilities, consumers are more likely to be drawn to larger towns.

Table 10.2 looks at the options facing a prospective retailer or other service provider seeking a profitable location. As a key criterion is the prospect of a large number of potential customers, many of the issues reflect those of Table 10.1. The first three points are of this type and suggest further positive feedback as more consumers encourage more businesses and so on. In contrast, the prospective firm may be swayed by the likely lower costs and less direct competition in smaller towns and sometimes the more attractive parking and congestion environment. However on balance again it would be likely that in most cases businesses would opt for a larger town.

Table 10.2   Issues relating to location choice for business

Issue	Large or small town favoured
Larger number of potential consumers close to business	Large town
Local competition for consumers between non-rival businesses	Large town
Regionally competitive neighbouring shops	Large town
Local competition from rival businesses	Small town
Rent and labour costs	Small town
Overcrowding/parking issues	Small town
Cooperative behaviour between businesses	Unknown

Source: BITRE analysis.

The factors considered by the prospective retailer or service provider do not guarantee that large towns will be favoured, but in all likelihood, they will. The situation is more complex when businesses are already established in small towns. The ultimate winners over time will be the result of the competition for customers. It would seem that the large towns have the odds in their favour, in accordance with Figure 10.5, although as Box 10.2 shows, other factors also play their role.

Box 10.2   New industries and transport hubs

The relevant differences in this analysis are between small and large towns. This is a core distinction since it reflects the difference in the size of the customer base and therefore the capacity of retailers and towns to compete. However, it is not the only factor. Other locational factors such as the development of another industry or a location at regional road junctions have the capacity to overcome initial town size in determining the final outcome.

The emergence of a new or expanded industry in a town has the capacity to increase the number of potential customers and therefore change significantly the operating environment for retailers in that town. Therefore what may have been described as a small town quickly adopts the characteristics of a larger one.

The impact of location with respect to transport networks is more subtle. The effect of being located at a key junction or junctions of major roads is to effectively increase the potential number of regional customers that can be accessed at a reasonable cost. At such points, even what was initially a relatively small town had the capacity to access a greater number of customers than its neighbours as people gained access to cars. Such towns could also benefit from passing trade—especially those on major highways. A good example of the growth of a strategically placed centre compared to its neighbours is the emergence of Horsham as described in Chapter 5.

Figure 10.6 presents the cumulative process of people choosing where to shop by considering prices and variety and finding better options in larger centres. This raises the market base of the larger centre, providing a competitive advantage for all the firms by allowing lower prices and promoting increased variety. Conversely, small towns face lower turnover that raises prices and lowers variety for all stores. Over time this leads to a further concentration of activity in fewer, larger centres. The remaining small towns have a much diminished role, generally providing basic services to local areas on a small scale. Typically this includes small supermarkets, personal services, cafes and hotels/clubs acting as local social centres.

Figure 10.6   A consumer's decision of where to shop – town responses

Source: BITRE's abstract representation of market activity.

While in theory a more efficient firm in a small town could draw customers to it on its own terms, the expanded model in Figure 10.5 suggests that this is more difficult and unlikely. When customers decide where to shop based on their preferences across a number of goods, it is much more difficult for a single firm to influence the customer's choice of shopping centre.

Over time, this will ensure that firms will also base their decision-making on where the customers are, and so they too will tend to locate in larger towns. This suggests that the locational decisions of the store owners are likely to drive toward an economically efficient outcome based on larger centres.

Chain stores

To this point we have looked at the decisions of firms as if they were all single site operations with local owners. While this may have been the dominant firm type in 1911, in modern Australia this model has been replaced with chain stores with branches in multiple towns and big city shopping centres. These usually have multiple outlets but common supply chains, operational models and advertising and (often) prices (BITRE 2008 unpublished). These stores are considered further in the next section, but even a casual observation reveals that they are powerful competitors and their presence in a town is often an indicator of a successful retailing centre.

The rise of the chain store had a number of effects on the spatial organisation of towns. The size of operations in chain stores is larger and they are not constrained by existing infrastructure. Therefore we would expect a more dispassionate approach to location decisions and a more informed analysis of the overall commercial situation, including the factors covered above. They also have good access to the latest professional expertise—some have international as well as national experience to draw on. This suggests that they are more likely to favour larger centres or those with better growth prospects—as they have. The end result has been to confirm the dominance of larger centres over small ones as key retailing hubs.

