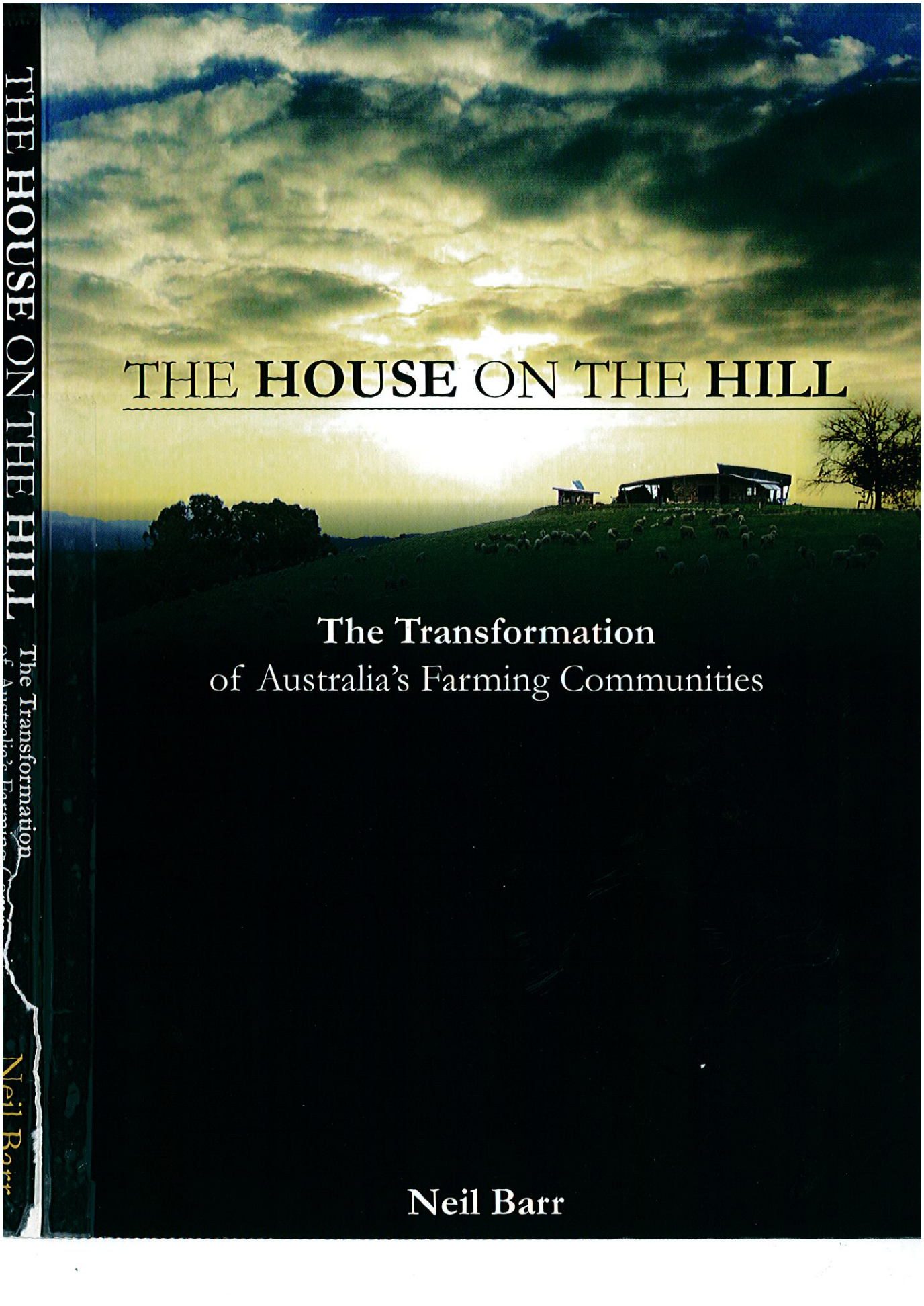
THE HOUSE ON THE HILL
The Transformation
of Australia's Farming Communities
Neil Barr

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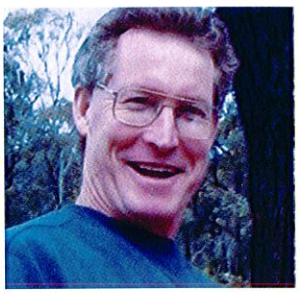

Neil's first professional position was on a team studying the social impact of low dairy prices upon the dairy farmers of Gippsland. That was in 1977. The stories of those dairying families resonated with Neil's own experience of life on a small farm. This was a career-shaping event. Over the following decades his work as a social researcher has returned again and again to the situation of farm families under pressure to respond to competition from other farmers in Australia and across the world. This book is a result of thirty years of pondering over the joy, despair and paradoxes of farming life.

THE HOUSE ON THE HILL

The transformation of Australia's farming communities

by Neil Barr

Land & Water Australia
in association with
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Dedication

In a previous book I wrote a dedication to the next generation of my family. This dedication is instead a recognition and a thanks for my parents Frank and Esma Barr, and the generations that came before them. Their struggles and successes in farming have been my inspiration.

Golden Gully near Bendigo— a world turned upside down by gold diggers

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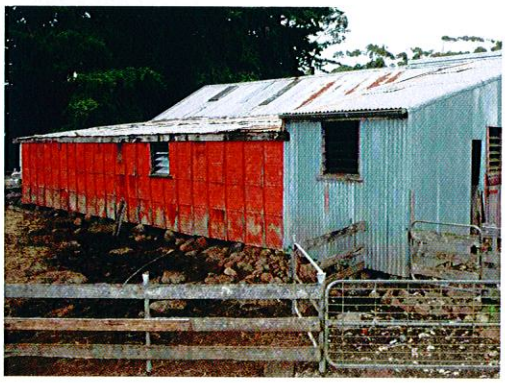
FIGURES

ACKNOWLEDGEMENTS

There are many other people who contributed to the writing of this book. Some did so knowingly by discussing the draft or searching for photographic opportunities. These were my professional colleagues. Many more contributed without knowing. These were the members of the rural community who have told me their stories over the past twenty years. You are obviously too numerous to mention. Finally, Land & Water Australia must be thanked for enabling this project to be launched. Their confidence in me and their continuing support has been greatly appreciated.

Once a shop, now a home



The woolshed will last this generation out (photo Roger Wilkinson)

'glory box'. Today rabbit is gourmet game meat, but in the 1950s it was disparagingly referred to as 'underground chicken'. When the first take-away chicken franchise appeared in the local town some years later, we were convinced they were selling rabbit dressed up as chicken.

At the end of the road were three properties; that of my parents and their two immediate neighbours. As an omen for a successful financial future, it was perhaps best to overlook these blocks. The Rogersons grew raspberries, but the business was clearly in a terminal phase when my parents arrived in the district. Within a few years the harvesting of berries was limited to the rampant wild blackberries on both abandoned properties. On the other side of my parents' farm were Billy Bourke and his mother, 'Granny Bourke'. Their house was a dirt-floored shack leaning on an alarming angle halfway down the hillside. I only learnt of the significance of the lean and the location many years later. Apparently Granny Bourke's husband had taken a dislike to the previous occupants of my parents' property. His solution was to hitch the bullocks to his house and drag it down the hill to get some peace and quiet. The two continued living in the ramshackle building for another decade. Unlike her husband, Granny Bourke enjoyed the company of neighbours. When my mother and I arrived, it was Granny Bourke who took on the self-appointed role of mothercraft nurse for the new mother in the district. As a young child I was never short of a carer. At five years of age I was walking the two kilometres to school alone, stopping at various neighbours on the way.

This was the farming community in which my parents chose to live. In 1955 no one was wealthy by a contemporary yardstick. Many were poor. There was no electricity, no telephone, no mains water, few cars and few aspirations beyond making a success of the farm. This community was 25 kilometres from the heart of Melbourne. Fifty years on, in April 2005, my father picked the last fruit from his last one-acre block of peaches—all that remained of his 20 acre orchard. It is also all that remains of the orcharding history of this little community. When this last acre of trees was grubbed out a few months later, there were no productive trees remaining from the orchards that once covered the landscape. When my mother and father drive down the road today, they traverse the divide between residential and rural-residential planning zones. In the residential zone, most houses are double storeyed, often mock Georgian. Large four wheel drive vehicles stand in driveways. Ironically, the old dirt track has been asphalted for many years now. On the other side of the road, planning controls designed to protect the rural nature of the landscape ensure the residential housing blocks are no smaller than ten acres. The community on these large blocks is notable for having the highest average income of any postcode area in Victoria.

The fate of the farms that my mother and I drove past in 1955 tells a story of the dramatic changes that have transformed the farming industries of Australia in my lifetime. The Dockings retired from the dairy industry soon after my arrival, having reached an age when the prospect of milking cows for a living no longer seemed appropriate. The requirement to convert to a stainless steel whole-milk supply system doubtless would have encouraged them to retire. They would not have been able to afford the cost of the conversion. Other district dairy farmers left with the crash in prices on Britain's entry into the European Economic Community. A younger dairy-farming family living across the valley shifted to Pakenham where land was cheaper and they could build a larger dairy herd. The advancing front of suburbia overtook them in their new location three decades later.

The Dockings' farm was purchased by the Richardsons, who operated an egg farm. Over the next ten years we were to visit their sheds regularly to buy eggs. My memories are of seemingly endless

cages of birds and boxes of eggs, though my mother only ever purchased the 'cracks' put aside for the 'locals'. I suspect the sale of cracked eggs was illegal even then. The land surrounding the Richardsons' poultry sheds was later leased to my parents for grazing beef cattle. I was to spend quite a few hours after school droving cattle between this and other paddocks along the track. The egg farm was unable to keep pace with the relentless escalation in the farm size required to remain financially viable. It was eventually sold and the property transformed into a rural residence.

The Musgroves' meat-poultry business was purchased by a feed-grain company and became part of a vertically integrated farm agribusiness. Eventually the facility was closed as part of a company rationalisation. The decision would have been in part motivated by the difficulties of maintaining an intensive animal industry in an increasingly residential community.

Mr Fisher, the door-to-door greengrocer, died of a heart attack while working. His death was the end of his business. It would not have lasted with the rapid changes in women's employment and the adjustments in the retail industry. With more and more families gaining second cars, and increasing numbers of women entering the workforce, the market for this old-style door-to-door service industry was rapidly dwindling. Today even the traditional strip-shop greengrocer is under intense competition from the convenience offered by supermarkets.

The raspberry farm was burnt out by a bushfire in 1962. The owners never returned to live on the property. Eventually it was purchased by my parents as they strove to increase the size of the orchard towards a scale that would enable my father to leave his painting trade. The Bourkes' orchard was in disrepair when I was first brought home in 1955. It was never rebuilt, and the property was abandoned for many years. The blackberries provided my parents with a secondary income source in their more desperate days.

The larger orchards were among the last remaining farming businesses in the district. Eventually each family succumbed to the temptation to sell the land for rural-residential development. The first to sell were the farms within the boundaries of a new residential zone. Today this land is covered with quarter-acre housing blocks. The last to sell were the farms within the rural living zone, created to preserve the rural character of the landscape. After a number of years of fighting for a rezoning, the Colella family made the decision to subdivide their orchard into ten-acre blocks. The economic position of the moderate-scale horticulturalist was becoming increasingly difficult with the transformation of the retail fresh-produce business from a world of many small-scale greengrocers into a retail world dominated by two supermarket chains. None of the next generation wished to continue the business. The final straw in this decision was the tragic death of one of the family in a tractor accident. The loss reverberated through the remaining 'old' farming community. It marked the end of the farming era for this locality. It had been absorbed by the city.

The social and economic forces that transformed my childhood community have been transforming communities across agricultural Australia. This book is an exploration of these social and economic forces and of the new rural landscapes they are creating. The story begins with the fundamental force of innovation in agriculture. This forces farms to grow larger, and the number of farms to decline. It creates older farm communities by encouraging the young to migrate to the cities. The speed of this transformation is accelerated by changing consumer behaviour and the tightening of the food-supply chain that shifts foodstuffs from the farm

to the supermarket. Overlaying this are the changing social values of our society as more of the population becomes interested in protecting the environment, the welfare of animals and in particular, owning their own patch of the countryside. The influence of these social and economic forces varies across locations and between industries, creating a patchwork of new social landscapes across rural Australia.

Suburbia's hard edge viewed from the back paddock.

Orchard community re-union 2001 (photo Ian Barr).

2 TECHNOLOGY AND TRADE

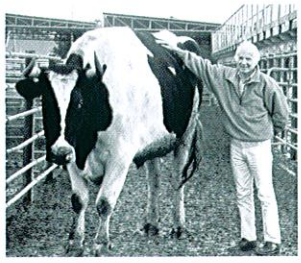
Farming's shifting goalposts

To understand the changes occurring in rural Australia, one must start with farm commodity prices. Without an understanding of the behaviour of farm commodity prices, little else will make sense. This is the keystone on which this book is built, so that is where we start.

Anyone planning a career as a farmer must expect and plan for declining commodity prices over the long term. I am not sure how well my own father understood this challenge as he contemplated that derelict orchard and his hopes of becoming a full-time farmer. My parents had purchased their 10 acre property in 1953 from the neighbours who precipitated the Bourkes' downhill dwelling drag. They had visions of re-establishing a productive stone-fruit orchard that would support the family and allow my father to leave his trade to become a full-time farmer. Local opinion amongst the farm community was that 10 acres of productive orchard was sufficient to earn a reasonable family living. It took ten years of saving and work, but by the mid-1960s the ten acres were planted with a selection of varieties of peach, nectarine, cherry and plum trees. The diversity of varieties spread the harvest period over four months, ensuring most labour requirements could be met from within the family. This was a point neither my brother nor myself fully appreciated as we watched the trees being planted. That was our summer holidays being booked for the next decade at least.

When I entered secondary school in the late 1960s, most of the trees had reached commercial maturity. But something had happened over the years of orchard establishment. The price of fruit had gradually fallen. In the same period, the cost of growing fruit had risen. Local farming opinion had shifted. My parents were told a good family living now required 15 acres of orchard. And so my parents followed the well trodden path to the bank manager, took a loan and purchased the adjacent 10 acre property that no longer grew raspberries. Another period of orchard planting ensued, and within a decade the area of mature fruit trees had expanded to 18 acres. Again, fruit prices had fallen and farm costs had risen. Local opinion had also changed. Thirty acres of orchard was required for a good family living. My father and mother realised they were on a treadmill with the goal of a family living remaining tantalisingly out of reach. Land prices were rising as the edge of Melbourne approached. Buying another 10 acre block was out of the question. The dream of full-time farming was abandoned till retirement. Until that time, my father would paint houses during spring and autumn, prune trees in winter and pick them in summer. In retirement he now farms beef cattle. I am not sure how large an orchard would need to be today to provide a 'reasonable family living'. Once you are out of the race, you lose interest in following the benchmark.

Our family experience is common across farming Australia. A colleague sitting in the office next to mine read the previous paragraphs and responded with his own family farming folklore. In the 1950s his father sheared and sold 200 sheep and made enough money to purchase a second-hand tractor, a two-year-old ute, and a new stove and fridge as an investment in domestic harmony. Today a similar sale might return a ten-year-old ute, no tractor and much less domestic harmony. Families on grain farms would be able to describe the shifting farming goalposts in terms of how many tonnes of wheat were needed to buy a car then and now. Dairy farmers would describe how



The family picking peaches in summer—in retirement my father is finally a grazier (photo *Border Morning Mail*).

many litres of milk they needed to sell then and now to purchase the family groceries. Historians would recount how the Selection Acts of the nineteenth century, and the soldier settler schemes of the twentieth century, generally 'failed' because newly established farms quickly became too small and those who survived did so by buying out their neighbours. Whatever the industry, whatever the time, it seems the goalposts have always been shifting against the farmer. Why is this so? And must this always be so?

Australian farmers double output in thirty years

We do know that ever since that first crop was purposely sown, farmers have been searching for the means of growing more than they did last year. This search for productivity fuelled the growth of complex societies. We also know that news of better farming techniques in similar climatic zones spread across the world. For much of the history of agriculture the rate of change in agricultural systems was slow, with ideas travelling east and west across similar climatic zones as peoples migrated.[1] Four hundred years ago the rate of change accelerated with the advent of the agricultural revolution in Europe. Since that revolution, the successive development and diffusion of new technologies in agriculture, food processing and transportation have continued to transform agricultural production.

Australian farmers are caught up in this. The Australian grain industry has been steadily increasing production for over a century. The first Australian wheat farmers used simple farming techniques and mined their soils of nitrogen and phosphorus. After the first few years of settlement, cropping farmers generally noticed declining yields. The soil exhaustion problem vexed the scientific establishment. In 1898 the English scientist Sir William Crookes announced to the British Association for the Advancement of Science that the world was at risk of running out of wheat-growing land within thirty years. In making his calculations, Crookes excluded Australia, as he believed it would never export wheat due to its rapidly declining soil fertility and unreliable rainfall.[2]

But even as Crookes was raising the alarm, William Farrer was breeding new wheats for a drier climate, the first superphosphate was being sown with wheat and rudimentary crop rotation was being promoted to farmers. When the great Federation drought ended in 1902, crop yields began to rise. Since then, the long-term trend has been for ever-increasing yields per hectare, as cropping

farmers have adopted improved farming techniques. Wheat yields today are two to three times as high as those achieved by the first crop farmers on virgin soil.

What is true for the cropping industry is true for Australian farming as a whole. In a recent report the Australian Productivity Commission noted there has been an average annual 2.7% increase in agricultural output in Australia since the 1960s.[3] In 2005, Australian farmers produced twice as much output as Australian farmers in the 1970s. Impressive as this achievement may be, it is not exceptional. Farmers in many other parts of the world have achieved similar increases in yield. These productivity increases are an achievement created by farmers, scientists, engineers and farm advisers.

Does money in your pocket make you hungrier?

While agricultural output has been increasing through time, the market demand for agricultural products has generally risen more slowly. This means that through history, markets for agricultural commodities have had a tendency to over-supply, punctuated by brief periods of high demand. When there is over-supply, the price of agricultural products falls. Even quite small levels of overproduction can lead to much greater decreases in price. I learnt this watching the interaction between growers and buyers in the wholesale fruit market. Peaches are a perishable commodity. From picking to eating they have at most two weeks of life. Some varieties have much less time. A grower sitting in the market with unsold boxes of fruit realises that if he takes them home at the end of the day, they may be unsaleable by the time he returns. There is every incentive to lower the price below the cost of production to minimise his losses. Every producer faces similar incentives, and the price falls. The greengrocers would perhaps buy more fruit and sell it cheaply to their customers. The customers may buy peaches because they are cheaper. But there is a limit to how much more they will buy. While peaches may still be a discretionary purchase, a lower price is likely to stimulate consumption. But it is not the same for wheat. Are you likely to purchase more loaves of bread because there are more loaves of bread on the supermarket shelf or because the price of bread has recently fallen? There is a limit to how much we can eat, although the advertising industry has been effective in encouraging many of us to eat maybe more than we need for a healthy lifestyle.

One way of looking at the 'limits to eating' is to think about how much of your next pay rise you would spend on food. If you were lucky enough to receive a 10% pay rise, would you increase your food expenditure by 10%? You might not have thought about this question before, but agricultural economists have been thinking about it for many years. A recent estimate is that the average Australian would increase food expenditure by 1 or 2% in response to the windfall of a 10% rise in income.[4] Much of this increase would be in purchases of meat, dairy produce and fish.[4] Fruit and grains expenditure would change very little, perhaps even falling as consumers substituted higher-protein food. Demand for grains and fruit in an advanced economy is said to be inelastic. Demand for the produce does not change greatly, regardless of price. Small levels of oversupply lead to large falls in price.