Further flow-on effects

The analysis above suggests that retail and service provision can drive the growth of business differentially in towns, with larger towns benefiting. One of the longer-term impacts is that this business growth increases employment in the town which in the normal course of events leads to an increase in the number of people living in the town. That is, there is a 'multiplier–like' effect. This applies even if employees choose not to live in the town itself, since travel to the town for their jobs means they have easy (cheap) access to competitive shops. So, even if new employees choose to live in a small town close by, the effects will be to grow business in the larger centre. The same sort of effect will occur where a larger centre is able to attract people to the town for other purposes. In this context having educational facilities or key industrial infrastructure (livestock saleyards or machinery maintenance yards) provides a distinct advantage to a town's retailers.

Evidence for this model

The 'model' of the processes above illustrates that relatively simple and well-understood theories of firm behaviour provide a persuasive mechanism for the concentration of retail

activity in Australian towns. This, in turn, provides a rationale for the continued expansion of larger towns into regional centres and cities. However, the theoretical narrative has to be examined critically in the context of history before it is accepted. Unfortunately, to date there has been limited empirical data with which to test the narrative and in particular to allow comparisons with the descriptions implicit or explicitly associated with the spatially-based theories outlined in Chapter 2. The processes outlined in this chapter accord well with the historical record and are consistent with the basic rationale for towns (to provide goods and services for local communities).

While historically there has been limited empirical evidence, a recent BITRE survey and analysis of the spatial distribution of the retail sector in regional Australia provides insight into some of these changes that have been occurring at a local level. The following section sets out the implications of this work for our understanding of the processes at work in the development of towns in regional Australia. In particular, it shows how prices and availability of basic retail items are influenced by town size and the effective level of competition from other centres. Appendix B provides a detailed description of the survey and the technical issues surrounding the analysis.

BITRE's study of regional retailing

In 2005 and 2006, BITRE staff collected price data from 131 Australian towns and cities for over 500 goods and services representing typical household expenditure, including (in part) groceries, fuel, other retail and housing. These locations are shown in Map 10.1.

Map 10.1   Towns sampled in the cost of living study
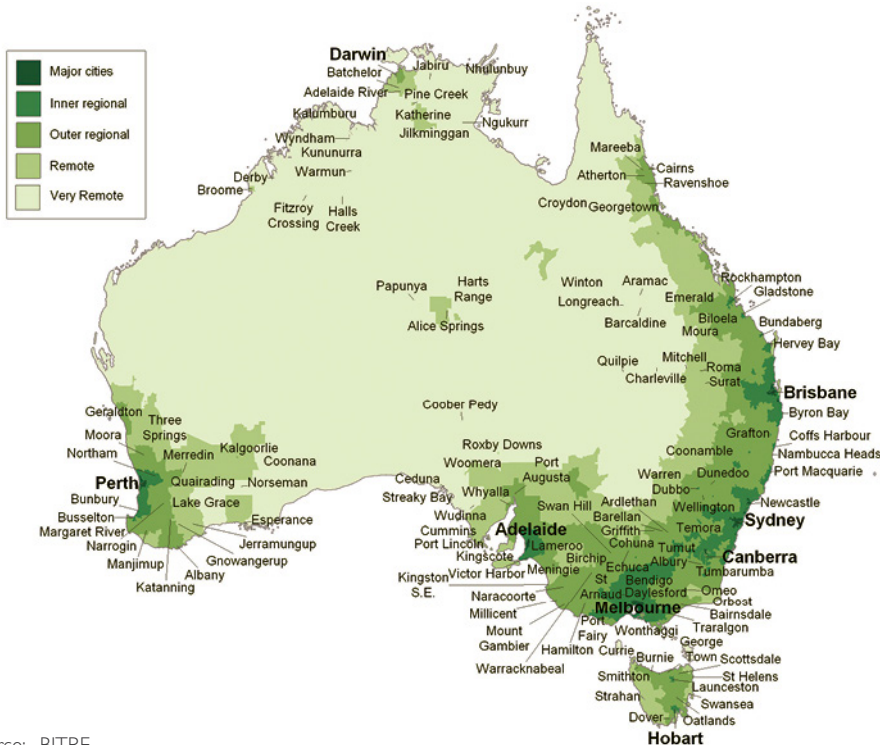
Source: BITRE.

The study measured the differences in prices across Australia to identify the underlying drivers of price difference and to observe and understand the consumer and producer behavioural responses.

From the data, BITRE developed town-based and individual store-based indices for grocery prices. Indices were created for other retail groupings (for instance, electrical and hardware) on a town basis. All data was brought to June 2006 prices using the Consumer Price Index (CPI).

Based on earlier studies and economic theory, BITRE hypothesised that the factors which would have the biggest effect on variation in retail prices (and grocery prices in particular) would be market size (population), income, distance and competition. It quickly became apparent that chain stores provided consistently lower prices and that the presence of a major grocery chain store affected the pattern of spatial pricing.