The good news for the nation is that because of the falling price of food, Australian household expenditure on food and fibre has fallen from 22% of household income in the 1960s to 14% today.[3] Most Australians can afford to eat good-quality food. For the farm sector, the declining price of agricultural products has a second, very important, knock-on effect. Despite the volume of agricultural production more than doubling since the 1960s, agriculture's share of the economy

has fallen from 14% to 4%. Declining prices for agricultural products have been the major reason for this decline. If prices had remained constant, agriculture would today account for 12% of the economy, a fall of only two percentage points over forty years.[3]

So if the farm sector is seeking to sell its increasing volume of production, it needs to look beyond Australia's shores. It is in the less developed world that a greater proportion of any income rise is likely to be spent on food. Economists estimate that in Vietnam a 10% increase in income would be expected to increase food expenditure by 6%.[5] This helps explain why the Australian farm community is excited by the prospects of economic growth in India, China and South East Asia. Economic growth in these countries will stimulate a much greater increase in demand for food than in Australia, Europe or North America. In the United States a 10% income rise would stimulate less than a 0.5% increase in food expenditure, and the farmer share of increased expenditure may be very little. Most of this increase in spending would be captured by the food-processing and retail sectors. This is a theme to which we shall return later.

While the price of farm produce falls, the price of farm inputs doesn't fall as fast

The result of gradually increasing farm productivity and inelastic market demand is a long-term real decline in the market value of agricultural products. Most agricultural producers have little market power. They are many in number and each produces a very small proportion of the total farm production. The producers of agricultural inputs do not share this problem to nearly the same extent. This means that the prices of the business inputs farmers purchase do not all decrease at the same rate as the decline in the prices of farm produce. The relative price of wheat in relation to the Australian price of chemical and fertiliser inputs used to produce wheat is shown in Figure 1.[6] In the twenty-five years between 1976 and 2001 the real price of chemical inputs used on wheat farms changed little and fuel prices rose, while the real price of wheat halved.

The relative changes in prices paid by farmers for farm inputs and prices received for farm produce is expressed in the form of a 'terms of trade' graph. This is a measure of the ratio

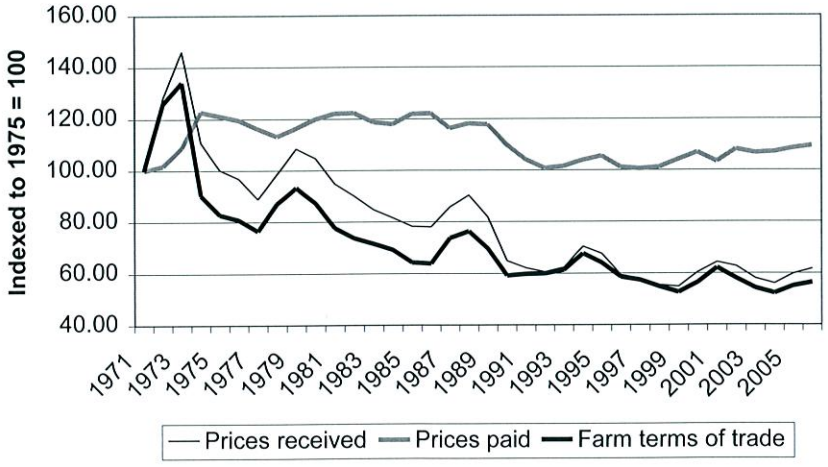


Figure 1 Trends in the Australian price of wheat and major farm inputs 1975–2003 indexed to 1975 prices.

between prices farmers receive for their produce and prices they pay for the inputs required to create that produce. For Australia, the long-term trend is clear: the terms of trade for agriculture decline in the long run, although this is partly disguised by cycles of high and low prices caused by drought, short-term undersupply or oversupply and international exchange rate fluctuations. Australian farmers have experienced six peaks and six troughs in this measure over the past forty years. The good times seem to return every six or seven years, but generally the losses of the previous trough are never fully recovered. We should not assume the terms of trade squeeze is unique to farming. The same processes can be seen at work in any bulk commodity market with enough competing producers. Clear examples of the same trends operating at a much accelerated rate include the computer memory chip market and the price of digital cameras, a phenomenon much appreciated by Australian consumers.

'Get big or get out'

Farm businesses cannot ignore this compression in their terms of trade. Farmers who aim for an economically sustainable farm business must increase farm productivity to keep up with these declining terms of trade. They must produce more farm produce for a given number of farm inputs. This is to compensate both for the increase in the cost of chemicals, fertiliser, diesel and the myriad other inputs to the farm production cycle, and for the real decline in the price received by the farmer for produce. For a socially sustainable farm enterprise, the farm business must further increase productivity to keep pace with rises in personal income in the rest of society. Few farm families will aspire to maintaining a 1975 standard of living in 2007. Those who choose not to, or who are unable to pursue increased productivity, will find that their farm effectively becomes smaller as the years progress. The farm may remain physically unchanged, but the value of what it produces will have declined. It will become economically smaller.

Productivity improvement can come in many ways. The natural reaction of many farmers in times of falling farm returns is to seek to minimise farm costs while maintaining output. This will buy time for the farmer, but sometimes what appears to be increased productivity is in fact the

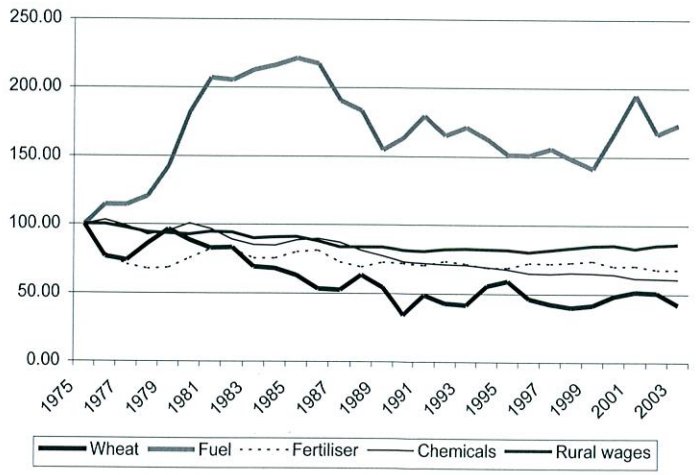


Figure 2 Australian farmers' terms of trade—real input prices and real prices received indexed to 1975 = 100 [6].

consumption of farm assets. Decreasing fertiliser application may deplete soil nutrient reserves. Delaying the replacement of machinery or fencing will require greater expenditure in the future.

In the longer-term, saving costs will not solve the problem. The solution is in changing the farm system to produce a sustainable increase in productivity. On many farms the most obvious way to attain this objective is to expand the farm. As the farmer's income per hectare falls, a larger area is needed to generate the same income. The farmer has to find the means of managing this increased area. For the cropping farmer, a larger farm justifies the purchase of larger machinery that allows greater production for a given labour input. A larger farm means the value of fixed production costs can be shared over a greater area of land. In broadacre cropping areas, the quest for farm expansion is a strategic objective of most farm businesses. There is no end to this race for the commercial farmer. As my own father found, the goalposts keep shifting. An agricultural economist once compared the plight of the farmer with that of riding on a reverse escalator:

> *The commercial family farmer under the dynamics of a traditional competitive environment (is) forever reaching forward for new technologies in order to keep from losing position on the reverse escalator of declining income … the best he can hope for is to keep in the lead.*[7]

But for one business to expand, another must shrink, or even disappear. Neighbour watches neighbour, assessing which farm will come onto the market and when this might occur. Those businesses that do not increase their productivity and fall behind are likely candidates. Those businesses that lack a successor are likewise potential targets. And so, the business and family life of neighbours is of business interest to the ambitious farming family. Poor farm management, farming or personal misfortune, inability to partner, infertility or descendants with aspirations other than farming—all are potential long-term opportunities for neighbours. And the neighbour who does purchase more land is helping fuel the long-term decline in the price of farm produce. This irony led a senior bureaucrat of the United States Department of Agriculture to declare:

> *The greatest threat to the family farmer is another family farmer who adds another piece of land to his property.* Dr. J.B. Penn, Deputy Director US Department of Agriculture, Canberra, January 1979

Larger farms means fewer farms

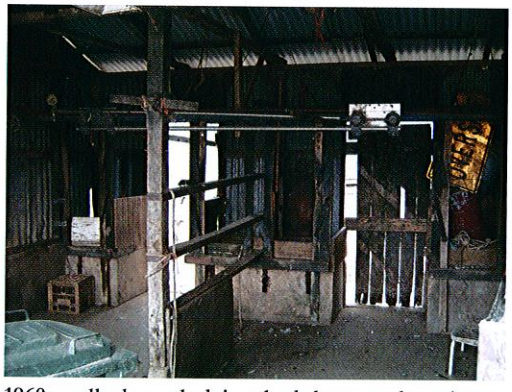
If farmers respond to the terms of trade pressures by purchasing the farms of neighbours, it is inevitable that the number of farms will decline, and fewer farms will produce more and more of the agricultural production of the country.

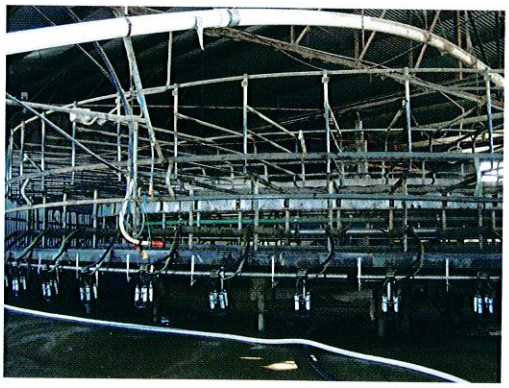
The 2006 header needs a much wider gate than the 1970s header (photos, Lindner family).

The Karkarooc district of the Victorian Mallee is typical of communities being reshaped by the quest for farm expansion. A little over a hundred years ago there were one thousand selectors farming wheat on farms with an average size of 330 hectares. In 1961 the Shire of Karkarooc had 477 farms whose average size was 680 hectares. By 2001 the same area supported 260 farms with an average size of 1200 hectares. The old Wannon Shire, centred around Hamilton, had 566 predominantly sheep farms in 1961. By 2001 this had halved to 287. The average farm had almost doubled in size from 340 to 650 hectares. The beef farming country of Omeo had 708 farms in 1961. Today there are less than 200, and the average farm size has almost tripled. The shire of Rodney, around Kyabram, had 980 predominantly dairy farms in 1961. Today this has halved to 496.[8]

These numbers suggest a simple, but brutal equation for those who dream of family farming as a dynastic pursuit. In each farmer's working lifetime, the number of farms will halve. Only one in two farming families will pass the business on to a successor within the family. The odds of surviving in this productivity race are not evenly shared. If you own a large farm, it is much easier to get larger still. You will have greater capacity to borrow money to fund land purchase. You will have greater capacity to repay borrowed money. If you own a small farm, it will be much more difficult to buy out your neighbour. So those businesses that most need to grow to survive are those least likely to be able to do so. It should come as no surprise that research has consistently shown that most productivity growth in Australian agriculture is captured by the largest 10% or 20% of Australian farms. These large farms generally achieve productivity increases greater than the rate of decline in the terms of trade.[9–14] Mid-sized businesses will generally struggle to keep pace with the terms of trade. Small businesses generally are falling behind.

Despite the pressures of declining terms of trade, there remain many small farms in the Australian agricultural sector. The largest 10% of farms (as measured by gross farm income) that capture most of the productivity increases also produce about half of the value of Australian agricultural production. The financially smallest 50% produce approximately 10% of the value of Australia's agricultural production.* Assuming no other competing factors, there would appear to be considerable scope for the further aggregation of Australian farms and a continuing decline in the number of farms. But, of course, there are other competing factors. We explore these in the fourth chapter.





1960s walk-through dairy shed that may have been used to milk 10 to 20 cows—forty years later rotary dairy sheds milk hundreds of cattle in a day and robotic milkers are being trialled.

* **Based upon analysis of 2001 estimated value of Agricultural Operations data provided by the Australian Bureau of Statistics**

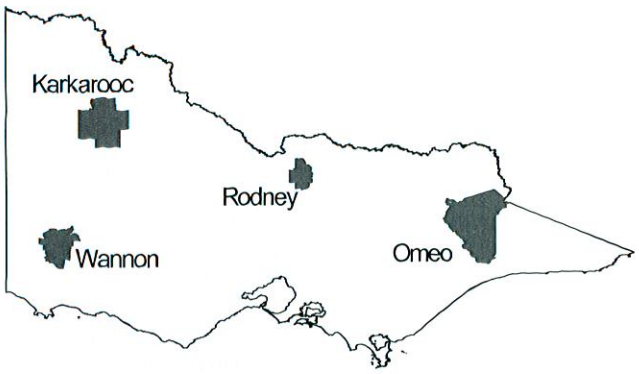


Figure 3.

Collateral damage to rural communities

Technological innovation on farms is not gradual. The pressures of productivity can sometimes be sudden and extreme. In the parlance of Australian agricultural policy these shocks are described as 'exceptional circumstances'. The economist Schumpeter coined the phrase 'creative destruction' to describe the often radical impact of innovation on social and economic structures. Schumpeter described agricultural development as changing in a series of revolutions:

> *The history of the productive apparatus of a typical farm, from the beginnings of the rationalisation of crop rotation, plowing and fattening, to the mechanised thing of today – linking up with elevators and railroads – is a history of revolutions.*[15]

Like revolutions in politics, revolutions in farming can create victims. They dramatically increase the productivity of the food supply chain. Some farmers are able to take advantage of the new technologies by supplying new markets or growing more food. But demand for food does not increase dramatically. Higher-cost producers find themselves faced with new competition from more efficient producers against whom they cannot compete. Those producers and their agricultural communities wither. Often the revolutions are not agricultural but are part of the food supply chain. One agricultural economist has given us his list of the five most disruptive innovations in agriculture:[16]

- The building of canals across Europe in the 1600s and China much earlier introduced low-cost water transportation to these economies. Those farmers who could produce food cheaply were no longer limited to supplying the local village market. Their produce could be sold up and down the new canals. Higher-cost producers faced new competition from low-cost producers. Agricultural production shifted along the canals.
- Improved crop rotations and increasing labour efficiency dramatically increased the production and productivity of agriculture in the period 1750–1850. More food could be produced with far fewer workers. Farm owners no longer needed the large labour force that was traditionally associated with the old manorial farm. Enclosures of paddocks and evictions of labourers by landowners created a large pool of unemployed workers who were forced to move to the cities seeking employment. This forced migration destroyed the social fabric of many rural communities but also helped make possible the Industrial Revolution.

- Between 1850 and 1900 cheap steel and mechanisation allowed the dramatic expansion of agriculture in North America's prairies and Australia's inland plains. These new low-cost producers were major competition for Old World producers. Grain producers in Europe could not compete. Those that could not change into other commodities such as cheese making lost their livelihood.
- The introduction of refrigerated transport in the late part of the nineteenth century dramatically expanded the markets available to meat producers in North and South America and Australasia. Frozen beef could be exported across the world to Europe. This helped improve the diets of the working class, but reduced the prices received by European meat producers.
- In the mid-twentieth century advances in chemical engineering culminated in the proliferation of internal combustion engines, fertilisers, herbicides and pesticides. These innovations fuelled a jump in agricultural productivity across the world. Farming systems based on labour-intensive methods could not compete in open markets against this mechanised industrial agriculture.

There is a pattern in each of these agricultural revolutions. Technology makes food cheaper for the purchasers, who are often the labourers living in major cities. Agriculture flourishes in those regions which can take advantage of these revolutions. These are new agricultural frontiers, and the farmers in these new frontiers flourish because they can dramatically undercut the prices of products from established agricultural regions. Agricultural regions that are fixed in the old methods of production must quickly change or fail. Quick change is painful and socially disruptive. Australia was on the winning end of many of the new innovations of the late 19th and the early 20th century. Mechanisation allowed a country with labour shortages and large areas of undeveloped land to compete successfully against European producers. Refrigeration opened up the British market for our cheaper chilled meat and butter. The petrol engine allowed us to increase our labour efficiency massively in a country where land was relatively cheap.

Australia will not always remain the frontier of agriculture. Today new agricultural frontiers are developing in Brazil, Chile, South Africa, the Ukraine and China. Some of our agricultural producers are worried. In five years from 2001 to 2005 Brazil probably had the largest area of undeveloped arable land of any country on earth. In 2001 Australia and Brazil each produced net agricultural exports to the value of $10–12 billion. In the subsequent five years Brazil doubled the value of its net agricultural exports while Australia's fell.[17]

Controlling the amoral market

My own ethical struggle with the bountiful yet cruel gifts of innovation began in my first experience as a social research professional. I had been employed to document the social costs of the collapse of the price of milk in a dairy community in Gippsland.[18] In 1973 the dairy industry had lost its preferential access to the British market and the European Union had begun a policy of dumping subsidised milk products on the world market. Milk prices had fallen, and dairy farms were under pressure to invest in the rapid upgrade of their dairy sheds and milking systems to remain competitive. Over the next couple of years tens of thousands of dairy farms across Australia would disappear. Families were living in poverty. Financial distress was breaking families and increasing suicide rates.

I was working in an office of the Department of Agriculture, surrounded by government extension officers. These extension officers were employed to assist farmers to improve the

productivity of their businesses. They worked by spreading expertise and knowledge about the best methods of producing milk. At the time the greatest benefits were to be gained by installing herringbone milking sheds and better management of dairy cows' grazing of pastures. Many of these officers were deeply committed to the wellbeing of the dairy farmers in their community and worked tirelessly to help as many as possible to face the profound challenges in the industry. They helped many farmers raise the productivity of their farms and stay in business. But a voice in my head was whispering difficult questions. Productivity was the root cause of many farmers being forced from farming. The dairy industry was producing more than the international market was prepared to purchase, and the European Union had implemented a policy that ensured the pain of this overproduction was exported to Australia. Each time an Australian dairy farmer was helped to increase his or her own farm's productivity, the pressure on other farmers to leave the industry was being stoked. It was a zero-sum game. Productivity could be of benefit to some farmers only if others were subsequently forced from their farms. If everyone was helped equally, then no-one would win. Surely there must be a better solution.

I was reminded of my own anger in the Melbourne Wholesale Fruit and Vegetable Market when the peach market was oversupplied and prices had dropped below the cost of production. I saw the pain and stress this caused my father as he struggled to sell the fruit and make a living. I had lazily daydreamed of organising all growers in the market to refuse to sell below an agreed price that would at least meet the cost of production. Of course, this was an idle aspiration. A young boy with no social standing in the market would not be listened to. What I didn't realise at the time was that I was thinking as many before me had done. Australian farmers have often had similar dreams, and when they have had access to political power, they have sometimes put the dreams into practice.

The history of Australian agricultural policy is replete with attempts by government to constrain the impact of markets on farmers' incomes. Until the 1970s the creation of a class of small farm yeomanry was a consistent policy of successive governments. The ideal of the 'yeoman farmer' lay behind the Selection Acts of the nineteenth century. In this ideal, the land would be populated by large numbers of independent farmers on small holdings who produced a diversified mix of farm produce on each farm. This dream has underpinned rural politics for generations. The late 'Black Jack' McEwan, one time Deputy Prime Minister and a giant figure in the politics of the Country Party, lamented in 1952 that Australia had too many large dairy farms! To protect this vision of a society of smallholders, Australia implemented schemes to manage the price of commodities including wheat, barley, eggs, chicken meat, wool, sugar, butter and bananas amongst others. These arrangements were described as 'orderly marketing' and 'price stabilisation'.

To succeed, these schemes needed to fix prices and control production through a quota system. But for many of Australia's largest farm industries, the majority of produce is exported. Only 20% of our wheat is consumed in Australia. Eighty per cent of our wheat is exported, but Australia accounts for only 13% of internationally traded wheat. Our wheat farmers prosper or suffer depending on the prevailing international wheat price, yet they have little capacity to influence that price by their own actions. Experience has shown it is difficult, if not impossible, to control prices by international agreement. After wheat price wars between major exporters in the mid-1960s, the five major world wheat exporters, including Australia, signed a wheat agreement in 1967. Signatories agreed to set fixed prices for different grades of wheat. Rather than agree to international quotas, the signatory nations were left to manage their own production levels.

Australia imposed wheat quotas on its farmers at 60% of the previous year's production. This was in return for a guaranteed price of $1.45 a bushel. This arrangement was not to the liking of the owners of larger and more efficient farms:

> *I have talked to some growers in northern NSW who would love to be able produce all the wheat they could at about $1.15 or $1.20 a bushel. I think they feel they would be able to run a more efficient operation if they could do that, rather than producing 60% of last year's crop at $1.45 a bushel.* [19]

These pressures within Australia were felt in other countries as well. Soon enough, stockpiles of surplus wheat developed in each signatory country. Most started to subvert the agreement by the reclassification of wheat grades and other loopholes.[20] The agreement rapidly broke down with Europe and the United States engaged in a trade war whilst trying to avoid the blame for the collapse of the agreement. The smaller nations, including Australia, failed in their lobbying to maintain the agreement. Australia even went so far as to offer to raise its wheat price to cede market share to the United States.[21] The international agreement lasted less than two years. As this manuscript was nearing completion, the Australian Government announced the demise of the 'single desk' wheat export monopoly. The 'single desk' export system was the last vestige of the Australian grains sector's attempts to stabilise incomes by controlling markets. Under the 'single desk' arrangement, only one body in Australia had the authority to export wheat. The argument in favour of the single desk was that it prevented purchasers of our wheat from initiating a bidding war between Australian producers. The extent of any stabilisation effect is a matter of debate. The arrangement was under intense scrutiny from the trade negotiators of the United States and Europe.[22]

Wool is the only major Australian agricultural industry in which Australia is a dominant exporter in world markets. The wool industry has a long history of unstable prices. When the price of wool rises, it takes a number of years for wool producers to increase production in response to this price signal. This means that growers invest in wool production beyond the demands of the market well before they receive price warnings from the market that they have overstepped. In this situation, 'orderly marketing' appeared quite attractive to the industry in the 1960s. In 1974 the industry instituted a Reserve Price Scheme. A statutory authority purchased all wool that failed to meet a reserve price at auction. The resulting stockpile was to be sold when the market price exceeded the reserve price. Given the long-term trend of declining real commodity prices, a sustainable reserve price scheme would need to similarly lower its floor price. However, as wool prices rapidly rose in the late 1980s, the reserve price was also raised by 70%. When wool prices inevitably fell back to long-term trends, the reserve price was held constant. Soon the majority of the wool on offer was purchased for the stockpile. The situation was financially unsustainable. In 1991 the Reserve Price Scheme was officially abandoned. It took another decade before the stockpile was eventually sold. The stockpile was the financial responsibility of woolgrowers, and they suffered a long financial hangover. During the late 1980s the statutory authority had gone into debt to pay wool producers their reserve price. In the 1990s wool producers had to pay out that debt. In the long run they gained nothing.

This experience was a hard lesson for many wool producers. Despite dominating the world market for wool, the Australian wool industry could not control wool prices. Wool producers were not just competing against each other, but against cotton and artificial fibre manufacturers. Economists object to market control mechanisms because they mask the signals to producers about competition in the market. They argue that one must allow the innovators in the industry

to be rewarded so the industry can survive. Of course, this provides no guarantee that everyone in the industry will survive. Since the experience with the Reserve Price Scheme, Australian governments have been gradually dismantling Australia's various statutory marketing schemes. The National Farmers' Federation has been a strong supporter of many of these changes.[23] The reasons for its support lie in the need to argue with moral authority against the protection afforded to agriculture in Europe, the United States and Japan.

International agricultural protectionism

The terms of trade problems faced by Australian farmers are universal. Likewise, seeking market controls seems a universal response by farmers beleaguered by lower-cost competitors from agricultural frontiers. In the United States farmers attempted to organise their own crop-withholding movements in the early 1920s. After failing to gain the full support of all farmers, farmer groups lobbied the Congress to support various farm price support schemes. At the basis of these proposals was the concept of a fair price—one that compensated for the cost of production plus a reasonable profit to sustain the business. Fair or just price is a concept that has its roots in the Judaeo-Christian ethic of the feudal era. In medieval times a just price was sufficient to compensate the seller for his efforts in producing a product with sufficient surplus to sustain him at his customary station in life.[24] The charging of a higher price was seen as both usurious and threatening to the established order of society, and a lower price was construed as taking away a person's living. Of course, such a system could survive only by maintaining strict controls on who could enter a profession. This was the task of the various trade guilds that guarded trade secrets and limited membership. The closest analogue today might be seen in some Australian medical colleges.

With the onset of the Great Depression and threatened farmers' strikes, the United States Government implemented a scheme which provided a fair or 'parity' price to farmers on the signing of agreements to limit production. Parity prices were calculated on the basis of prices prevailing twenty years earlier with adjustments for changes in the cost of living.[25] Production controls were later extended to payments to destroy surplus crops and livestock. Overt production controls were found to be unconstitutional, so over the next seventy years United States farm policy has attempted to overcome constitutional constraints against production controls using marketing quotas, soil conservation agreements and implementing import quotas and tariffs.

Agricultural protection in European countries goes back at least 200 years when England enacted the Corn Laws to protect the income of the English rural aristocracy. After the Second World War the European Union enacted the Common Agricultural Policy (CAP) to ensure European food security and to maintain the viability of European rural industries and communities. Tariffs and quotas controlled agricultural imports. Farmers were paid guaranteed prices with no limits on production.[26] By the 1980s there were metaphorical mountains of excess butter, cereals, lamb meat and beef. These were matched by metaphorical lakes of excess wine, olive oil and milk. Surplus product was often exported at subsidised prices, lowering world prices for these commodities. Today French wine is being converted into automotive alcohol. The incentives under the CAP to produce excess product have created environmental problems as agriculture has intensified and increasing concentrations of nitrates have leached into the soil. The Mad Cow Disease (BSE) outbreak has been interpreted as an unintended consequence of the CAP, as artificially high feed-grain prices encouraged the use of cheaper substitutes including bone meal.[27]

It is counter-intuitive that as agriculture becomes a progressively smaller part of the economy, rather than losing political power, farmers in Europe and America seem to be able to mobilise the increasing capacity of these large economies to subsidise agriculture. In 2003, 30% of income for farmers in the OECD came from transfers from consumers and taxpayers. From an economic perspective, the arrangements in Europe, the United States and Japan are a tax upon consumers for the benefit of producers. Some economists estimate that food prices in Europe are 50% higher than they need to be. It seems that the cost of protection is spread thinly over consumers and it is not worthwhile agitating against the subsidies, while the benefits are heavily concentrated, making political lobbying to support the subsidies worthwhile.[28] Farm lobby groups in the United States, such as the sugar industry, are notorious for their powerful lobbying capacity, aided by a system of representative government that provides a myriad of opportunities for lobbyists.

Agricultural protection not only taxes consumers. It has its greatest impacts upon those producers who lie on the other side of the tariff and quota barriers. Australia is more often than not on the outside, together with the agricultural producers of New Zealand, Canada, Brazil, Chile, South Africa, Argentina and many Third World nations. As countries on the outside of the trade walls, we tend to view issues of agricultural trade liberalisation from both an economic and moral perspective. The economic arguments seem quite compelling to many Australian farmers. Australia exports 70% of its agricultural produce, and imports agricultural goods to only a fifth of the value of its exports. Within the OECD countries we have the second lowest level of financial support for our farm community. It is estimated free trade in agricultural products would increase the average Australian grain producer's net annual income by $27,000 and would raise the average dairy farmer's income by $17,000.[29]

The moralism of the fight against trade protection can spring from the personal experience of the hardship caused to Australian farmers by market protection. Of course, parochial moralism, or self-centred arguments based on economic advantage to Australian farmers are extremely unlikely to be convincing in international forums. Instead, our support for freer agricultural trade must emphasise the benefits for the world as a whole. The World Bank estimates that the net economic benefit of totally free trade at $2.8 trillion by 2015.[28] Who captures these benefits? Again, the World Bank claims that this would release 320 million people from poverty. Freer agricultural trade would reduce the cost of food to consumers across the world. Whilst this would have little impact upon the wellbeing of the wealthy, the urban poor in many countries would certainly gain an increased standard of living. Third World farmers who are currently excluded from protected markets for products such as rice and cotton would also benefit. It is these claims which allow Australia to approach agricultural trade negotiations with a degree of convenient moral fervour. The high moral ground is not without dispute. The benefits of free trade to the poorest in developing countries is a matter of debate.[30] It could be argued that the greatest beneficiaries of agricultural trade liberalisation would be countries such as Australia, Canada, Thailand and Chile. Both sides can manipulate the moral arguments. The European Union attempts to counter the moral arguments over the Third World by providing duty and quota-free access to forty-nine of the least developed countries for all commodities except armaments, sugar, rice and bananas.[31] This potentially leaves these countries as losers of any trade agreement that puts their preferential access into the European market in jeopardy. Currently they do not have to compete against Australian or Canadian farmers.

Can we escape the terms of trade trap?

It seems to be human nature to seek portents of the future at notable dates on the calendar. Australia was born as a nation in 1901, Federation year. For Australian farmers, the portents of the era were less than propitious. Much of the country was in the grip of a prolonged drought. Irrigation cooperatives had suffered financial collapse. Commodity prices were less than bountiful. One hundred years later, on the 100th anniversary of Federation, farming was experiencing a contrasting magical moment. Despite a prolonged period of low rainfall, that rain which had fallen had been sufficient and perfectly timed to ensure high yields in much of the cropping zone. The Australian dollar was undervalued. Grain, milk, beef and sheep prices had risen sufficiently to ensure most farmers producing these commodities would generate exceptional profits for the year. One day at work I received a phone call from a farmer in country New South Wales. He had been reading one of my reports and took issue with my acceptance of the inevitability of declining terms of trade for farmers. The world had changed he argued. The decline had halted, he claimed. The future was one of stable or rising farm-gate prices.

I found it hard to be convinced by his millennial optimism. There was no reason to expect the Australian dollar would remain weak. The strong position of beef and lamb exporters was in part due to the exclusion of United States meat from Asian markets because of the detection of Mad Cow Disease in the United States beef industry. And, at the basis of this farmer's optimism, was an implicit expectation that technological innovation in the food and fibre production and marketing chains would cease and no new agricultural frontiers would emerge. I find it impossible to conceive a world in which this would happen over the longer term. Some colleagues and farmers regard me as a pessimist. They cite four reasons why we may escape our declining terms of trade: the growth of the middle-class populations of Asia may increase demand for our produce; demand for bio-fuels will raise the price of grains; new technologies may increase our farm productivity; substantial progress in trade liberalisation may reverse our trade fortunes.

New markets in China and India: swings and roundabouts

Rapidly improving standards of living in Asia, particularly China and India, are creating a large new middle-class population. It is ironic that this transformation is a product of increased agricultural efficiency. China has potentially 200 million 'surplus' farm workers displaced by agricultural development. These workers are moving to town. In the 1990s China built 8,000 new small towns to house them. Another 10,000 are expected to be built in the current decade.[32] The urban population of China is growing by 20 million each year. This annual growth is roughly equivalent to Australia's population.[33] This is changing the food purchasing habits of these nations, creating opportunities for producers of high protein products such as beef, sheep meat and cheese. When rural Chinese shift to the city, they cut their wheat consumption by two thirds and increase their consumption of most other products, particularly meat, oils and dairy items.[34] During the 1990s the value of the Chinese food product market quadrupled. Nowhere is this growth more incredible than in the dairy market. Chinese consumption of dairy products has risen sixfold in the past ten years.[33] Urban Chinese are, for better or worse, discovering Western take-away food, particularly cheeseburgers and pizzas.

China is maintaining food self-sufficiency to a far greater degree than many have expected.[35] It is generally managing to meet the demands of its rapidly increasing urban population, with

cheese for pizza toppings being the most notable exception. Recent projections are that China will produce more than 90% of its increased beef consumption, 95% of its increased pork consumption and 85% of its increased chicken consumption. Imports of meat will be but a 'top-up' to Chinese demand. But even the 'top-up' is substantial. It is equivalent to 80% of Australia's current beef production and 50% of our dairy production.[36] China will obviously be hosting a rapidly increasing number of animal feedlots and it is the supply of grain to these feedlots that may have the greatest impact upon world grain prices. The main grains that will be purchased by China will be maize, sorghum and soybeans. These are crops more suited to northern Australia.

The prospect of a rapidly growing Chinese food market has captured the imagination of farmers in Australia. The rapid economic growth in China carries with it some challenges for Australian farmers, as well as opportunities. China, with its cheap rural labour and low environmental standards, is coming to dominate the world's wool-processing sector. This carries with it the danger that the thinning pool of wool buyers will dampen competition for wool in the auction system. China is also redirecting its agriculture from a target of domestic food self-sufficiency towards building export markets based on its strengths of a ready supply of cheap labour. This means cutting back on the production of lower-value cereal crops and increasing production of higher-value horticultural products. In the past decade or so China has quadrupled its area devoted to vegetable and fruit production. While increasing its reliance on some imported food products and feed grains, China is following a deliberate strategy of developing agricultural trade links with Latin American countries, particularly Brazil. The Brazilian agricultural sector is the recent new agricultural frontier, and its growth is driven by Chinese growth. Brazil can supply much of the maize, sorghum and soybeans that China will require. The main constraint upon Brazil's agricultural export capacity is infrastructure.[17] Much of this infrastructure is being privatised, and Chinese capital will be invested to maximise Brazil's ability to meet Chinese demand.

The most immediate impact of the Chinese urbanisation on Australia has been the massive surge in our exports of coal and steel to that country. We are China's quarry rather than its farm. This boom in mineral exports is one of the reasons for the high value of the Australian dollar between 2001 and 2007. A high Australian dollar reduces the returns to all exporters of Australian farm produce.[37] The boom in mineral industry employment has also created a new class of taxation-motivated investors seeking to invest in agriculture through Managed Investment Schemes that offer full tax-deductibility in the year of purchase. The phenomenal growth in these schemes over the past decade has placed the traditional family farm sector in direct competition with the corporate sector in the rural and water markets.[38] Farmers complain they are priced out of these markets by unfair competition.[39, 40]

Bio-fuels and peak oil

Like climate change, the concept of 'Peak Oil' is another much debated uncertainty. In 2006, rapidly increasing demand for fuel from the growing economies of India and China has brought global supply and demand for petroleum fuels to a fine balance. This has led to high prices and given us a taste of a future of limited petroleum supplies. The impact on agriculture has been twofold. Energy is a more costly input for farm businesses. Energy is embedded in far more farm inputs than the fuel tank of the tractor. It is a major component of the cost of artificial fertilisers and farm chemicals but, some farm industries have benefited from high oil prices. The price of sugar rose in part because of increased demand for it as a feedstock for ethanol production. In

the previous year the industry had been pre-occupied with low prices, adjustment policy and the need for farm aggregation. A year later sugar growers were worried about their tax liabilities. There is great uncertainty as to the state of petroleum supplies.[41] In the face of uncertain Middle Eastern supply, growing voter concern at dependence on Middle Eastern oil and pressure from the farm lobby, the United States has mandated an ethanol content in their gasoline.[42] The result has been a rapid rise in the price of corn and other feed grains such as wheat and soybeans.[43] With the rapid rise in the price of corn, which is the main fuel stock, United States farmers have chosen to plant corn rather than soybeans resulting in a rise in the price of soybeans. With less soy available for livestock feed, the price of other substitute grains, including wheat, has risen.[44] These price rises have been experienced across the world.

Australia has not implemented mandated ethanol content in petrol. We do not have a corn (maize) industry to match that of the United States. In Australia the obvious sources of bio-fuels include ethanol derived from sugar and cane waste. To achieve a major reduction in Australia's dependence upon fossil fuels using bio-fuels would require a massive shift in the commodities produced by Australia's farmers. The benefits would need to be carefully weighed against the costs. A study commissioned by the Western Australian Government estimated that to substitute for that state's current diesel consumption would require an area of canola 145 kilometres by 145 kilometres square.[45] This is a little over half the area currently sown to wheat in an average season. The benefits to our balance of trade would be offset by the loss of wheat exports. Then there is the moral question of the impact on the world's food supply and the world's poor.[44] In the wake of a doubling of the world wheat price, a United Nations Special Rapporteur on the Right to Food described the conversion of food into bio-fuel as a 'crime against humanity'.[46]

If technology is found to cheaply convert plant cellulose to fuel, then a far wider range of crops will become potential bio-fuels. Bio-fuels will generally be more competitive where land is cheap, other factors being equal. But bio-fuel production may become based on massive industrial plantations similar in scale to the blue-gum plantation developments of the last decade. There may then be little role for the smaller family farm.

The promise and risk of new technology

New technology in agriculture offers the prospect of some producers gaining a break on the field in the productivity race. At a recent research conference some potential implications of emerging technologies were tentatively identified by a number of leading agricultural scientists in Victoria.[47] Here are some of the futures they saw:

- Biotechnology providing economic advantage in existing farm products and creating new agricultural products such as therapeutic foods, energy sources and specialised lubricants
- Nanotechnology creating new fibres to compete with natural fibres and new membranes to prolong the shelf-life of fresh produce
- Information technology and radio frequency identification technology further tightening food supply-chains.

While the technologies are fascinating to scientists, the potential disruptive social and economic impacts are of greater interest to social scientists. Useful new technology is generally redistributive. It creates winners and losers. These envisaged technologies are unlikely to be any different.

The creation of new nanotechnology-based fibres with greater consumer appeal would be a serious threat to the wool industry, creating a product against which wool is unable to compete in major markets. New shelf-life enhancing technologies may open up competition from distant producers of perishable horticultural products. Tighter supply-chains may exclude large numbers of producers from supplying supermarket chains.

Therapeutic foods will be a product of genetic modification (GM). Genetic modification in agriculture is a contentious innovation, beset by strident claims from both sides of the debate. It is worth remembering that to this stage, ten years after the introduction of genetically modified crops, only four countries grow a significant area of GM crops (United States, Canada, Brazil and Argentina). Only two GM traits are a commercial success: insect resistance through the Bt gene and resistance to the herbicide glyphosate. The evidence so far is that these two GM characteristics have been a commercial success, have provided some environmental benefits and have benefited the farmers that have adopted them.[48, 49] But these crops are not grown in many countries because of concerns over consumer reaction to GM food. Some farm groups are also concerned about the potential for new GM innovations to be heavily controlled by the owners of the patents to these innovations. It is quite possible that some future GM crops will only be available to be produced on licence. This control of the technology allows control of production. In effect it will allow the owners of the patents to control their own terms of trade. Only a select number of producers may grow these products, and then only on contract or licence for specified volumes. Similar exclusive supply-chain arrangements have already emerged for some of the newer stone-fruit varieties on sale in supermarkets today.[50] Growers are required to market through approved agents and to pay a royalty for all fruit sold. This looks increasingly like the franchise business structure that dominates the modern shopping centre. The independent business owner pays a royalty for the intellectual property in the business concept, and to support promotion and business systems that no small business could justify. In return, the franchisee must abide by business quality control protocols to protect the interests of all holders of franchises. The greatest winner may be the owner of the new technology. We'll look more closely at this in a later chapter.

Slow gains from trade reform

Australia's arguments for comprehensive trade reform have achieved only a slow and gradual wind-back of some trade barriers. The immediate removal of long-established trade protection provokes internal social upheaval that few governments can countenance. It is this pain that will ensure negotiated trade reform will in fact be generally slow and steady. The policy objective of a slow concession to reform pressures is to ensure that adjustment is slow and almost imperceptible. We can assume that slow and almost imperceptible pain in previously protected farming communities will be balanced by slow and almost imperceptible benefits for the farmers in Australia. These will, at best, slow the rate of terms of trade decline, rather than reversing it. Once the benefits have been gained, the terms of trade decline will continue. This does not mean that trade reform is not worth pursuing, but that our expectations of what it will deliver need to be realistic.

Even if we were to achieve rapid trade reform, the impacts might be counter-intuitive. Rapid reform in the next few years would raise farm incomes bringing an immediate period of prosperity to many of the farmers in the landscape. But it is doubtful that this fortune would halt

the long-term decline in the terms of trade or the aggregation of farms into larger and larger business units. Increased prices for farm products will inevitably bring forth a supply response from within Australia, and from its unsubsidised international competitors. This will ensure that commodity prices raised by the removal of farm subsidies and market protection will soon begin to fall again. Ironically, there is every likelihood that the initial period of higher commodity prices will spark a period of farm aggregation. Increased confidence in the farm sector means many farmers will be more confident to take up the challenge of buying out their neighbours. And others will be tempted to cash in on the high prices being offered for farms.