Grocery results

The base (100) for grocery items included in the index was created by a simple average of the cheapest observation for each item in each capital city. The grocery indices for the 131 towns and cities surveyed range from 95.4 to 198.0, with an average of 119.4. Almost two thirds of the towns have prices within 20 per cent of the capital city average. Figure 10.7 illustrates this distribution.

Figure 10.7   Frequency distribution of town grocery indices
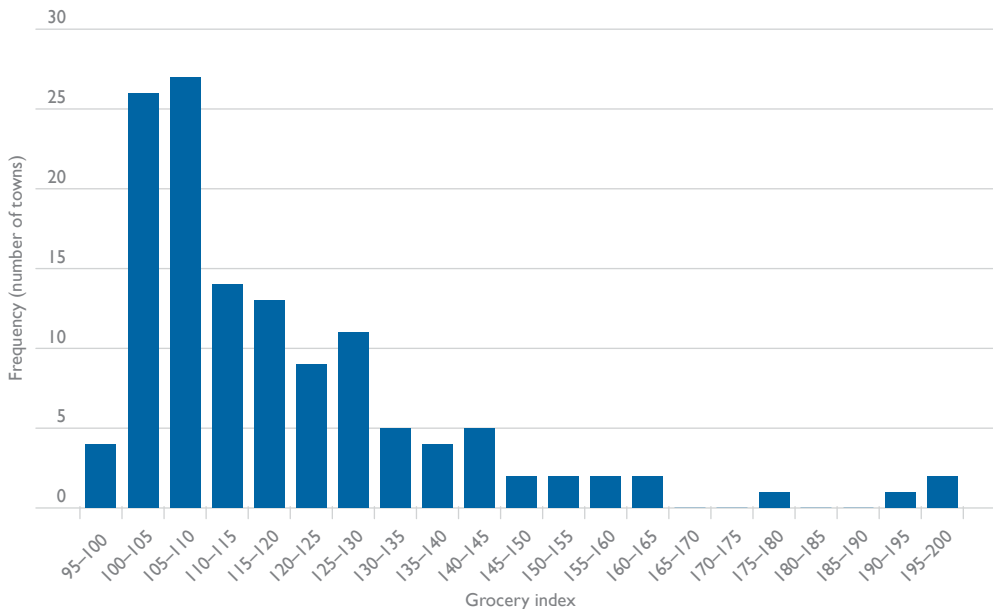
Note: The base (100) is the unweighted average of the cheapest price observation in each capital city for each item.
Source: BITRE spatial price database.

The analysis found that prices in the two major chains (Coles and Woolworths/Safeway) are relatively similar, and likewise within each chain they show only modest variation, except in a

few very remote stores. Towns with no major chains tend to have more expensive groceries. There is also more variability in the independent store pricing than the chain store pricing.

The community stores in the seven Indigenous communities visited all had high prices and low availability.

Drivers of spatial price variation

Population is closely linked to the price of groceries, but the relationship is not a simple, linear one (Figure 10.8). Price tends to decrease as population rises to a point. However regardless of whether a town has a population of 10 000 or 100 000, prices tend to be very similar. Whether this flattening out of the relationship is due to population or the presence of chain stores is not clearly apparent, since chain stores are typically present in towns with populations greater than 3000 to 4000. However there is a strong suggestion that the presence of a chain store puts a base under the price of groceries.

Figure 10.8   Town grocery index and population (log scale)
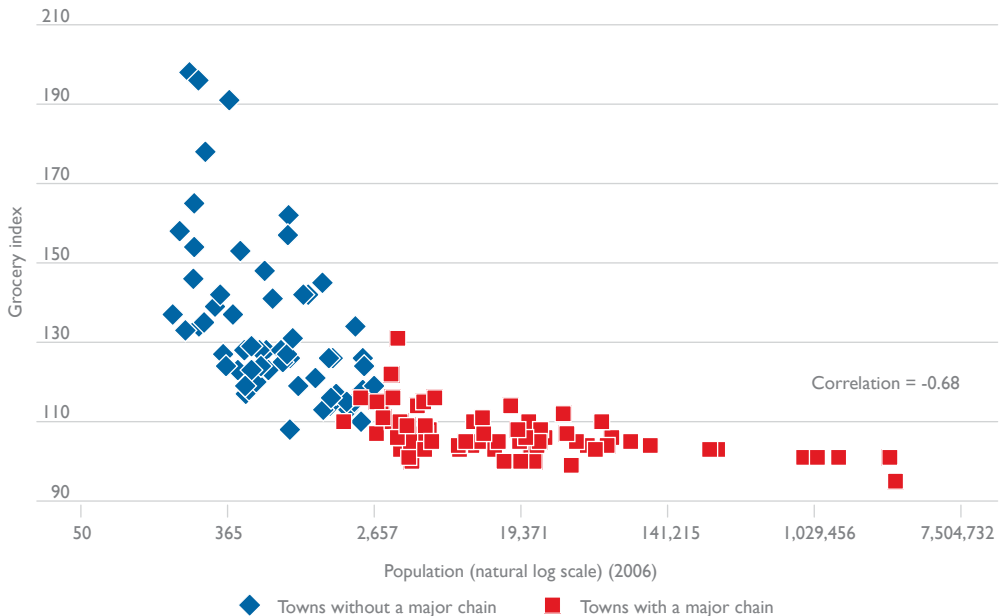
Note: The base (100) is the unweighted average of the cheapest price observation in each capital city for each item.