Recommended further reading

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On the tension between social and economic sustainability in agriculture: Stoneham G, A Ridley, M Eigenraam & N Barr, 2003, *The Application of Sustainability to Australian Agriculture*, Australian Journal of Experimental Agriculture, 43 (3) pp. 195-203, http://www.publish.csiro.au/nid/72/paper/EA05037.htm

3 OLDER FARMERS, OLDER TOWNS

Struggling football clubs

In 2002 the Victorian Government released a social atlas of rural Victoria.[51] The atlas was full of maps, graphs and diagrams. Many pages were based upon Australian Bureau of Statistics or state government data sources. But it was one unusual map that captured the media and public attention. This map showed the decline of country football through the decline of country football clubs. This was the map that generated the round of media interviews and newspaper stories. In one simple and very human statistic, the authors had encapsulated the problems of population decline and the loss of young people experienced by many rural towns.

Country football has always been more than just a sport. For small country towns in the wheat-belt it is (or was) the weekly gathering of the community to watch the local young men (and young women netballers) pit themselves against the neighbours. After a week of often socially-isolated work on the farm, the football was the best opportunity to catch up with friends and news. The few alternatives to the football included church attendance (often divided by denominational differences) and the pub (which required a tolerant attitude to alcohol and tobacco). The football club was the social hub of many towns. Newcomers who could not fit into the football and netball culture often found it very difficult to gain a social foothold in the town.[52] Those who could contribute to the football club were enthusiastically embraced.

It should not be surprising, then, that to many rural Australians the football club is held to be the barometer of their community's social sustainability. Over the past thirty years this barometer has been falling in many small country towns. Clubs have found it an increasing challenge to survive. The common problem has been finding players that the rest of the community can watch. There are fewer and fewer young men, making it harder to field a full team. The number of young women has been declining even faster, but a netball team requires seven players compared with a football team's eighteen. For a while clubs survive by holding onto committed older players for longer. They draft in players from far away, or entice the young men who may have moved to the city to travel back for the weekend. But these strategies will only delay the inevitable. The atlas map showed that many clubs had lost the struggle, or had only survived through amalgamation.

Local crowds enjoying the local game (photo Nigel Hallet, *Colac Herald*).

One club in the Victorian Mallee, Ouyen United, has gained a degree of fame on the basis of its football pedigree. The Mallee district was closely settled by wheat farmers in the first two decades of the twentieth century. The peak of population was in the years following the First World War when soldier settlers took up any land remaining from the pre-war settlement. In the 1920s there was a football club in Ouyen, and also in the surrounding hamlets of Speed, Turriff, Tempy, Patchewollock, Tiega, Walpeup and Kiamal. Together these eight clubs formed the Ouyen and District Football League. The first clubs to merge were Speed and Turriff who formed the new club of Gorya. In 1965 Gorya then merged with Tempy. Patchewollock joined the merged club in 1971. The new entity was named TGP. Meanwhile, to the west of Ouyen, Kiamal and Tiega merged to form the Ouyen Rovers. In 1985 the separate Ouyen Football Club folded. In 1997 the remaining merged clubs, Ouyen Rovers and TGP merged to form Ouyen United. Of the original eight clubs of the Ouyen League two remained—United and Walpeup. Walpeup had merged with nearby Underbool, a remnant of the now extinct North West Mallee Football League. Walpeup's survival may have been due in part to it being home to an agricultural research station that, in the past, supplied a small but steady stream of young men to the district.

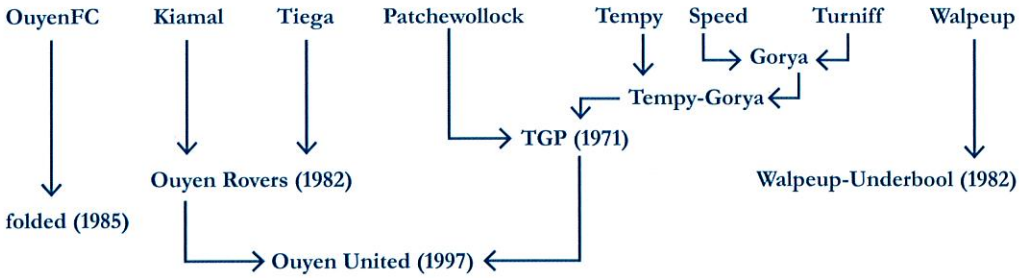


Figure 4 The family tree of the Ouyen and District Football League.

Declining farm numbers and the associated migration of the young to the metropolis is squeezing many rural sporting clubs. The migration of the young out of the country and into the cities is unique neither to our country nor to our generation. It is how agricultural communities across the world have been responding to declining farm terms of trade. In 1914 an American rural commentator lamented the same loss of the young from the corn belt of the United States:

> *One of the problems that is all the time tugging at the heart of farmers of this country is the absence from the farm of the young man. There are many neighbourhoods in which not one in 10 of the male members of the community can be truthfully called a young man ... The farmers are deprived of the earnest, intelligent help which naturally belongs to them, rural society loses one of its best elements, the cities are overcrowded and all parties at interest are losers ... The shops, the factories, the stores and the offices are swallowing up sturdy young men every where.* [53]

The ageing countryside depicted by Bowsfield is still out there. The shops, stores, offices and to a lesser extent the factories, are still swallowing up the sturdy young men, and young women, though Bowsfield seemed less concerned about the latter. The ageing of many rural communities in Australia is being further accelerated by massive social and demographic changes in the wider Australian society. Because of our changing family structures, there are fewer and fewer young people being born in the country to export to the city. Because of the baby boom, there are proportionately more older residents to watch the football. And because of improvements in

preventative health, many baby boomers will live longer than their parents. The decline of the football club is a barometer of the demographic restructuring of Australia. Urban Australia should take a deep interest in the ageing of country Australia. It is a portent of changes that may eventually be felt in the cities and suburbs.

The Great Depression and the back porch

Why do we choose to have children? Are one, two or three children enough for a family? How we each choose to answer these questions are enduring subjects of study for demographic researchers. Demographers know the importance of these questions because the flow-on effects of our answers can fundamentally restructure a society over the following decades. Our individual and personal answers to these questions are also strongly influenced by the economic and social circumstances in which we live. This interaction of the past and the present to create the future is the allure of demographic research. The graph on this page depicts Australia's fertility rate through much of the twentieth century. The fertility rate is the number of babies a woman could expect to have in her lifetime given the fertility behaviour at that point in time. The peaks and troughs in this graph are a social history of Australian family formation and give us many clues as to the future of Australia.

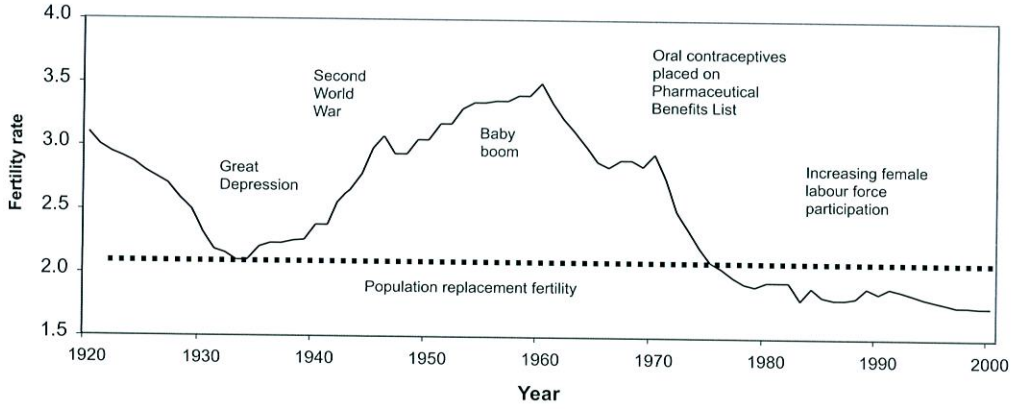


Figure 5 Australian fertility rate 1920–2000. [54]

In traditional agrarian cultures, children were not only loved, but were also considered to be an economic blessing. A large family provided farm labour and security in old age. The economic and social changes of the past two centuries have gradually changed this perception of children. Today, children are not seen as a source of labour for the family business and neither are they seen as a necessity for a secure and safe old age. Children are still valued for their own sake, but they are more generally seen as an economic cost rather than an economic advantage. Because of these changes, Australian families have tried to limit their fecundity. During the first century of white settlement, Australia's national birthrate slowly declined as children became less of an economic advantage to families. By the 1920s the birthrate was three children per woman. The Great Depression of the 1930s had a dramatic impact on birthrates as a generation of young men was discouraged from marrying and forming families. In this era the social norm was for the man of the household to take the responsibility of being the 'breadwinner'. Casualised intermittent employment was the only prospect for many men who realised they would be unable to fulfil

their side of the social contract of marriage. For those with families to support, life was often a desperate financial struggle. My grandmother supplemented the farm income by becoming one of many 'billy-farmers' in the district. She took up hand milking of ten Hereford-Jersey crossbred cows, separating the milk, selling the 'billy' (maybe a couple of litres) of cream to the local butter factory and raising a pig with the skim milk. The family home was a calling point for a steady trail of unemployed men 'on the wallaby' who would inquire about odd jobs for food. By the mid-1930s the Australian birthrate had fallen to two births per woman. Given the prevailing rates of infant and maternal mortality, this would have been below the rate of births needed to maintain Australia's population. In many households the wife banishing her partner to permanently sleep on the back porch would have achieved this slowing of the birthrate. Abstinence was the most dependable form of birth control. My 'billy-farmer' grandmother had only two children. I'm sure my grandfather spent much time on the porch. Those uncommon children born in the Depression are today aged between seventy and eighty.

Populate or perish

Hard on the heels of the Depression came the Second World War. Although war inevitably brings death and destruction, it also transformed an economy with an oversupply of labour into an economy with an undersupply of labour. Those not off to war had secure employment, which helped encourage a gradual rise in birthrates. The end of the war was the beginning of a new economic and social order in Australia. It must have seemed a magical transformation to those men who had spent a decade 'on the wallaby track'. The men who survived the war came back. Women left the workplace and returned to the home to make way for the returning servicemen. The economy recovered rapidly, driven by pent-up consumer demand and the seeds of war innovation and, in turn, this created jobs. The recent threat of invasion by the Japanese catalysed a sense of insecurity and a susceptibility to the belief that an underpopulated Australia would be unable to defend itself in the future. The Australian Government used the slogan 'Populate or Perish' to encourage family formation and to justify immigration. The slogan resonated with Australians more deeply than the contemporary call to supply 'One for Mum, one for Dad and one for the country'. In 1940 there were 30,000 births in Australia and by 1950 this had risen to almost 50,000 almost doubling the birthrate to 3.2 children per woman. This was the 'baby boom': anyone born between 1945 and 1965 is considered a baby boomer. The baby boom is now explained by many demographers as being caused by the delayed implementation of family formation aspirations deferred in the Great Depression and World War Two, as well as an increase in women's propensity to have children over their total lifetime.

The Mexican yam

While the Second World War was in progress, an American chemist, Russell Marker, was busy studying botany, and his studies would have as great an impact on Australia's birthrate as the Great Depression. Marker had discovered a method of synthesising the human hormone progesterone from the Sarsaparilla plant. However, the method was extremely expensive and Marker had taken up botany to search for a cheaper alternative. In 1941 he found the inedible Mexican yam to be a potential replacement for the Sarsaparilla vine but he was unable to interest any major drug companies in his discovery. This was surely the pharmaceutical equivalent of the music industry label Polydor releasing the Beatles from their contract in 1961 because they were more

interested in the singer Tony Sheridan. Marker resigned from his job, gathered his life savings, walked into the Mexican jungle and started harvesting these inedible wild yams. By 1943 he had reduced ten tons of the tubers into syrup and imported this back into the United States where he produced three kilograms of progesterone in a friend's laboratory. This was the largest amount of the drug ever seen. It had a market value of $240,000. This was a lot of money in 1943, and it enabled Marker to start a company in Mexico that would specialise in the production of cortisol hormones. The efficiency of Marker's new production process had a dramatic impact on the terms of trade of the drug. Within five years the price of progesterone had fallen from eight dollars to just one dollar a gram. By 1951, another chemist at the new company, Carl Djeressi, had succeeded in transforming progesterone into norethindrone. Unlike progesterone, norethindrone could be ingested orally; it didn't need to be injected. Based upon this chemical, a patent was issued in 1961 for the oral contraceptive pill.

The oral contraceptive pill first became available in Australia that same year. This was the year Australia's post-war birthrate peaked at 3.5 children per woman. At first the 'pill' was expensive, heavily taxed, difficult to obtain and strongly opposed by socially conservative elements of society. Despite these constraints, the Australian birthrate started to fall over the next few years. The year of 1971 was the 'first echo' of the baby boom. The first baby boomers, born in the late 1940s, started having their own children. The raw annual count of Australian births peaked at 75,000. With no change in fertility rates, Australia was heading for another baby boom, based not on increased fertility, but increasing numbers of fertile women. But this was not to happen. In 1972 the new Whitlam Government removed sales tax on the pill and placed it on the Pharmaceutical Benefits List. The contraceptive pill became cheaper, more accessible and gradually more socially acceptable. The impact of the pill on births was dramatic. Although not the motivating factor, it provided a reliable tool for women to regulate their fertility to match their changing aspirations, which increasingly included workforce participation. In the following ten years the birthrate fell from 2.9 to 1.8 per woman; lower than in the Depression and below the level required to maintain population. Birthrates have remained relatively unchanged since this time.

Passing of the generations

The rise and fall of the Australian birthrate has ripple-on effects as the successive generations of Australians take their path through life. The school system is one of the first sectors of society to experience the destiny of changing birthrates. During the 1930s and 1940s enrolments of Depression-era children in school education were low. Then in the 1950s the demand for places in schools rose rapidly as the baby boomer generation reached school age. By the 1960s governments found themselves dealing with the politics of portable classrooms, large class sizes and unqualified teachers. Declining birthrates were eventually followed by a period of school amalgamations some two to three decades later.

The employment market experiences the impact of changing birthrates some one or two decades later, when the new arrivals start working. The children of the Great Depression and the Second World War entered the workforce in the 1950s and 1960s. Partly because of their relatively smaller numbers, they experienced a period of low unemployment and secure employment conditions. The far more numerous baby boomers' years in the workforce have coincided with a period of labour oversupply, chronic unemployment and underemployment for the low-skilled, and the rise of dual-income households.[55] For the last two decades of the 20th century the Australian

labour market was unable to utilise the labour supply that was available. Unemployment and underemployment have been disguised by generous definitions of employment or retirement. The employer has held a stronger bargaining position in the labour market.

The ripples in the birthrate eventually reached the retirement advisers, the aged care homes and then funeral parlours. Over the past decade those men and women born during the Great Depression have been turning sixty-five years of age and entering retirement. Being born during a period of low birthrates, there are fewer of this generation than later or previous generations. Now the baby boomers are entering their retirement years. The first baby boomers reach sixty-five years of age in 2010. The number of Australians reaching this age will increase in each year following 2005 until 2025. Those born in the peak of the baby boom will reach the age of sixty-five in 2025. The number of retirements from the workforce will accelerate over the next decade, helping reverse the balance between demand and supply of labour.

The baby boomers are likely to live longer than previous generations. Improved nutrition, medical knowledge, lifestyle changes and new technology have all contributed to our common gift of a reasonable expectation of a longer life. In 1905 Australian male and female life expectancies were fifty-five and fifty-eight years respectively. Since that time life expectancy has risen to seventy-six for men and eighty-two for women. Much of the rise in life expectancy before 1960 was due to improvements in the life chances of children. In the early part of last century improved sanitation, plumbing and diets all increased the probability of a young child surviving the diseases of childhood. The development of antibiotics further improved the chances of young children reaching adulthood. Since the 1970s, increasing life expectancy has been due to health improvements among middle-aged and older Australians.[56]

The impacts of these demographic changes on Australian society are the subject of contemporary debate. The debate is focused on the problems that may come wrapped in the bundle with the irresistible gifts of longer life and a planned family. We have devoted our society's resources to attaining the objectives of a longer and healthier life, so now we are worrying about the implications of our success. In particular, two matters concern the nation's economists. One is that looming wave of retirements reversing the balance of power between employers and employees. In 2002 the federal government sounded the alarm to employers with the release of a report on the labour market implications of current patterns of work and retirement.[57] The report highlighted the risk of increasing labour shortages and wage inflation. The combination of looming retirements with improved life expectancy further worries the nation's bean counters. Does our country have the capacity to support the baby boomers' final years? [56] The interested reader is advised to follow up these matters in the reports of Access Economics and the Productivity Commission. [58]

What has received less attention in this debate is the manner in which the ripples of demographic change will reshape rural Australia. The farming sector and the rural community are faced with the same challenges but the opportunities and challenges will be more acute and experienced far earlier than in metropolitan Australia. Other researchers have suggested that rural Australia is a laboratory from which the rest of the nation can gain advance warning of the implications of the demographic restructuring of the nation.[59, 60]

Why is rural Australia the bellwether for the social impacts of the structural ageing of Australia? Structural ageing is an outcome of reduced birthrates and increased life expectancy. In rural

Australia the impact of decreasing birthrates is amplified by the migration of the young to major cities. This accelerates the structural ageing of the farm and rural population with schools and football clubs being some of the first institutions to feel the impacts. The farm sector is feeling the impacts as well, with the average age of Australia's farmers rising inexorably from forty-four to fifty and onwards towards sixty in some regions.[61] It doesn't stop there. In another decade or two, the very social sustainability of some country towns will be threatened. In the rest of this chapter we look first at the demographic changes in the farm sector, and then at the demographic changes in country towns.

The elusive dream of the farming dynasty

My trip to work each day is a drive through the outskirts of a rural town. The town likes to think of itself as a provincial city. It is large enough today for its fortunes to be insulated from the fortunes of the rural hinterland that surrounds it. For most of its residents, farming is something that happens out there beyond the city limits. As in any major Australian city, few would have any personal connection to farming. But the city is still important for farming. To the north of the town is a livestock exchange. A generation ago it would simply be known as 'the saleyards'. The route to the livestock exchange is the local farmers' alley. Most major farm-supply businesses have established themselves along the road to the exchange, in the knowledge farmers driving to the regular livestock sales will see their premises. I drive through this small strip each weekday on the way to work, and so experience my daily dose of rural-merchandising promotions. For the past few months I have passed a billboard advertising a financial institution. It shows a picture of a middle-aged farmer standing by a gate with a young man in his early twenties, presumably his son. Both are smiling with satisfaction. The message is a simple phrase about the continuity of farming generations. The image is iconic. It encapsulates the life's dream of many a farming family. That dream is for the parents to pass on to the next generation a thriving farm business that offers the opportunity for an economically secure and personally satisfying life. But the image is increasingly difficult to find in the rural community. Those families that can achieve this dream have done so against increasingly difficult odds.

Let's return to the problem of productivity. Remember from the previous chapter that there will be fewer farmers each year because of productivity pressures. Remember also, that simple and brutal equation; in every generation approximately one in two families will remain on the farm. The farm business must generate sufficient profit over this time to double its size. But for most family farms even this will be insufficient. The average farm family will have two children. Modern inheritance expectations are that all children will share in the inheritance. So for a single descendent to inherit a farm, not only must the farm double in scale to maintain pace with declining terms of trade, it must also pay out an inheritance to the other siblings. For many farm businesses the hurdle to intergenerational transfer is a requirement for the farm to perhaps triple in scale in one generation. That is quite a hurdle. No wonder the middle-aged farmer on the billboard is smiling. It's not just a statement of the satisfaction of a close relationship with his son. It is also a satisfaction at believing he has beaten those odds. Most of his neighbours will not have done so. In a sense, his success has to come at the expense of their failure. He will have purchased the farm of at least one neighbour.

What is true for the farmer in the billboard is true for agriculture as an industry. Economic sustainability must come at the price of farm dynasty failures. So the question of who leaves

farming, and why, is of great interest to those with a concern for the future of Australian farming. As we will see, the people who do choose to leave farming are dramatically reshaping the demographic profile of the Australian farm sector.