The log of population axis has been altered to reflect population size to enable a reader the ability to gauge the size of a town relative to the grocery index.

Source: BITRE spatial price database, ABS 2006 Census of Population and Housing (urban centres and localities population).

Other factors were also considered. Various distance measurements were correlated with the grocery index. Price tended to increase with distance from the capital city, distance from towns of over 20 000 people, distance from towns of over 5000 people, and distance from towns with a major chain store. Price also increased with remoteness as measured using GISCA's Accessibility/Remoteness Index of Australia (ARIA+) remoteness indicator. This is calculated using both distance and population elements, using distance by road to various sizes of service centres (GISCA 2004).

Income was not found to have a significant relationship with prices, either in terms of the total income of all people in an area or their average income. Population was a much better indicator of market size, suggesting that turnover was a key parameter and that the quantity of groceries consumed did not vary much with income (although the quality might).

Availability of grocery items was inversely related to price, with low-price areas having a high availability of grocery items, and vice versa. It was to be expected that towns with lower populations also have lower availability of goods since they had smaller stores and, with lower turnover, were more subject to problems with 'use by' dating. In practice, the survey team noted that this generally meant that there were fewer choice options in smaller towns (a limited number of cheese choices for example).

Figure 10.9 plots population against the availability of groceries in towns. If the log scale were applied to Figure 10.9, it would be a reflection of Figure 10.8, except that instead of prices rising when population falls below 5000 people, availability falls. There is a particular drop in the availability of groceries in towns below around 1000 people.

Figure 10.9   Availability of grocery items and population
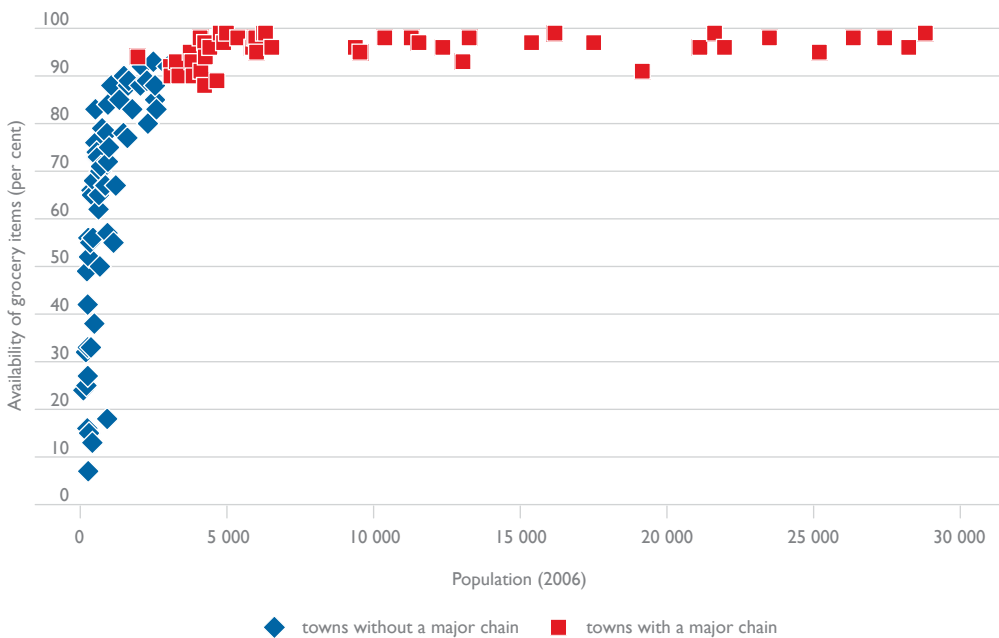
Source: BITRE spatial price database, ABS 2006 Census of Population and Housing (UCL population).

The correlation of higher prices with lower populations is absolutely consistent with the processes spelt out earlier in this chapter. The order of difference in prices (from Figure 10.8, 20 to 25 per cent would seem common) suggests a powerful motivator for shoppers to access a larger centre for their groceries. The ability to access a wider range of goods is a welcome bonus for those that wish to make the change.

Spatial modelling of grocery prices

Using the data from the survey, BITRE created reduced form regression models based on the statistically significant factors influencing spatial price differences. These provided a high degree of explanatory power while using a small number of variables.

Two models are shown in Table 10.3—an explanatory model (R-squared 0.80) and a predictive model (0.77). The latter was produced to allow prediction given that one of the significant explanatory variables in the full model (the presence of local competition within a town) was known in surveyed towns but is unknown for most other towns. These robust regression models were computed using SAS. A discussion of robust standard errors is presented in Appendix C.

Table 10.3   Grocery price index regression results

Variables	Model 1 (explanatory)	Model 2 (predictive)
Intercept	127.55*** (2.85)	132.46*** (3.04)
Log of population	−2.12*** (0.29)	−2.59*** (0.32)
Distance to nearest Woolworth or Coles store	0.04*** (0.006)	0.07*** (0.006)
Community store	66.14*** (3.72)	31.18*** (3.45)
Local competition	7.97*** (3.52)	–
Number of observations	129	129
Method	LTS	LTS
Number of squares minimised	98	98
R – Squared	0.80	0.77

Note: Statistical significance at the 10, 5, and 1 per cent levels is denoted by *, **, and *** respectively. Standard errors are in parentheses and are robust. Two observations (towns) were excluded due to insufficient data.

Source: BITRE spatial price database, BITRE derived data.

The model shows that the important factors in grocery price variation are population, the distance from a major chain grocery store (Woolworths or Coles), whether or not the location had a local competitor and if the town was serviced by an Indigenous community store (i.e., was a discrete Indigenous community). These four factors explain 80 per cent of the variation in grocery prices across Australia. All factors are significant at the 1 per cent level[42]. The predictive model, which does not consider local competition, still explains 77 per cent of the variation.

Figure 10.10 provides a visual representation of how the models work. For towns with major grocery chains (Woolworths or Coles), the estimated index decreases with log of population. For towns with no major grocery chains, the estimated index decreases with log of population and increases with distance from the nearest town with a Woolworths or Coles. It also increases

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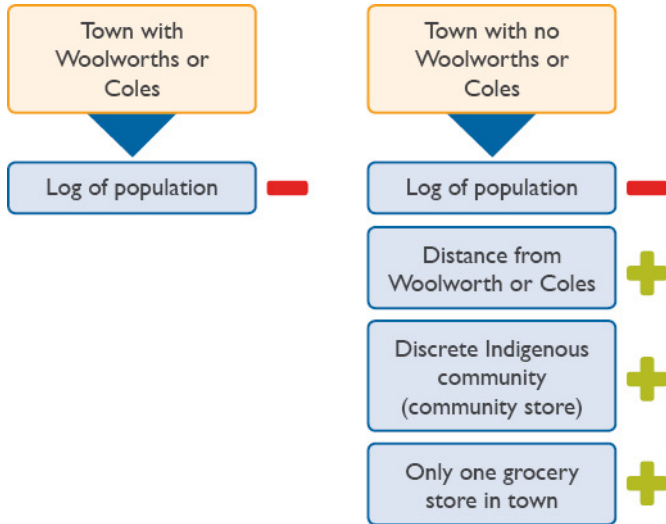42   The estimates of the models can be written as:

   Explanatory grocery index = 127.55 – 2.12 (log of population) + 0.04 (distance to nearest Woolworths or Coles store) + 66.14 (community store dummy) + 7.97 (no local competition dummy)

   Predictive grocery index = 132.46 – 2.59 (log of population) + 0.07 (distance to nearest Woolworths or Coles store) + 31.18 (community store dummy)

   For instance, a town with a logged population of 7 (approximately 1100 people), 100km from a Coles or Woolworths, with a community store would have a synthetic index of 152.5.

if there is only one grocery store in town and even more if the town is a discrete Indigenous community, which is likely due to factors associated with extreme remoteness.

Figure 10.10   How the model works

In the explanatory model, increasing the log of population decreases the estimated index. The economic rationale for population reducing the cost of groceries is that higher population allows higher turnover. This reduces the per-unit mark-up required to cover fixed costs. Higher population also increases the potential for other stores to enter the market, resulting in increased competition and less opportunity for monopoly profits. Additionally, population above approximately 3000 people means that a chain store is likely to be present. As noted earlier, chain store pricing tends to be relatively low and fairly uniform across stores. This data directly supports our earlier contention of the relative advantages of stores in larger towns compared to their smaller town rivals.

A greater distance from a major chain store increases the price index. The fact that a distance variable is significant reflects the importance of consumer access to competition. It also confirms that consumers consider the total cost of shopping—including travel and transaction costs. Hence, if the total cost is higher for the regional alternative, people are willing to pay higher prices locally but potentially a lower total cost. Again this supports the model outlined earlier in the chapter regarding competition between towns.