In the first chapter we saw how the Australian farm sector is composed of many small farms and few large farms. Despite their small number, the large farms contribute disproportionately to the agricultural output of Australia. The financially smallest half of Australia's farms produce only 10% of value of production. The financially largest 10% produce almost half the value of production. As a group, economists tend to place great importance on economic efficiency and productivity. Small farms are generally less efficient than large farms, and collectively they are not achieving productivity increases. The larger farms capture most of the productivity increases in Australian agriculture. To the agricultural economics profession the large number of small, inefficient farms failing to increase productivity has been a concern. The farm sector would have a greater chance of surviving the challenges of international competition if farms were larger. One could never accuse agricultural economists of being sentimentalists. As a profession they have followed the inexorable logic of an oversupply of small farms to argue that we need far fewer farmers, and that we need to encourage more farmers to quit farming. The story of national agricultural policy in the past fifty years is the story of the agricultural economics profession injecting this logic into the corridors of Canberra.

An outcome of this policy logic was the development of 'structural adjustment' policy for the agriculture sector. A succession of 'structural adjustment' programs designed to facilitate a restructure of the farm sector towards fewer, larger farms appeared and disappeared during the 1970s, '80s and '90s. The programs evolved with each new drought or industry downturn. They were always a delicate compromise between the economic goal of efficiency, the farm lobby's desire for the survival of its members during difficult times and the competition for funds from other programs and priorities. What each program shared in common was a general failure to increase the rate at which farmers left farming. It was as though the program designers completely misunderstood the motivations of the average farmer on a small farm.

Who leaves farming?

In the relatively rare cases where farmers have been forced to leave a farm by the foreclosure of banks, the media has often found the emotional images of farm evictions irresistible. The reason for the emotion is quite plain. For many farmers, farming is more than an occupation. It is a vocation. The farm is more than a job. It is a home. The decision to leave the farm may well be a decision to leave a job, a home, a community and an identity. However, the foreclosure images do not portray the more mundane reality of most farm exits. It was an American agricultural economist who, in 1963, best summed up the reality of leaving the farm:

> *Men once fully committed to farming leave it reluctantly and slowly ... [and] young men refuse to enter farming as long as income prospects are poor.* [62]

Decisions to leave farming are more likely to be willingly taken by young farmers, or by farmers nearing retirement age. It is these decisions that contribute most to the declining number of farmers.[61] There are often good reasons for the average farmer's commitment to continue farming in the face of declining prices and climatic setbacks. Many farmers in their mid-career will have

made a significant investment in developing farming skills and in building equity in the farm business. The farmer will generally choose to protect both these investments rather than leave in a hurry. Farming is not an unskilled occupation! A change in career or business requires the ex-farmer to invest in new skills, and often a period of lower income ensues while those skills are developed. The older one is when making a major change in career, the fewer years one has left in which to make a return on any investment in skills development.[63] During most of the past 30 years the oversupplied Australian labour market would have been further discouragement to many contemplating leaving their farm, though the limited available evidence suggests that farmers generally feel positive about leaving agriculture after the initial adjustments.[64] The more recent appearance of shortages in the Australian labour market may have made the transition out of agriculture more attractive for younger farmers.

Then there is the problem of protecting farm equity. The farm is, for most farming couples, both their business and their superannuation. The pressure to sell a farm because of poor performance will be greatest during crisis periods—normally an industry commodity price downturn or drought. Typically during these periods small farms will generate little or no net income. Paradoxically, this makes it less attractive to leave farming because the market for farms will be depressed. Selling the farm may mean accepting a significantly lower price. A lower price for the farm means there is less chance of buying a house in a larger town, buying a business, or having a reasonable superannuation fund. Faced with the prospect of a major capital setback, most farmers would prefer to hang on until the industry improves and the market value of the farm business recovers.[65]

For these reasons, the traditional response of farmers to difficult times is to 'pull in the belt and hang on' rather than selling the farm and leaving. That means, cutting back on farm and family expenditure, seeking other income, and petitioning their farmer organisations to lobby the government for assistance. And when the financial situation recovers, the temptation is to continue farming because the crisis has passed. For the past three decades the rate of exit of forty-year-old farmers has been stable at around 4% per annum, half the exit rate of older and younger farmers. Those forty-year-olds who do leave 'mid-career' may be as likely leaving because of divorce or personal satisfaction as for economic reasons.[66]

Most farmers will prefer to leave when it suits their life plans, generally as some form of retirement. In the past decade this retirement choice has been increasingly deferred to a later age. Presumably this is a reflection of our increasing life expectancy and the decreasing hard labour demands of farming. Taken to its extreme, some farmers choose to 'retire in a box'. This is the ultimate personal statement about the job of farming being more than just a job. Interestingly, some forms of farming are more of a job than others. Whilst graziers tend to farm longer, sometimes retiring *into* the job of being a farmer, dairy farmers will generally seek to retire in a more conventional manner. No-one chooses to retire and buy a dairy farm as a hobby. A grazier once told me that dairying was a term of penal servitude twice a day for the term of your working life.

This analysis helps explain why the policies to 'accelerate agricultural adjustment' by providing incentives to leave farming have had a very limited uptake by farmers. While attempts to increase the number of farmers who leave farming are unlikely to succeed, there remains an alternative strategy for policy makers—reducing the number of farmers who enter farming. Maybe the 'small farm problem' of the past fifty years should have been seen as caused by too many people taking

up farming. If fewer were to take up farming, then the number of farm amalgamations would increase.

> *[We need] a policy which ensures that another mug doesn't take up a farm when it is vacated by somebody who hasn't been able to make a go of it. If there is no way of preventing somebody else with starry eyes as to what he can get out of farming coming in and buying these properties, then you will always get a proportion of people [in poverty on farms]. This is because, from the 90 per cent of the population who isn't farming, 1 or 2 per cent are prepared to buy and enter subeconomic units.*
> Professor John Nalson in 1969.[19]

The problem remains today.

Young farmers and farming efficiency

The decisions of the young are the engine-house of farming's response to the declining terms of trade. The young have less of their life invested in agricultural skill development. They have less ownership of farming land and equipment. They have more time to take advantage of training. In short, they are the ones with the least to lose and most to gain from a career change. This is indeed where the major 'adjustment' decisions are made in Australian agriculture. The decisions having the greatest impact on the demographic structure of the farm community are being made by the new generation that decides not to follow in the career footsteps of their farming parents. These decisions are disquieting to the older generation in farming communities. Much like Bowsfield some ninety years earlier, there are often expressions of alarm from state farming organisations about the shortage of young farmers, with occasional calls for government to support young people to enter farming.

As Clawson said *'young men refuse to enter farming as long as income prospects are poor'.* [62] Clearly, if you want to inherit a farm, it is important to inherit the right sort of farm. More than one laconic humourist in the Australian farm sector has described traditional inter-generational transfer of the farm from father to son (or daughter) as a form of child abuse. There is an element of truth in this quip if the farm passed on is one of the numerous small farms in Australia, and is accompanied by the encouragement of an unrealistic expectation that it will be possible to build a future career based upon that farm.

Few farm families push such an unrealistic expectation onto their children. Often the decision not to farm is being made with the encouragement of farming parents. As parents, most farmers are quite aware of the brutal equation of productivity. Many families will realise that the chances of passing the thresholds required for the following generation to expect a rewarding and secure farming career are limited. They prepare the young by investing in a good education. Many of the small government schools in the Australian cropping zone are notable for their high scholastic achievements. These achievements are a necessary step to a career outside agriculture.

Because of these trends the family farming apprenticeship, celebrated in that billboard I drive past each day, is slowly disappearing. In 1981 approximately 1,600 young men (aged fifteen to twenty-five) entered farming. Fifteen years later, this had halved to 800, in response to drought, high interest rates and low prices for some commodities such as wool. In the same period, the number of fifty-year-olds entering farming remained unchanged. Today 800 people aged fifty to fifty-four enter farming each year. The average age of a new farmer in 2001 was thirty-eight years. Modern

farming requires an increasingly complex set of skills. The farm is not the best setting to learn all these skills. Even those young men and women with a secure expectation of inheriting a family farming business are likely to leave the farm for a period for education and work experience. Of course, once a different life is experienced away from the farm, farming may lose its attraction. Likewise, the high capital cost of entering farming is a barrier to a young entrant. Few twenty-year-olds working outside agriculture can expect to own and operate a business with a multi-million dollar capital base. With the older generation likely to remain on the farm longer than previous generations, the chance for a son or daughter to take control of the business may not arise until the younger farmer is in his late forties or fifties. The prospects of working for Dad until after one's own children have left home might make a career outside agriculture seem attractive. I think the billboard is aimed at the older generation!

For young people interested in farming, the path to early employment is increasingly in the agricultural support sector. As the farm-services sector increases its share of the total income of agriculture, and as the technical skills needed to service agriculture rise, the opportunities for salaried employees and consultants are growing. Despite the decline in the number of young farmers, employment opportunities for graduates of university agricultural courses are good. However, universities have trouble attracting students to agricultural courses.[67] Entrance scores for these courses have fallen over the past decade. The image of agriculture is part of the problem. The farming sector has generally rewarded its employees at the lower end of the wage market. Farm industry bodies have, over many years, argued against wage increases, then lamented a shortage of labour. This is inevitable behaviour for an industry that is a price taker in international markets, and in which there are many small businesses with limited capacity to pay a reasonable wage to the operator, let alone hired employees. Though this position might be understandable, it has, together with regular publicity about hardship on farms, helped create an abiding image of agriculture as a low-quality career. In response, university faculties have been re-badging their courses to emphasise agribusiness, food industry and conservation. They have de-emphasised the relationship to farming. The problems faced by the university sector are indicative of the challenges facing the farm and agribusiness sectors as a whole, as demographic changes tighten the labour market against employers over the coming two decades. Agriculture will find itself with increasing difficulties competing for the shrinking pool of younger workers who can see bright prospects in other sectors of the economy. It is unlikely re-badging of rural industries will overcome this fundamental shift in the labour market. Successful agriculture will increasingly be dependent on productivity innovations that reduce dependence on labour, and reward employees with remuneration packages that are competitive in the wider labour market. Not all farms will be able to do this. Those that cannot will have poor future prospects.

The ageing of the farm population

With many farming families making the decision to propel their children towards a career outside farming, the result is a social landscape in which the generation in their twenties and thirties is 'missing'. This creates a 'structural ageing' of the farm population. With farmers both living longer and farming later in life and a falling rate of recruitment of younger people to farming, the median age of Australia's farmers has been steadily climbing since 1976.[61] This reduced recruitment is how the farm community has been adjusting to the pressures of productivity. It is helping the Australian farm sector maintain its competitiveness on world markets. But

this adjustment means the farm population in much of Australia is in transition towards a new structure that will be quite different from that which prevailed before 1976.

Over the past three decades a baby-boomer bulge has been working its way through the age profile of Australia's agricultural industries. This generation of farmers has shown a strong preference to remain in farming despite financial fluctuations in agriculture. Increasing life expectancy and labour-saving technology on farms is allowing many to continue farming longer than the previous generation. Just as the urban baby boomer shows less concession to age than previous generations, the baby boomer farmer will keep on farming. This is creating a new pattern of farm transfer between generations that is quite different from the billboard image. The next generation will be given their opportunity when the son (and sometimes daughter) receives a phone call from Mum. The message might be that Dad is finding the farm too hard and it's time to think about the farm as a career. The son or daughter is in his or her forties and is settled in town in a career or business. They then face two questions: do they wish to take on the farm? And do they wish to leave behind a current career, and possibly a spouse's career? Then there may well be the children, their education and friends. Some are ready for the call and respond with a 'yes'. This can be seen in the rising average age of new farmers in Australia. In 2001 the average age of new male farmers was almost forty. The average age of new females in agriculture was forty-four.[68] Those who are not ready for the call must then deal with the emotional challenge of selling the family farm.

Many older farmers know that their children have already made the decision not to farm. They will not even bother asking the question. This is particularly the case for operators of small farms. They know that when they cease farming, the farm will be sold. Many of the baby boomer farmers will retire from farming between 2010 and 2020. In some parts of Australia we can expect that this wave of farming retirements will open opportunities for younger farmers to expand their holdings, or for hobby farmers to buy farms. If the former happens, the average age of the farm population will begin to fall. If the latter occurs, the new farm population may be one of older hobby farmers. The rural landscape will have been gentrified.

In the meantime, we live in an era of a transitional population of older farmers which may create opportunities for those seeking to farm in a different way. Ageing farm populations are to be found across the developed world. Australia's farm population is young compared with the farm populations in Europe, North America or Japan. One quarter of United States farmers are aged over sixty-five and they comprise half of all owners of leased farmland.[69] In the state of Iowa, much of the farmland is owned by farmers aged over sixty-five. Half the cropping land in the state is leased.[70] Farming by the younger generation of farmers is less and less associated with farm ownership but instead with farm and business management skills. We may develop similar patterns of farming in parts of Australia.

The future of small towns

The small country towns of rural Australia are in economic competition with each other, much as is the case with farmers. Many were established in an era when horses and rail provided transport and had but one role—to service the surrounding farm community. There are far fewer farmers today, and those farmers are able to travel much further in search of competitive services. Small towns that were founded on the assumption of a now outmoded transport infrastructure

have had a hard time surviving once motorised transport became the basis of commerce. With each improvement in transport capacity, purchasers are able to travel further to undertake their domestic and commercial transactions and purchases.[71] In a unique research study undertaken in northern New South Wales, Richard Stayner found many farmers believed they could not afford the luxury of supporting their local town by preferentially allocating business.[72] They were engaged in their own constant race against the terms of trade and this pressure took preference over local loyalty. The local shopping strip must compete with the larger centres in price, service and convenience. Local loyalties are not enough.

The terms of trade pressures on the service industries that support farming are every bit as intense as experienced by farmers. Like their farming clients, farm suppliers have been forced to seek scale to survive. In the space of ten years, in the late 1970s and early 1980s the number of pastoral supply brands in rural Australia shrank from nineteen to three.[73] In the 1990s the number of bank branches in rural Australia was savagely rationalised.[74] Sometimes the forces against small towns are more subtly embedded in technology. The increased size and sophistication of machinery on cropping farms illustrates the irresistible and pervasive nature of rural town decline. Larger machinery is an important component of the increased productivity of cropping farms. The size, capacity and sophistication of machinery have rapidly evolved over the last fifty years:

> *... in the 1920s a competent local mechanic could provide all the services to keep ... a tractor running reliably. A town with fifty tractors in its hinterland may have kept a mechanic in full-time employment, and much of the money expended by tractor owners would have remained in town. In contrast, the modern tractor requires a hydraulics engineer, an auto-electrician, an air-conditioning expert and specialist transmission engineers. Because the amount of maintenance expenditure per tractor is spread across a greater number of skills, each of these firms has to service a much larger district to have the volume of work to remain viable. This effect is increased by the improved reliability of the technology which means servicing is required less often. The obverse of bigger service catchments is service expenditure occurring at a greater distance from the person making the expenditure. Less is spent on the local generalist mechanic and more is spent in the regional service centre.*[75]

Attracting the skilled staff needed to service modern harvesting equipment will also be easier if the employment is located in a town with a high level of social and service amenity.

With the loss of economic purpose for the town comes a loss of economic opportunity for those living within the town. Much as is the case on the farm, it is the young beginning their careers who are most likely to seek opportunity elsewhere. The migration of the young to major cities is driven by the search for educational, employment and social opportunities. The desire to leave is partly cultural and partly a recognition of the economic realities which have faced young Australians over the past three decades. The economic pressures on the agricultural sector are part of the wider transformation of the economy and the labour market. This transformation has been particularly harsh on the young unskilled worker. Two factors in particular have reduced the opportunities for young people. Competition from rising female labour force participation has led to a significant lessening of earning potential of young men in particular.[55] From the 1980s to the 1990s, the number of full-time jobs held by teenagers halved.[76] Secondly the shift from manufacturing to service employment ensured that many of those jobs that remained were unskilled and often casualised.[77, 78] These changes made the transition from education to work much riskier than that experienced by the previous generation. The teenage labour sector experienced a 20% drop in real earnings between 1976 and 2000. Advocates for the youth sector

have warned of the risks of creating a disenfranchised generation.[79] and, it matters where you live. Regional specialisation has rewarded some regions and punished others.[78] Regions specialising in broadacre agriculture offer few opportunities for youth.

Opportunity for the young is found in education. In my lifetime the nature of tertiary education has changed dramatically. I was the first in my family to receive a tertiary education. At the time of my enrolment in university in 1973 I was told I was special. No-one before me had ever been to university! Looking back, I can see now I was lucky rather than special. Lucky to be born when I was. In 1955 university education was a luxury for the privileged. But the rapid advances in technology catalysed by the Second World War meant Australia needed a better trained workforce. The Menzies Government and subsequent Liberal Governments gradually increased university enrolments to 128,000 in 1972. The Whitlam Government, elected in 1972, made tertiary education free, and further increased the number of places available. Despite the gradual re-introduction of tertiary education fees in recent years, enrolments have continued to rise, climbing to over 600,000. In 2003, 70% of Victorian Year 12 students progressed to post-secondary education.[80] In one generation, tertiary education has been transformed from a mark of privilege to a necessity for many young people. This has changed the pathway to adult independence and household creation. Youth is forced to defer its transition to independence. Today over half of people aged between fifteen and twenty-four are financially dependent upon their parents.[81]

The paths to secure employment and higher education are less accessible in many regional areas. Rural students are much more likely to have to leave home to pursue their education. The cost of leaving home ensures more regional students defer their entry to tertiary education as they seek employment and official 'independent' status.[80] I am reminded of a recent presentation of the school dux award at one of Australia's largest regional secondary schools. The award is presented twelve months after the exams so the high achiever can be an example to those still at the school. This high achiever had earned entry into a medical degree. When asked to report what he had been doing he was able to gleefully reply that he had spent twelve months on an assembly line with his hands probing chicken carcasses for unremoved entrails. This was to ensure he gained independent status, and thus received some government support so he could afford to study medicine.

Like education, employment opportunities entice those not seeking further education to leave anyway. Those who can find local employment will have an isolated social existence. Their contact with the youth culture of the day may well be through nationally syndicated radio or television. They will hear of the social and cultural opportunities available in major cities. This will provide further incentive to leave home, just to be where the action is. Don't think the young are complaining about this situation. Generally they are excited by the prospect of leaving their home town. It is their parents left behind who show the concern.

I recently visited a community expo, organised in a small country town, where social sustainability and migration were the focus of community attention. The event was based at the local secondary school during school holidays. In the main function tent the adults of the town debated the question of community sustainability. It is only in small country towns where one hears this topic debated. In the major centres of population social sustainability is assured and the concept would not even be in the consciousness of most residents. Out in the wheatbelt, social sustainability is not a vague concept. It is a problem today. The speakers at the expo included politicians, bank

managers and researchers. The questions from the floor were passionate, well-informed, and demonstrated a strong streak of rural practicality being applied to the problem. Outside some of the students from the local school were serving food to the visitors, or just 'hanging out'. Given the passion of their parents, I thought it might be interesting to have a chat with the next generation about the sustainability of the town. The response to my questions was revealing, and dismal for the future of the town. All but one of the young men and women couldn't wait to move away. The desire was not spoken with resignation, but with a vehement passion. They were not being forced out. They couldn't wait! The lure of education was obvious, but the attraction was far deeper than that. They all agreed there was nothing to do in the town, and that this would only get worse as their friends moved away in the next few years. No-one wanted to be the last one left. The more bohemian amongst the group disliked the strong sense of social control in the town and longed for greater personal freedom. The town was boring, limiting and stifling.

There was a small glimmer of hope for the town. One girl thought it might be nice to marry a farmer. She had never lived on a farm and believed that farmers were generally well-off. Some of her classmates were quick to point out the problems with this life plan. When pressed, one or two students believed there was a possibility they may return later in life to have a family, but this would depend upon there being reasonable job opportunities. Given their educational aspirations, they thought this was still unlikely. How many positions would open for fashion designers or animators? Further, they would need to marry someone who was also partial to a return to the country and who had a career that allowed such a move. The small numbers which do make the return to the country to raise a family manage to only marginally slow the inexorable population decline.

This generally negative view about farming and rural life was not coming from a depressed rural town. The local farming landscape was notable for its many successful cropping farms. The local farmers were renowned for their innovation, both in farming and in their enthusiastic and successful efforts to maintain and build the local community. Academic research had identified this town as having somehow maintained a level of services out of keeping with the services in other towns of a similar size.[82] For all this, the children of the region couldn't wait to leave.

There was nothing surprising in this conversation. The attitudes of these young men and women could be found in rural towns across Australia, New Zealand, the United States and Canada, Europe, and indeed, in most of the world. In the modern world it is the cities that offer the promise of riches and excitement, and it is the young who flock to them to escape what is seen as a sometimes onerous, often unrewarding and generally boring life in the countryside.

The future when there are few young families

The migration of the young to the cities greatly enhances the impact of reduced fertility on structural ageing. Remember that since the 1970s birthrates have fallen in rural areas as well as the major cities. As a result, there are fewer people being born per family than a generation ago. This alone would ensure structural ageing in rural areas to match the ageing in major cities. But the impact of fewer births is multiplied many times over by the migration of the young out of these towns. The result is structural ageing of regional populations that is much faster than seen in major cities. In fact, by exporting their young, rural regions are reducing the rate of structural ageing in major cities.

Age profiles throughout rural Australia show a hole in the age graph where the twenty-year-olds should be. This hole means that there is yet another step in this story. The loss of the young is now so great in some localities that the parents of the future families of the region are no longer there. These regions are rapidly losing the capacity to generate future populations through natural increase. The impact of this double-whammy can be seen in the population projections for rural shires in the wheatbelt. We'll take as an example the shire of Buloke in north west Victoria. This was where I had my discussion with those secondary school students who couldn't wait to leave. Buloke is not exceptional, but typical of many small towns in the Australian wheatbelt.

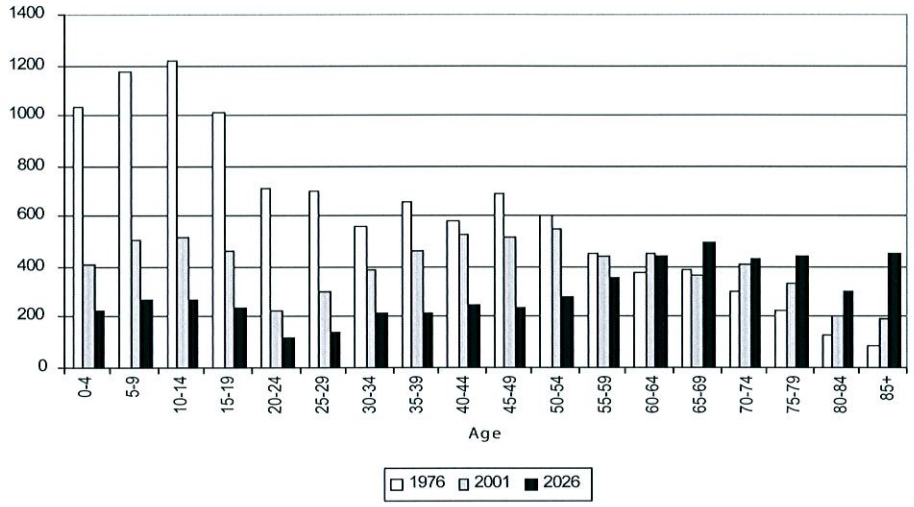


Figure 6 Population of Buloke Shire in 1976, 2001 and projected to 2026. [84]

In 1976 the population of Buloke was dominated by children and teenagers. These were the children of the 1960s; the later baby boomers. There were fewer young people aged in their twenties, demonstrating that migration to the city was a common choice of the young even then. But the extent of this migration was not as great then as it is today. There were fewer educational opportunities in the city, and greater employment opportunities in the local economy. Twenty-year-olds were as numerous as forty-year-olds. The local football teams had perhaps a pool of 1,500 young men from which to pick their teams. There were just over 1,000 people aged older than sixty-five, reflecting both lower birth numbers during the early part of the twentieth century and lower life expectancy.

By 2001 the impact of fewer births and migration of the young is clear. The number of children and teenagers had fallen by 60%. This is an outcome of the reducing number of births. But in the twenty-somethings age group, the impact of declining births was exacerbated by strong out-migration. In 1976 there were more than a 1,000 preschoolers. In 2001 this group was aged in their late twenties and there were only 300 of them left in the shire. Over 70% had left. Without this migration, the football teams would have had perhaps 2,000 young men from which to select players. Instead, they had a pool of only 700.

Projections for another twenty-five years show the impact of this migration hole working its way through the age profile, reducing the number of young people still further, but also gradually

reducing the number of people of family-formation and working age.[51] The latter changes reduce the capacity of the local population to produce the next generation of babies. There may remain a pool of only 300 young men from which the football teams can draw players. In nearby Ouyen the remaining two football clubs, United and Walpeup, will probably be forced to merge. The impact of youth migration will be felt in older age groups. Unlike the previous twenty-five year period in which the working age population declined only marginally, in these projections the next twenty-five years will see the working age population decline by 40%. Meanwhile, the number of people aged over sixty-five will not decrease, but increase. The age profile is extending to the right as life expectancy increases.

If one extended these projections further, one might be able to set a date for the disappearance of some towns. Would we want to make such predictions? No government is going to want to write the press release that announces the date of a town's closure. Of course, such projections become increasingly uncertain as they are extended into the future and can rightly be subjected to further close scrutiny with their continuing attempts to push forward in time. But the projections point to a problem of planning for the future. Unless the current migration and birthrate patterns change markedly, the future is one of smaller and older town populations.

Services and town futures

How does one plan for population decline and eventual closure? That is the challenge we are given by these projections. They tell of towns whose purpose for existence is changing dramatically. They are no longer agricultural service centres. One future is as a retirement town. At this stage we need to look at a simple social indicator—the aged-dependency ratio. This is the ratio of the number of people aged over sixty-five to the number of people aged fifteen to sixty-five. This ratio is a rough and ready indicator of the population balance between those of working age and those of retirement age. In 1976 the aged-dependency ratio of Buloke was eighteen. By 2001 this had risen to thirty-four. Buloke was typical of many small municipalities in Australia's grain belt. Across Australia, few local government areas had ratios greater than forty. In the major towns the ratio was generally below twenty. The demographic projections suggest the ratio in Buloke will rise to eighty-five in 2026 and ninety-nine by 2031, assuming current migration and fertility patterns remain unchanged. Buloke is not alone. The map below shows the projected aged-dependency ratios for Victorian Statistical Local Areas in 2031. There are twenty other rural localities and towns in Victoria with ratios projected to exceed eighty and another thirty projected to exceed sixty in 2031. Not one locality exceeded a ratio of forty in 2001.

If these projections are fulfilled, it is clear many parts of rural Australia will be quite unlike anything that exists today. Rural communities would face an enormous challenge in attracting the skilled workers and businesses needed to provide services to support the aged population. For an ageing population the doctor/pharmacist/hospital becomes increasingly important. A town needs to jump quite a few hurdles to have a chance to maintain these services. First, the town needs to be large enough to provide sufficient demand to make the service financially sustainable.[82] This is just a beginning. The case of the doctors is instructive.

Most rural areas have trouble attracting medical practitioners and dentists. This is particularly so for those in the more remote and less attractive locations. Besides offering a viable business

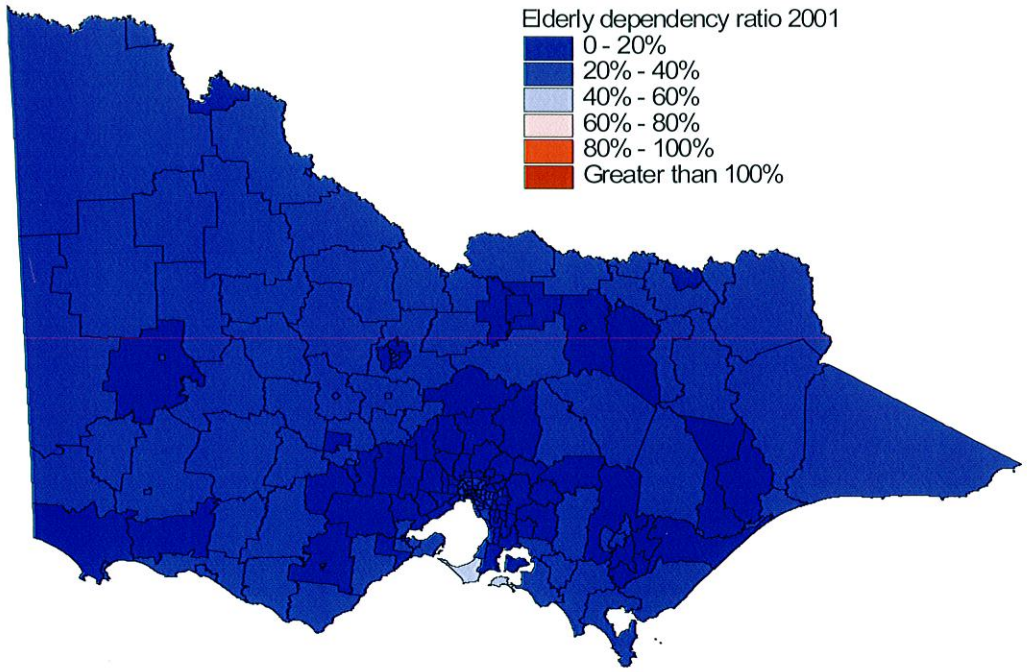


Figure 7 Aged-dependency ratios for Victorian Statistical Local Areas in 2001.

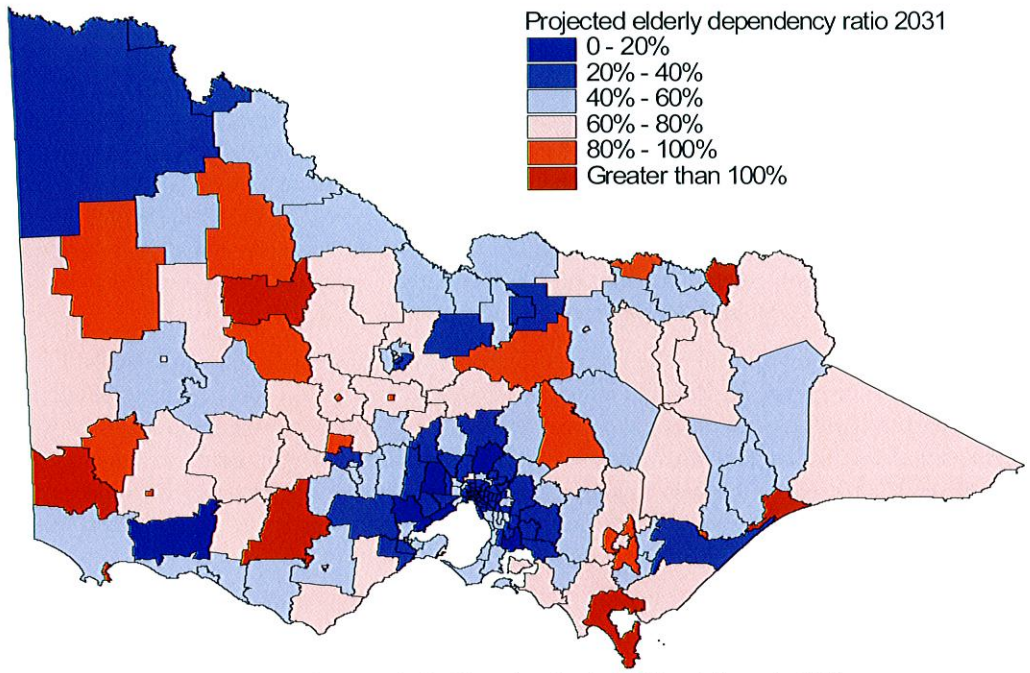


Figure 8 Projected aged-dependency ratio for Victorian Statistical Local Areas in 2031.

or employment opportunity for a doctor, a town also needs to offer an acceptable lifestyle for both the doctor and partner. This may mean a career opportunity for the doctor's spouse. The town also needs to provide amenity as part of that lifestyle. Doctors do have time off work to enjoy their environment, and will generally choose to live in pleasant surroundings. If the young people of the town are leaving for what they perceive as a better lifestyle elsewhere, then chances of attracting a young doctor are slim. The working conditions for rural doctors are problematic. Rural practices are perceived as demanding unreasonable working hours. A town courting a doctor needs to be able to promise an escape from the job. If there is only one practice, this is difficult. A town also needs to provide the services a modern urban-trained doctor seeks. Research suggests that foremost among these services is a private school.[83] Towns without a private school will lose their medical workers once schooling becomes a family priority for medical practitioners.

Newly graduating doctors unattracted to the career of a small town medical practitioner will not be forced into these roles through lack of opportunity elsewhere. The number of medical graduates has been increasing, but the rise is too small to meet the anticipated rising demand for services from an ageing population.[84] The increasing proportion of female young graduates from medical schools exacerbates this mismatch. Over a lifetime a female medical practitioner will work fewer hours than a male practitioner.[85] The increased supply of graduates may translate into a decreased supply of service hours. Finally, medical practitioners have shown they are able to set up practice in sometimes oversupplied urban locations and succeed in generating workload.[86]

The traditional model of a resident family doctor living in a town will be increasingly out of reach for small towns that cannot support a second medical practice and provide private schooling, a rewarding career for a spouse and a pleasant lifestyle. Rural health service managers are employing overseas-trained doctors to staff many rural medical practices. This is often a revolving door. The overseas doctor often uses the rural medical practice as a gateway into urban Australia. Research shows that many will only stay as long as necessary to allow migration to a large city.[83]

Without a reasonable medical service, a town will not support a pharmacy. The hospital may become unviable. It will then become harder to attract other professionals such as teachers. And without teachers and doctors the town will not attract business investors. And without business growth, the town will find it hard to generate the career possibilities for doctors' partners. You can see the circular logic. A town needs all these services and more to survive, and with each loss of service, others are placed in jeopardy. In the future, only the largest regional centres can hope to achieve the full suite of lifestyle services to attract modern professionals. The smaller towns will find the competition very difficult. If they fall within commuting distance of one of these major towns, they may be able to re-invent themselves as dormitory suburbs. Elsewhere, they will need new models of service delivery that do not require professionals to live within the town.

Increasingly, this new form of service delivery by commuting professionals is developing. Sometimes the commuting is part of the job structure, such as the occupational therapist who drives 200 kilometres from Bendigo to Sea Lake for a round of assessments each month. Sometimes the arrangement is domestic, such as the CEO of a western Victorian shire whose family lives in Melbourne and who commutes back home each weekend. Occasionally the arrangement can be recreational, like the medical practitioner who flies to rural towns and claims tax-deductible flying hours. This new commuting class resides in the larger regional centres where they can access the services that they desire. This changes the social structure of the smaller

towns that once relied on the passing flow of these temporary residents for town leadership, marriage partners, social innovation and even football coaches and players.

Social sustainability and small towns

There is an inevitable sense of grievance in small rural communities that their town has been 'allowed' to gradually decline. Sometimes the anger can be directed at a government that has withdrawn a service, or a private company that has closed a branch operation. Sometimes the cause of the decline is harder to pin on anyone in particular. This grievance should be easy for us all to understand. Most of us have a sense of attachment to localities that have played a special part in our lives. If we have spent most of our lives in that one place, then a creeping sense of grief is an understandable reaction.

There is no force for justice underpinning the workings of the economy. It is a sad fact that some towns must fail in order that some will survive and prosper. There is an argument that this 'creative destruction' is an inevitable requirement for a socially sustainable rural community.[87] If there is no capacity for adjustment, then the whole social system will inevitably collapse. One academic commentator told a national small towns conference in 2001 that the best policy for government is to accept the inevitability of small town decline and assist those who wish to rebuild life elsewhere.[88] The media response to this suggestion by Gordon Forth was an education in the sensitivities of small town politics.[89] He was condemned on rural radio across the country.

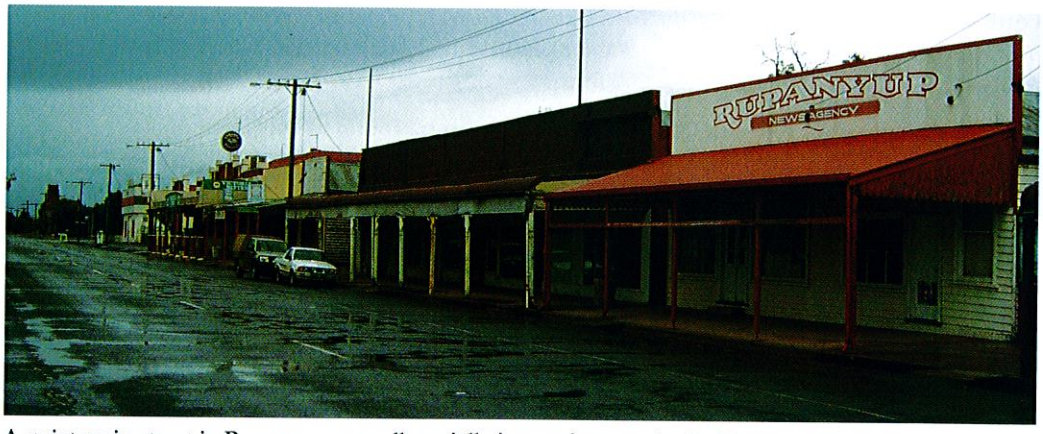
The advocates for these small towns will not willingly lay down the cudgels and accept terminal decline. Despite the best of intentions, it is often difficult to see what tools are available to secure a declining small town's future. The agricultural sector will not cease in its quest for increased productivity. We have no capacity to halt the terms of trade of our exported farm products. How are we to halt the migration of the young? Their aspirations are greater than getting a local job. Generally they see no harm in their migration. Rather, it is the older residents left in the town who are concerned by the flight of the young.[90] This issue was debated during a radio conference conducted in the wheatbelt town of Horsham a decade or more ago. When asked about the major issues confronting the region, one after another of the audience members nominated the loss of the young people to Melbourne. Eventually the moderator sought out one of the few younger people in the room and solicited his thoughts. The brave young man responded that he and his friends didn't see what the problem was. As far as they were concerned, the move to the city could only be good for them.

In the next chapter we will explore the most likely means by which many small towns will avoid the demographic trajectory projected for shires like Buloke. The second small towns conference, in 2006, was an optimistic affair. Many small towns had experienced a population turnaround since the first conference. Migration from cities was filling empty houses. Housing and land markets were buoyant. The future was again rosy for some. Once again, fate has not dealt a balanced hand to all towns. In the state of Nebraska in the United States there are many small towns with a declining and ageing population. Social researchers have looked closely at the aspirations of urban migrants into some of these small rural towns. The migrants generally say they want a quiet and peaceful life. But when the researchers probed further, they found that the migrants didn't want it *too* quiet or *too* peaceful. They were generally unattracted to the smallest of towns or to towns too far from major population centres.[91]

There will remain many small towns that migration will not deflect from a declining and structurally ageing population. While a town on this trajectory may not be sustainable, it doesn't mean the residents are unhappy. There are communities that have already reached this point. The most celebrated is the Japanese island of Oshima. The island's demography has been shaped by the same phenomena that are reshaping Buloke—limited economic opportunity, out-migration of the young, greater life expectancy and limited in-migration. Today half the population is aged over sixty-five and a quarter over seventy-five. There are seven septuagenarians for every teenager. Despite these demographic imbalances, life goes on. Many of the service jobs in the community are held by people older than our official retiring age. And the evidence is that the islanders are happier than their elderly compatriots in the city. A Buddhist monk on the island had this to say to a visiting reporter:

> *What you have to realise is that an aged society is something that humans have always searched for. We have struggled for a long life, and for peace that allows us to enjoy it, and a rich country in which women can work and live lives of their own without always being burdened by children. Each element is something we have aimed for, so now we have found it, we shouldn't be afraid of an ageing society.*
> Rev Niiyama [92]

In 2000 a researcher compared the life of retirees in Melbourne and the small town of Sea Lake. Despite its name, Sea Lake is in the north of Buloke Shire. In the small, isolated and ageing town, retired residents spent less time at home than their Melbourne counterparts and were more involved in community activity. They felt a greater sense of support, security, familiarity and respect. They planned to grow old in their community, close to family and friends. Later life in Sea Lake was a blessing.[93]



A quiet main street in Rupanyup, a small, socially innovative town in the Victorian Wimmera.