It is entirely expected that the absence of a competitor in a town increases the price level significantly. This is anticipated in the competition model and provides evidence of the presence of market power in smaller towns.

Being an Indigenous community with a community store increases prices. The community store variable is an indicator of extreme remoteness. The Indigenous communities in the model were distant from other towns, often accessed by dirt roads, and generally almost no threat of entry by other stores. It should also be noted that many in these communities have limited access to transport (some areas are often cut off completely in 'the wet'). Again this emphasises the

price impact of the lack of competition in small communities, even where stores are not run with a strictly profit-maximising objective.

Overall, the model tends to emphasise factors linked to the demand for groceries and consumer reactions. This downplays the importance of supply factors (such as transport) in pricing. While these factors are no doubt reflected in long-term profitability and viability, the models suggest that the price levels of those stores that do exist reflect competition and market power impacts. This is highly consistent with our view of the increased regional competition model of Australia's small towns in the face of improved consumer transport.

Because Coles and Woolworths tend to price fairly uniformly across stores, the towns where a major chain is present likewise tend to have uniformly lower prices, regardless of remoteness. The synthetic estimates (Map 10.2) based on the predictive model reflect this with relatively low prices in remote but well-populated centres like Broken Hill (NSW), Mount Isa (QLD) and Broome (WA). This means that people in small, remote towns that use these places as service centres benefit from lower prices.

Prices also tend to be cheaper in coastal areas, reflecting the more populous nature of these areas, while the sparse, less populated inland have higher prices, with the notable exception of the larger service centres discussed above.

Population and price linkages

A comparison of Map 10.2 with Map 10.3 (a reproduction of Map 4.9) visually confirms the very strong links between population and lower prices. It is quite sensible of course to argue that it is the nature of this link that is the key and that correlation does not equate to causation. This suggests there are competing explanations for the link. Likely explanations could be:

1. Population causes lower prices—a higher population allows retailers to lower costs through economies of scale and higher turnovers while being subject to local competition; alternatively

2. Lower prices and greater availability attract greater population—people choose where to live based on the price differentials shown on Map 10.2 which leads to increased population in low price regions.

In practice, both these scenarios are true and work together. While we are talking about where people live rather than where they shop, the arguments set out in the first part of this chapter and summarised in Figure 10.6 encapsulate many of the incentives and processes involved. These arguments incorporate the incentives and actions of both producers and consumers as they play out over time. They provide a persuasive explanation of the powerful forces needed to drive the transition from the 'flat' 1911 spatial pattern to the ubiquitous centralisation of 2006. They also explain the inextricable linking of population and price.

Map 10.2   Synthetic estimates of grocery prices 2006, Australia
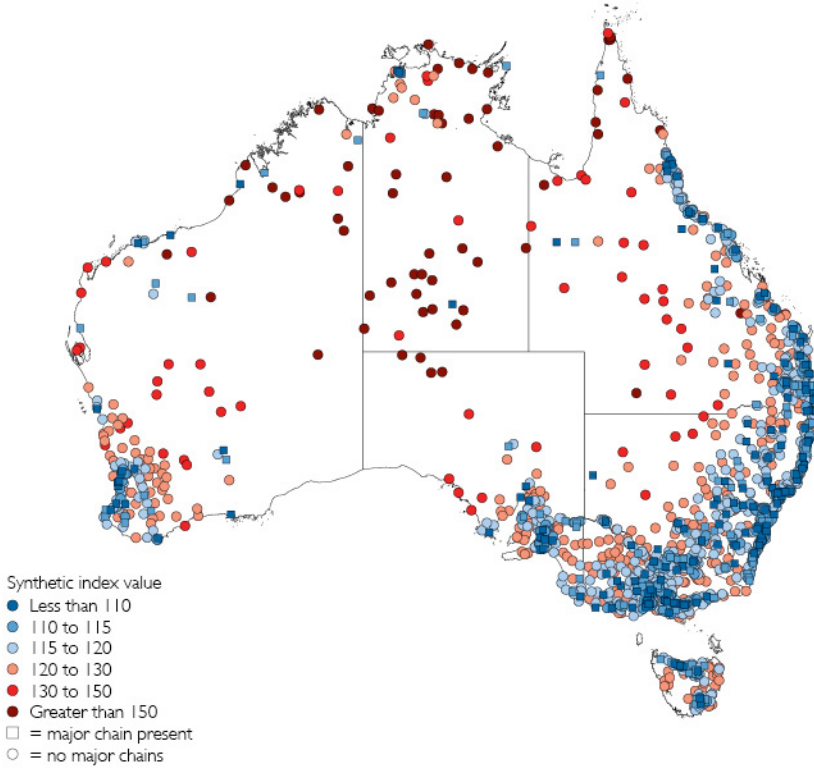
Note: The base (100) is the unweighted average of the cheapest price observation in each capital city for each item.
Source: BITRE projections based on modelling of spatial price database data.

Map 10.3   Australian town populations at the 2006 Census
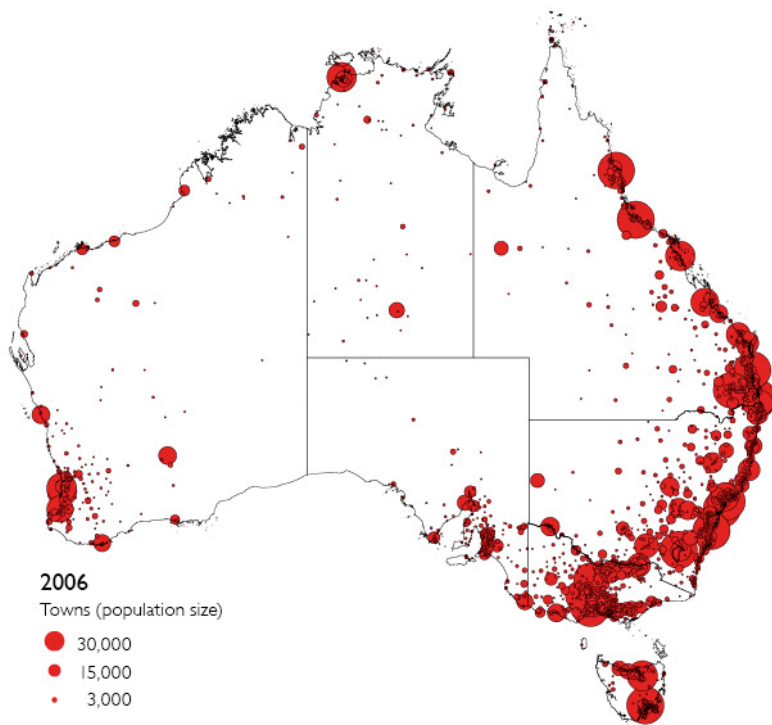
Note: The five major capital cities have been excluded.

Source: BITRE analysis of the ABS 2006 Census.

Variations in grocery sub-categories

From the BITRE survey, indices were also calculated for sub-categories of groceries in stores. These included staple items of bread and milk, fresh groceries, dry packaged food, frozen food and non-food groceries. Table 10.4 sets out summary statistics for these indices. Histograms are provided in Appendix D. Fresh groceries showed a high degree of variation, while dry packaged food showed more price variation in some categories (notably sugar and flour), and less in others. Frozen food was comparable to the grocery index as a whole. Non-food groceries tended to have less variation than average.

Table 10.4   Store-based summary statistics for grocery sub-categories

Category	Mean	Minimum	Maximum	Range	Standard deviation
Grocery index	122.2	104.6	198.0	93.5	15.7
Bread	135.4	77.3	262.3	185.0	33.2
Fresh milk	114.2	77.2	246.5	169.3	25.1
Fresh cream	126.1	84.5	236.0	151.5	29.0
Fresh fruit	129.7	38.3	210.4	172.1	26.4
Fresh vegetables	138.9	52.9	449.2	396.3	31.6
Poultry	124.6	79.4	226.3	146.9	22.5
Fresh eggs	118.6	50.7	196.1	145.4	22.9
Cereals and pasta	117.4	97.4	247.2	149.7	19.5
Tea and coffee	118.5	95.1	183.5	88.4	14.6
Sugar	123.6	79.4	265.3	185.9	30.6
Flour	124.6	82.2	266.6	184.3	26.9
Frozen vegetables	116.6	93.2	195.3	102.0	17.8
Cigarettes	108.7	79.1	129.1	50.0	6.3
Toiletries and cosmetics	117.3	87.8	191.3	103.5	15.2
Cleaners, paper products and food wraps	116.0	92.9	187.6	94.7	15.9

Source: BITRE spatial price database.

This increased spatial variation in prices for fresh groceries is consistent with the notion that higher prices may be charged for these goods in isolated areas given the reduced opportunities for consumers to access timely alternate supplies from other sources in larger centres. Retailers in smaller towns increase their margins where they can (in fresh food) while keeping prices low for items where consumers can store items if they purchase them in larger towns.

Other goods and services

The prices of other (non-grocery) retail goods which did not have a strong local service component were grouped into the categories of household items, hardware, electrical, and takeaway alcohol on a town by town basis. The indices for these groups were closely correlated to the grocery index, although some of these categories have wider price variation than groceries. This means that the pattern of spatial price variation for groceries also tends

to hold for a number of other retail categories. The parameters in the grocery model explain between 45 and 55 per cent of variation within these categories.