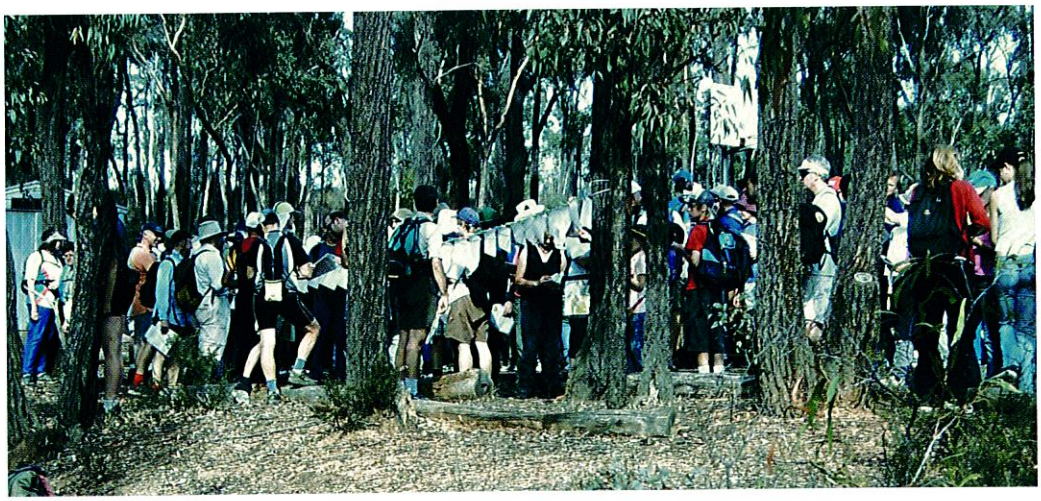
landowners. The task took many weekends, and even then, many landowners simply could not be contacted. They did not live on their land. Some areas that have previously been used for rogaines are no longer considered for the sport because of the fragmentation of landownership. The closer a location to the metropolis, or to a major provincial centre, the harder it is to organise an event on private land.

Rogaining is a victim of changing rural land use. Whereas once rural land was generally used for production agriculture, this is no longer the case in many parts of the rural landscape. Land is being purchased for its landscape amenity value, rather than its agricultural potential. This renders the productivity equation (of farms doubling size every generation) obsolete. Rather than farms being amalgamated, farms are likely to be sold as separate lots within the existing title structure, or even be subdivided if planning laws allow. Owners are more likely to be irregular weekend occupiers. This chapter explores this transformation of rural land from an economic input to a lifestyle location.

Choosing our landscape for living

The petroleum and diesel engines were two of the most important factors in the rapid increases in agricultural productivity in the last century. These engines allowed the development of larger and larger tractors, harvesters, balers, cultivators and sprayers, as well as smaller and more convenient personal transportation around the farm. The whole food supply-chain was transformed by cheap, portable power. But petroleum power didn't just transform agriculture. It transformed society. The driving force behind that transformation was the car. The car led to the creation of the suburb, the development of the fast-food industry and the culture of the annual vacation. The car is integral to our life.

Our collective enthusiasm for the car has rebuilt, and is continuing to rapidly transform, the Australian farming landscape. In the previous chapter we explored how ubiquitous car ownership has threatened the existence of small rural towns and businesses as rural customers travelled further to shop. But this is only the beginning of the story. The car has allowed us all—farmers



Competitors massing minutes before the start of a rogaine.

and town workers alike—to separate the location in which we work from the landscape in which we live. This has created the suburbs and what some call the 'exurbs'—rural areas populated by urban residents.

Before the car, settlement pattern was defined by local economic opportunity. Let's go back to that most famous of Australia's invented sports, and its most loved and hated club. The Collingwood Football Club derives its roots from an era when supporters of Collingwood lived in Collingwood, an inner eastern suburb of Melbourne. Collingwood residents were the working class who were employed in the factories of Collingwood. Their home ground, Victoria Park, was located in the midst of the factories of Collingwood. The annual match with Melbourne Football Club (the second oldest football club in the world) was a form of ritualised class warfare. Today the supporters of the Collingwood Football Club are far more numerous (to the chagrin of many), and most have no connection to the suburb of Collingwood, other than the name of their favoured team. The home ground is the MCG, the original home ground of the old class arch-enemy Melbourne.

The spread of support for the Collingwood Football club was initially driven by the Melbourne suburban railway network. The suburbs of Melbourne sprang up along the radial arteries of the city's railway lines. But railways offered only limited mobility across town. Residents along lines worked along these same lines. Collingwood workers had the choice of a number of lines which passed through the hub-station of Richmond (another arch enemy, though at least a working class one). In the decade prior to the Second World War, car ownership remained a preserve

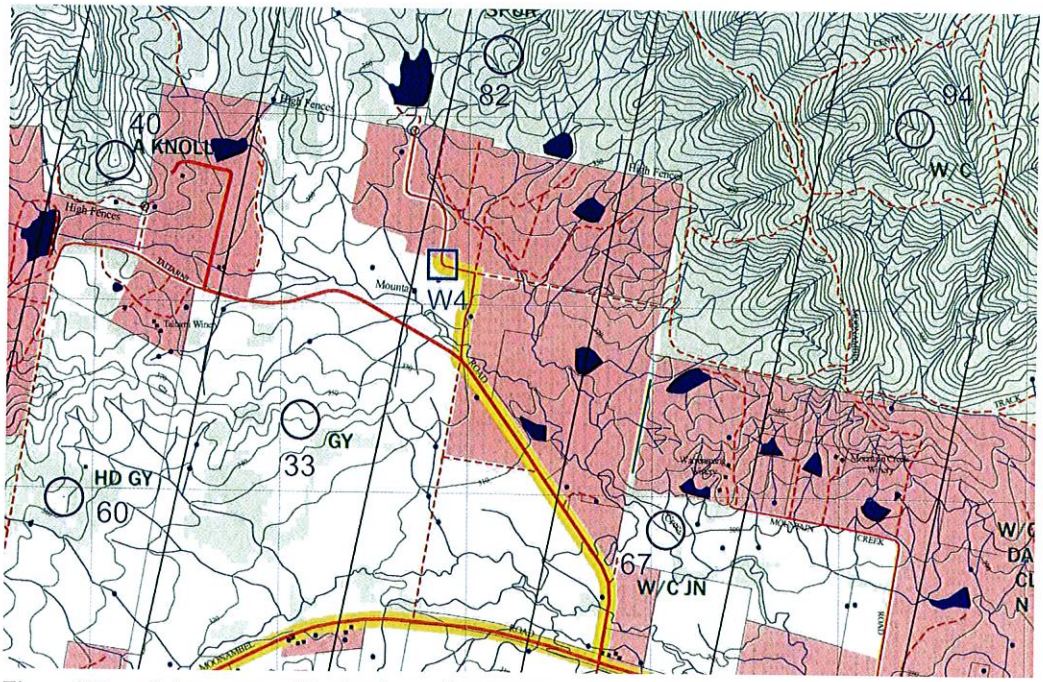


Figure 9 Part of the map used for the Australian Rogaining Championships in 2006 (Victorian Rogaining Association). Circles are the points that competitors need to locate. Green is forested crown land. White is generally open private land that is accessible to the competitor. Pink is private land that is barred to the competitor, often because owners could not be contacted by organisers prior to the event.

of the wealthy. Fewer than one in ten families owned a car. Those few that did were unlikely to be Collingwood supporters. If they supported football, they were more likely to be Melbourne supporters. The end of the Second World War marked the rapid adoption of the car into our lifestyle. Within ten years rates of car ownership had doubled and continued to rise at a steady rate to the point today where there are 573 cars for each 1,000 Victorians. (Victorian car ownership is slightly above the national average).

The arrival of the car allowed the creation of the dormitory suburb, a new landscape full of people (and Collingwood supporters) whose livelihood and often social life was elsewhere. Collingwood supporters could live anywhere in Melbourne and drive to Victoria Park on Saturday. As car ownership increased, and the two-car household became the social norm, the area occupied by dormitory settlement patterns extended beyond the railway corridors. Community investment in an improved road network brought the country closer to the city. And the transformation of the economy away from an agricultural base markedly shifted the population balance between those employed on farms and those employed in towns and cities. As the city population grew and rural populations generally declined, the town gradually expanded into the rural landscapes surrounding major towns, and thus into potential rogaining territory.[94]

Location, location, location!

Not all rural landscapes share in this migration into the country. As with all real estate, scenery and location are crucial. Research in the United States powerfully demonstrates the role of landscape amenity in attracting migrants to rural areas.[95] David McGranahan scored United States' rural counties (equivalent to our local government areas) according to whether they had topographic variation (a hill means an attractive outlook), access to bodies of water, high winter sunshine, pleasant winter temperatures, low summer humidity and pleasant summer temperatures. The most pleasant and amenable counties scored a maximum of six; the least amenable scored a zero. Those counties that scored high on this amenity scale generally had experienced strong population growth over the previous thirty years. Those that scored low on the scale had generally experienced population decline over this same period. The message from his research is simple: land that is close to major urban centres, has good views, is close to water or has a benign climate attracts migrants from towns. Proximity to urban centres ensures that residents have opportunities

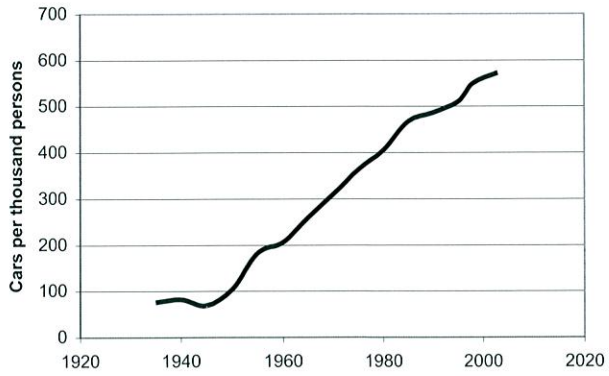


Figure 10 Number of cars and station wagons registered in Victoria per 1,000 persons in Victoria 1935–98 (ABS Victorian Yearbook Series).

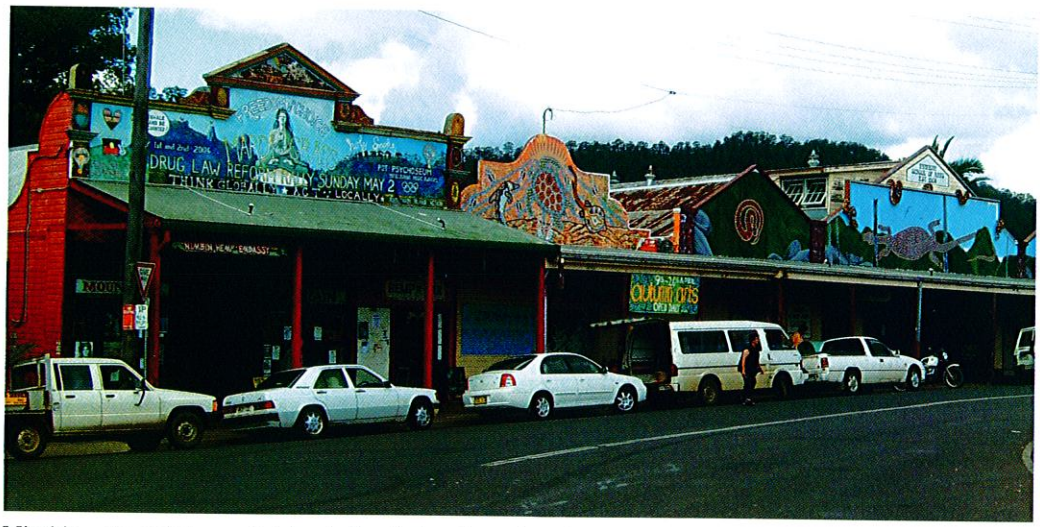
for social interaction and access to services. Attractive viewscapes seem to satisfy aesthetic needs and a pleasant climate makes life more liveable and happy. In case you doubt the latter assertion, there are now social research findings linking climate and happiness[96], not that any resident of the Sydney harbourside needs convincing that they are happier than a Melbournian in winter!

Australia does not have the extremes of climate and topography experienced in the United States. We do have our hot summers, and areas of high summer humidity, but we lack the spectacular vistas of Rocky Mountain valleys, or the grinding cold of a Minnesota winter. We lack the same distribution of large inland bodies of water such as the Great Lakes or the many large rivers flowing out of an inland mountainous interior. A number of our early European explorers found it hard to believe the interior of such a large island could be dry, and risked their lives proving themselves wrong. In Australia the greatest migration disparity is between the hot, arid interior and the milder coastline. We have our own language for this migration, derived from a popular television soap opera. It's the 'sea change', and it is a much-loved topic for Australia's demographers. The coastal regions from Cooktown to Port Lincoln, and from Albany to Geraldton have captured more than their share of the urban-to-rural migration.[97, 98] However, growth hasn't been only along the surf coasts; wherever there are hills and streams, and reasonable road access, there is an increasing chance of migration, and a subsequent transformation of the farming community.

The 'tree-change'

Within an hour's drive of major cities, rural land offers the commuter the opportunity to live in a rural environment whilst working in the city. The attraction justifying the additional commuting may be a sense of peace and quiet, space to pursue modest farming aspirations, a paddock for the horse or a scenic outlook; it may be all of the above.

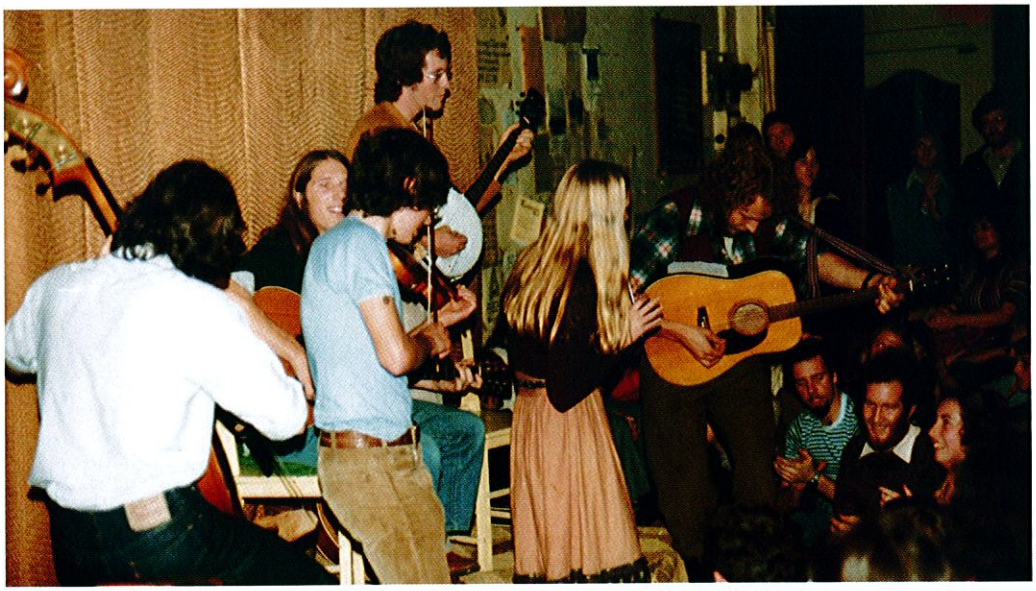
Another hour further out, beyond the zone of practical commuting, there will be a mix of new arrivals. There will be fewer dedicated commuters and there will also be the weekenders. These

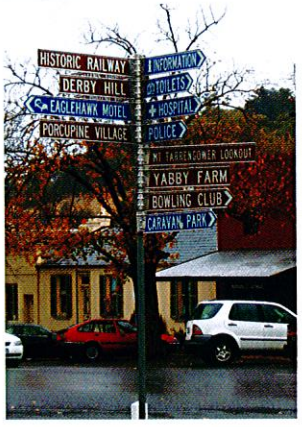


Nimbin—the quintessential Australian bohemian migration.

migrants spend their life between two homes, living during the week in town, and driving off on Friday night to their rural retreat. These temporary residents of rural areas may be in a passing phase of their life and may later abandon their effort to maintain and commute between two households. But the question is which residence is abandoned? There is research in a many parts of the world showing that weekenders may be the harbingers of a more permanent settlement when the weekenders retire from the workforce. Retirees are less constrained by the need to commute to work. For them the major access issues are to medical and other services that may be found in nearby rural cities.

Beyond the weekender zone is a different migrant. Retirees are not all affluent. Whilst some retirees are well-funded and able to purchase land in the more attractive locations in the countryside, others are constrained by limited funds. For underfunded retirees, a shift to the country may be a means





The town of Maldon today, and the cultural roots of one of its migrant populations in the Melbourne folk music community some 30 years earlier.

of resolving a retirement funding problem. By selling an expensive house in a major city and buying a small house in a declining country town, the retiree may convert some of their investment in housing into funds which can be drawn upon to fund retirement. Not all those attracted to cheap housing are retirees. For some migrants overheated housing markets in major cities have placed the hope of housing security out of reach, unless they move to where the housing is cheap. Whenever there is a major dip in the housing affordability index, welfare migrations to declining country towns accelerate. These towns are beyond the periphery of the affluent migration zone; they are towns that have fewer amenity features that attract other migrants.

Similar financial constraints limit the options to those who choose to 'downshift' in a move to the country. Downshifting is generally motivated by a desire to spend greater time working on personally meaningful projects and activities rather than on activities that receive greater reward from the labour market. It is a sacrifice of income for greater personal meaning.[99] For some downshifters, the motivation is to explore culture and the arts. For some it is to improve the environment. For others it is to pursue sporting or recreational passions. The downshifting migrants are attracted to a particular form or amenity. It is necessarily where land is cheap, but also where the district has a particular advantage for the pursuit of their passion. Just as important is the potential for social support from like-minded downshifters.

Downshifting migrations can come to look like cultural migrations driven by sophisticated herding instincts. Most Australians know of the cultural transformations of the towns of Nimbin and Byron Bay. Nimbin was once at the heart of a struggling dairy community but the industry was dealt a shattering blow by Britain's entry into the European Common Market. The dairy farms of the district were a by-word for agricultural poverty. However, the town is in an attractive location with a very amenable climate and came to national attention as the location of the 1973 Counter-cultural Aquarius Festival. Many visitors saw something in the town and the surrounding cheap farmland and stayed after the festival. They transformed the town into the nation's most famous 'alternative' community. Byron Bay was once a coastal horticulture and farming community. It has been transformed by a similar bohemian migration from sleepy coastal town, through alternative lifestyle destination, to a retreat for the rich and famous. In Western Australia the coastal town of Denmark has been through a similar transformation from impoverished dairy community to alternative lifestyle community to expensive holiday destination.[100]

In the region of central Victoria where I live, there is abundant evidence of a diverse set of cultural migrations. Twenty years ago the town of Daylesford was a quiet community built upon the fashion for spa-retreats that had long since past. A reputation for dismal, cold, wet winters did little to enhance the town's prospects in an era that worshipped sun and surf. But image can be repackaged in novel ways. The town and its spa retreat was 'discovered' by the Melbourne gay community, whose maturing members started to buy property in the town. The reputation of the town was repackaged and dismal weather became romantic weekends beside the open fire. Other cultural migrants arrived. These migrations helped in the revival of the town as a resort destination as well as a place to retire to. Today Daylesford has a thriving main street. Parking on weekends is at a premium, as are housing prices. The migrants to the region are still coming, but they are buying weekenders in the smaller surrounding communities. The result was booming real estate prices during the 1990s recession that the rest of the country 'had to have'. Daylesford became fashionable again, and fashionable well beyond the gay community.

The author on the climb 'A Taste of Honey' at Mount Arapiles.

Half an hour north of Daylesford is Castlemaine. Castlemaine was built upon the most productive alluvial goldfield the world has seen. But the gold ran out more than a century ago, and for many decades the town's economic prosperity was based upon heavy industries such as the foundry and the railway workshop, or upon the smallgoods factory. But the property market in Castlemaine is booming, while the heavy industry sector is in decline. Castlemaine is an hour and half from Melbourne by train. It has excellent human services including a hospital. The Castlemaine Goldfields Heritage Park surrounds it. There is a thriving arts community, as well as arts infrastructure. The local Art Gallery is a hidden treasure, stocked full of works of art purchased during the prosperous years of gold. In short, it is a very attractive place to buy a weekender, and then to retire.