On the other hand, local services (such as sporting fees and cinema tickets) and those goods which have a high local service component (such as bar and restaurant and cafe food prices) are not correlated with the grocery index. Table 10.5 summarises some statistics for all of the categories.

There are two points here. Firstly the correlation of household items, hardware, electrical and takeaway alcohol suggest that the spatial price patterns for groceries are by and large repeated for these items thereby reinforcing the grocery impact. Graphs plotting prices of these items against population are included in Appendix D.

The second issue is the complete lack of correlation with prices for local services and bar prices, suggesting that goods with a high local labour component do not follow the normal patterns with respect to population, distance and remoteness (again, see Appendix D). This could reflect a number of things:

• the inability of consumers to store or access these items in a larger centre without making a personal trip (thereby incurring the full trip cost for a single item, negating the 'one big shop' benefits in a similar way to the fresh food argument above),

• the preference for people to engage in social activities close to where they live, and

• the lower rents (and sometimes labour costs) typically found in small towns.

Table 10.5   Town based summary statistics for other goods and services

Index	Mean	Min	Max	Range	Std Dev	Correlation (groceries)	Correlation (ARIA+)
Groceries	119.4	95.4	198.0	102.6	19.7	–	0.76
Household items	160.3	86.6	353.9	267.3	56.7	0.72	0.66
Hardware	129.4	93.2	233.6	140.4	22.0	0.71	0.63
Electrical	153.5	90.8	351.4	260.6	55.9	0.75	0.59
Takeaway alcohol	114.1	91.2	179.0	87.8	15.2	0.75	0.62
Bar prices	89.8	61.9	122.0	60.1	13.0	–0.10	0.07
Local services	99.4	66.4	151.9	85.5	12.1	0.04	0.10

Note: The base (100) is the unweighted average of the cheapest price observation in each capital city for each item.
Source: BITRE spatial price database, GISCA's ARIA+.

This pattern is consistent with the logic of stores in larger centres being able to out-compete those in smaller centres. Better consumer mobility and capacity to condense shopping into a single 'big shop' has allowed producers to increase turnover and pass on reduced prices to consumers. It would seem that where the nature of the goods does not allow for the 'big shop' option because of short spoilage times or a need for personal service, small towns remain competitive, and even preferred suppliers.

Conclusions

This chapter sets out theory and evidence for changes to the way that consumers access goods and services as a driver of the change away from small towns and toward regional centres. The core of this argument is the development of regional markets in the delivery of goods and services as a result of the more widespread use of the motor car by consumers. In the light of the extent of change from 1911 to 2006 shown in Chapters 4 and 5, it is unsurprising that a significant mechanism of change revolves around retailing which is a core function of towns. The delivery of goods and services has always been the fundamental economic role of most towns and it therefore is logical that significant and persistent changes to these delivery mechanisms have resulted in similarly significant changes to towns themselves.

What has been described is a powerful mechanism or process of change brought about by changes in transport—particularly advances in personal mobility and access to markets brought on by the widespread acquisition of cars and road improvements. This was facilitated by advances in technology and the increased wealth of the mid to late twentieth century.

The process most often amplifies an initial advantage that one town may have had over its neighbours—population size in 1911 often reflecting that advantage. This commonly resulted from some other geographical or historical factor such as its location next to an ore deposit, harbour or other geographic feature that provided some industrial advantage. Some towns were advantaged by a history that placed them at junctions of railways, roads or in proximity to great amenity or close to a major city. Whatever the cause, a seemingly small initial advantage can be amplified to create large regional centres, while neighbouring towns struggle. While size was often the key to this difference, Chapter 5 shows that a town such as Horsham was able to take advantage of its central location on a road hub and its distance from other regional centres; Hervey Bay has been able to establish a large customer base because of its coastal location; and Whyalla established a customer base on the back of heavy industry. These are not exceptions—all have become centralised locations under the same process—but rather variations that show that while size is often the important consideration, the real competitive advantage goes to centres that are able to successfully attract enough customers in the long term.

A key finding of this chapter is that centralisation, at least in part, was the product of increased competition as consumers became more mobile. A less intuitive characteristic is that a significant component of the competition is between towns rather than between firms. The concept of cooperative behaviour between similar firms is usually regarded with some concern. However, in this case it may be that cooperation between firms in the same town leads to a positive outcome for consumers.

The strong trend to centralisation is almost universal in Australian regions and this chapter describes some of the processes. The significant impacts of industry and investment have already been considered in Chapter 9. When considering the totality of centralisation, the arguments in these chapters augment the discussion of history, geography, and amenity presented in Chapters 8 and 11 which further consider the drivers and constraints of settlement pattern change.