The small towns surrounding these larger towns are experiencing their own renaissance. Fryerstown was once little more than a ghost town. An annual antique fair with a national profile, and proximity to Castlemaine mean that houses are once again being built in the town. To the west is Maldon, once known as Tarrengower. In the 1970s it was a gold town whose future was looking limited. In the 1960s the town took the decision to protect its historic verandahed streetscape while much of Australia was 'renovating' its streetscapes. This historic streetscape and cheap housing attracted migrants from Melbourne. Among them were a community who shared a common interest in folk music. I used to play music with a number of these people—though rarely as proficiently. I chose to follow a conventional career and eventually settled in a very conventional outer suburb of Bendigo. Maldon has built an identity around its notable streetscape, its folk music festival, a hill climb for historic cars and its Easter Fair. In turn, the stream of visitors has harvested a new crop of migrants attracted by the cultural amenity the town has to offer. It was never the intention of the early migrants to speculate in real estate, but their cultural reshaping of a town can eventually raise house prices, effectively excluding future artistic migrants.

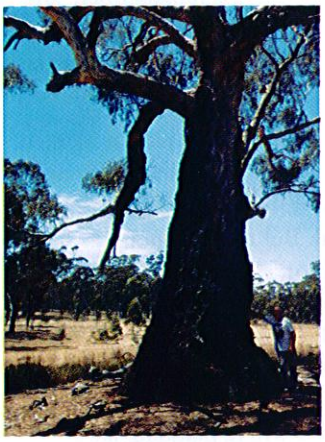
For the town of Natimuk, in the wheat fields of the Wimmera, the spark for a cultural migration was nearby Mount Arapiles. This hill rises only a couple of hundred metres above the surrounding

flat plain but it rises vertically. The mount is an old sea cliff abandoned by the sea in a past geological age. What the sea left behind is a miniature Ayer's Rock, unknown by most Australians, but famous amongst the world's rock climbing community. Here you will find some of the best quality short rock climbs in the world.

In the 1960s and 1970s a succession of young rock climbers would travel through the town of Natimuk on the way to a weekend at the 'Piles'. As the mount's fame spread, the visitors from Melbourne were soon camping next to climbers from all over Australia, Europe, North America and Japan. Then in the 1980s, a number of mature climbers started buying houses in the town. Climbers became part of the permanent population, often commuting to nearby Horsham for employment. With increasing age, the interests of the new migrants expanded into the arts. Natimuk now has a growing population of climbers and artists. These cultural interests and the cropping farms surrounding the town are promoted in the biannual 'Nati-Frinj' festival. The highlight of a recent festival was a ballet performed on abseil ropes on the side of the wheat silo, neatly combining three notable facets of today's Nati. The nearby mount will ensure the town of Natimuk has a better chance of survival than most small towns surrounded by waving wheat fields.

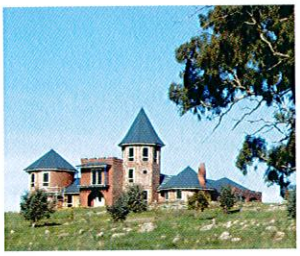
Out in the goldfield forests is another group of migrants. This was always marginal farming land as gold country is rarely good cropping country. With the gradual decline of the wool industry's fortunes, new landholders have been moving in. Many have aspirations for the land that run counter to those of the traditional farming community.

My cousin and his partner have chosen to convert a run-down sheep block into a native forest that resembles what was once there before white settlement. It is certainly not a task for those unused to physical labour, hot summers and cold winters, but this means more to them than the achievements of thirty years in business. They are not alone in their endeavours as there are many landowners like them, gradually displacing those with more traditional aspirations for the land. The traditional social landscape of rural areas is being remade into a patchwork of landownership and aspirations.



Land repairers from Sandon—my cousins, whose commitment is a source of personal amazement.

The former wheat town of Natimuk near Mount Arapiles in the Victorian Wimmera.



Hilltop houses come in many forms, from the subtle to the imposing.

This remaking of the countryside and country towns is an international phenomenon. Research reports from eastern Canada describe a landscape being fragmented into very different uses under the pressure of urban migrants in search of panoramic views or isolation and privacy.[101] The hilltops of southern Quebec are being occupied by permanent residents who have migrated from the city and built their statement houses on these locations with commanding views over the surrounding country. The holdings on less elevated, partially forested areas are being abandoned by the traditional farm population and re-occupied as housing by weekend migrants from Montreal. The valley floor villages and farm lots remain populated by the descendants of the original farming population. Some continue to work valley floor holdings as farms, while others commute to major towns for employment. The valley floors appear likely to remain under active agricultural management. The hillsides and partially forested land are being reclaimed by forest. The hilltops remain open, and are often leased back to valley floor farmers. The ageing of the valley floor farmers and the absence of intergenerational transfer suggests this is only a transitory arrangement.

In Australia, our own distinct patterns of the new rural settlement are emerging. The traditional rural layout in Australia saw farm homesteads located in the valley, near water and transport. Hillsides were generally marginal land. But today non-arable land on hillslopes can become prime land for 'statement housing'—houses built on hilltop or hillside positions with commanding views that preach a message across the landscape about the owner's social position. Sometimes the important view is that of the house from below in the valley, rather than the view of the valley from above. In some districts where planning laws allow, hilltops are gradually being colonised by statement houses. Similarly, river frontage is prime real estate. On the flat plain country where there is no commanding vista, the riverside location

is the prized position for a house. Along the Goulburn and Loddon riverine plain in northern Victoria, there are few hills. The only views are those overlooking the banks of the slow-moving rivers. Blocks adjoining the river and within commuting distance of district centres of Bendigo and Shepparton are gradually being settled by those attracted by the river rather than the farm.

The purchase of farmland by new settlers turns traditionally valued characteristics of agricultural land on their head. Uncleared land becomes attractive native bush. It can be more valuable than cleared land. If the land is habitat for rare wildlife, its value can be further enhanced. Isolated farmland bordering a major park has its value enhanced by the forest, which once might have been considered a source of vermin. Flat or undulating land with good soils and above the floodline is not highly prized in the new rural land market. This remaking of the rules of rural land value is reshaping agriculture in its race with the pressures of innovation.

Associated with this changing land occupancy is a pattern of cultural transformation of small towns that has similarities to the urban transformations described by the economist Richard Florida. In his book, *The Rise of the Creative Classes*[102], Florida describes the process of regeneration which has brought people back to the once decaying inner cities of North America. An important reason for this regeneration has been the development of bohemian enclaves which, in turn, attracted creative workers and subsequently, the high-technology firms that employ them.[103] Initially, the bohemian culture occupied the empty space in cities created by the flight to the suburbs of the 1960s and cheap mid-city buildings allowed artistic and cultural migrants to coalesce in communities. These communities transformed the culture and image of these enclaves from one of a derelict and dying inner city to that of a vibrant cultural melting pot. This in turn attracts creative professions associated with research and technology, leading to economic growth for the city, but also displacing the original bohemian presence. From this observation of inner city renewal, Florida has built a prescription for growth for cities based on the values of 'the three Ts': Tolerance, Talent and Technology. His thesis is that tolerance of the bohemian and new migrants will in turn attract creative artistic talent, followed by other knowledge-workers and businesses.

The bohemian transformation of rural areas doesn't attract technology workers, but real estate agents. In the beginning is small town decline. Cheap housing attracts migrants. Sometimes this migration will include cultural migrants who may build a new cultural amenity in the town. This new cultural amenity may transform the town into a tourist destination. This, in turn, attracts other migrants who are willing to pay to live in the new amenity. Land and housing prices rise, and eventually, those seeking cheap housing will have to look elsewhere. At this stage the town might find itself being described as 'spoiled' by development. The surrounding farmland might also be 'spoiled' for farming. And the long term residents may find their children priced out of the local housing market.[104]

Expensive farmland

In the previous chapter we saw how broadacre farm businesses that aim to survive the pressures of the terms of trade decline will need to increase farm size, possibly doubling or tripling their scale every forty years. In traditional farming regions there is often strong and long-standing competition for land between existing farm businesses. Farm families planning to continue the business through future generations will be anticipating which of their neighbours will be leaving

agriculture and be positioning themselves to outbid other neighbours when farmland comes onto the market. The competition between farm businesses can be fierce.

But in districts attractive to the new migrants, the farmer faces competition for that land from outsiders. Farm businesses must compete against potential purchasers who are bidding, not on the basis of what business return they will receive from the land, but on what they are willing to pay for the intrinsic pleasure of living on a very large rural house-block. The right to build a house is of no value to the farmer. For farmers, the question of location becomes very important. If you live in the wrong location, you face unwanted competition from outside purchasers. The map below shows where the competition is toughest.

In the areas shaded red, rural land is more likely to be purchased by people already living in the district. These will generally be local farmers. The darkest red is those locations where there are five local land purchasers for every non-local purchaser. These darkest red areas have in common great distance from major cities, and a relatively flat landscape. In areas shaded in blue, purchasers from outside the district outnumber local purchasers of rural land. In the darkest blue areas there are at least five non-local purchasers for every local purchaser. The blue shading corresponds with areas with attractive landscapes and proximity to Melbourne, major provincial cities or transport corridors.

The impact of this extra competition for land in the blue areas of the previous map is reflected in higher land prices. The following map shows the value of land from the perspective of a local farmer. The map shows the ratio of rural land value per hectare to the gross value of production

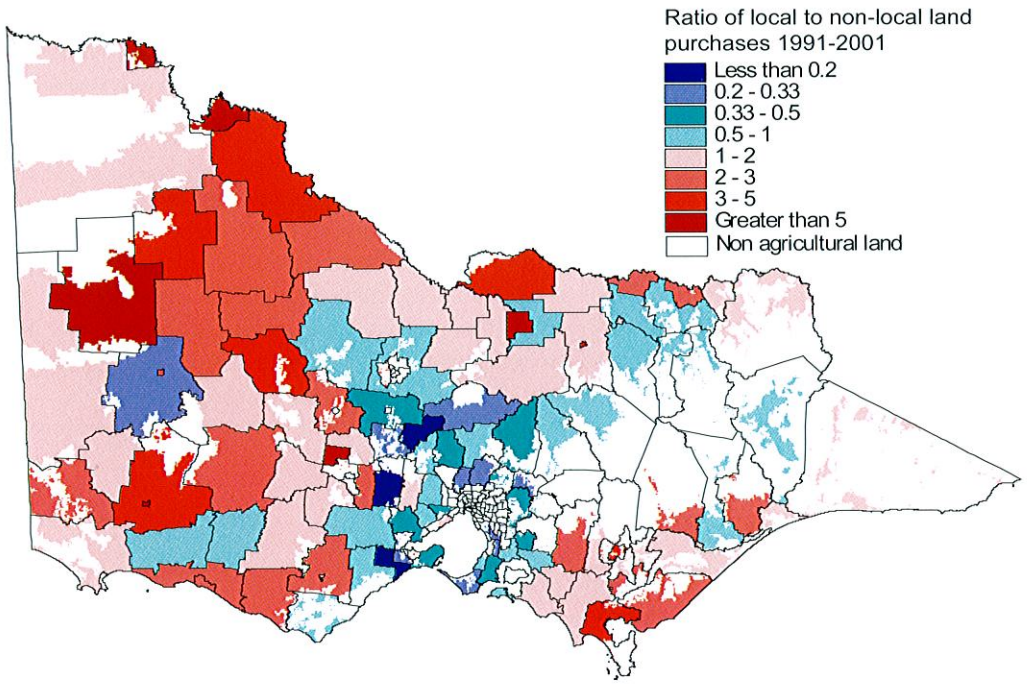


Figure 11 Purchases of rural land by local purchasers as a ratio of purchases by non-local purchasers by statistical local area 1991–2001.

per hectare for agricultural land in 2001. Light areas are where land is relatively cheap compared with the value of agricultural production. These areas correspond to locations where rural land is generally purchased by local farmers. These purchasers are constrained in their bidding by their well-founded expectations of whether the income generated by the land can pay for the purchase. Dark areas are where land is valued highly compared with the agricultural products produced from that land. This generally corresponds with those areas where buyers coming from outside the district purchase rural land. These buyers are constrained in their bidding for land by their capacity to fund the purchase, but this capacity will generally be unrelated to their expectations of making an income from the land. They are often bidding for a housing block rather than a paddock, even though the 'housing block' may be hundreds of acres in size. The effect is to render the traditional farming strategy of 'get big or get out' obsolete.

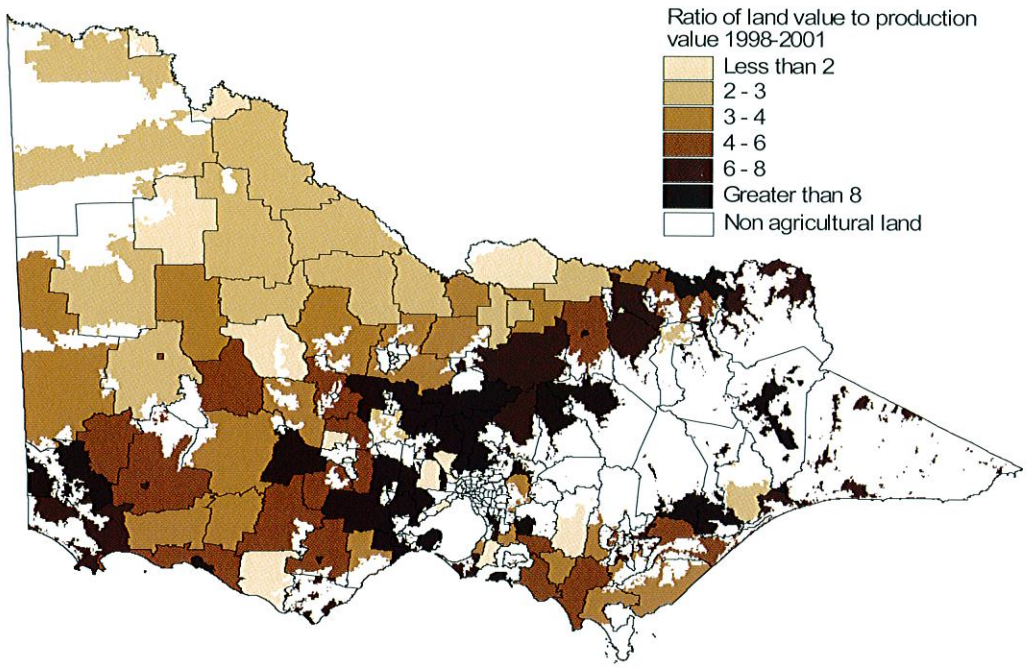


Figure 12 Ratio of value of rural land to value of agricultural production in 2001. Land values are based on data derived from land transaction records of the Valuer General for 1998–2001. Value of production is based on ABS estimates derived from 2001 Agricultural Census.

'Get out or get small'

For a farmer located on an attractive and accessible landscape, the prospects of buying land and increasing the size of the farm are limited. However, some farm businesses in these locations do manage to purchase additional land, but the business risk of this path is high. Rural counsellors report one of the major reasons farmers come to them is when they have paid too much for land.[105] From a business perspective alone, the logical option would be to sell farmland in a highly priced area and move to an area where land is cheaper. Some farmers do follow this strategy, but they are a minority. There are many good reasons for this. The cheaper land may be in an area

where the form of agriculture is quite different from that in which the farmer is skilled. A high-rainfall beef producer would have to start their career again if they moved into the cropping zone. For most farm families moving to a more isolated (and less attractive) landscape will be socially unattractive. Community and family links will be broken and off-farm employment may need to be sacrificed. And, of course, farmers are no less immune to the landscape features that attract urban migrants.

Most farmers in areas of lifestyle migration choose the course of least resistance. They keep farming without buying land. Often this will be the choice they make by not making a choice. As the terms of trade compress, farms will become financially smaller. Older farmers without any debt to the bank can absorb the declining terms of trade. Younger farmers will take off-farm work to maintain their income.

Of course, there is little real hope of passing on the farm to the next generation as a viable business. Once this is realised and accepted, then much of the pressure on older farmers to chase the declining terms of trade with increased productivity is eased. The farm has to provide an income sufficient to allow the farm couple to remain in farming for as long as they are healthy and able to enjoy it. When they can no longer farm, the highly valuable farmland provides financial security in retirement. For the younger, part-time farmer, the financial purpose of the farm may be to provide the opportunity for a period of full-time farming once the children are independent. It is something to look forward to as an 'empty-nester'. These behaviours transform a farm district's economy. The existing farm stock becomes economically smaller with each passing year of terms of trade compression. The average age of the farm population gradually increases as fewer and fewer younger farmers embark on farming careers, as older farmers remain on the farm longer and retiring farmers are replaced by mid-career entrants. Eventually, the social structure is transformed from a community of farm families struggling to make a living on small farms, to a gentrified landscape of farming retirees and professional commuters. These trends have been underway for several decades in farming landscapes near Australia's cities. The evidence can be seen in the number of small farms in an area. The farm landscapes around Australia's major cities, along the major transport corridors and the east and southwest coasts, are populated by many small farms that became incapable of supporting a farm family thirty or forty years ago.

Purchasing land is not the only means of increasing farm scale. Farmers may explore intensification of production within the constraints of their existing land area. For a grazing business the most accessible intensification strategy may be to improve grazing management. This can significantly raise the stocking rate and the returns from the business. Across Australia high-rainfall beef producers are improving their grazing management practices using industry and government-funded extension programs to chase the declining terms of trade without purchasing additional land. For many farmers the result has been to extend the period of time in which their farm business can remain viable without purchasing additional land. In the long run, though, the need for farm expansion has been deferred rather than eliminated.

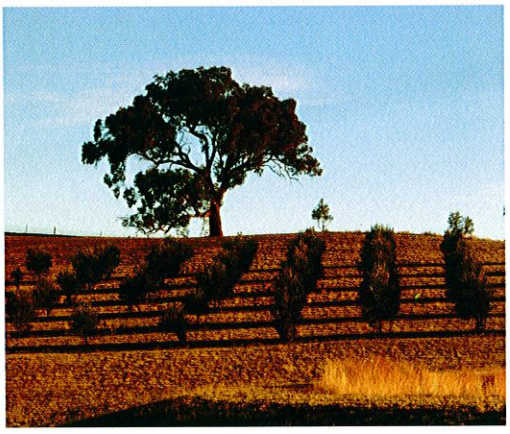
Greater intensification can be achieved by changing farm enterprises. In the mountain valleys of northeast Victoria the shift to horticulture can be seen in the landscape. Grapes, nut trees and berries grow where once the land grew pasture and tobacco. The higher returns per area of land can provide a reasonable income on a smaller area of land. But this strategy is available only for some. There are limits to the extent to which farmers can follow the path of horticultural

intensification. The most significant constraints are soil and water. Few areas have the soils that allow successful commercial horticulture. Horticulture also depends on secure access to water. Water resources are limited, perhaps even declining in volume as the climate changes. New irrigation farms will generally need to purchase water from existing irrigation farms.

There are also very important market and supply-chain limitations. Many horticultural markets are finely balanced between supply and demand. At the time of writing, both the wine-grape and orange industries are oversupplied with produce. This follows a period during which many farmers invested in new vineyards and navel orange plantations. Then there are the internal constraints of family farm businesses. The owners of many smaller farms will not have the skills or access to the capital required to develop a viable horticultural business that offers full-time employment to its operator.

For many farmers on small allotments unable to fund large horticultural investments, the prospect of more intense land use remains an attractive idea. Each year the town of Seymour holds its alternative farming expo. The event attracts thousands of visitors attracted by exhibits for enterprises such as yabbies, olives, alpacas, deer, buffalo, rabbits and organic fruit and vegetables. The visitors are drawn predominantly from small farms in districts with high land values. But in the world of boutique agriculture, dreams are often not what they seem.

New boutique agricultural products often follow a volatile product life-cycle. The appearance of a new product is promoted with enthusiasm. The enthusiasm drives a strong demand for the breeding stock or rootstock required to establish a business in this new commodity. The demand from aspiring farmers drives up the price of the new commodity, fuelling expectations of profits and attracting further new entrants. As production increases, sales must be made to consumers rather than to aspiring producers. Prices soon fall as the market 'matures'. The optimistic dreams of super-profits are replaced by the sober realisation that long-term prices will be modest and that the market is oversupplied. Dreams fade, small enterprises are abandoned and eventually only the larger producers with economies of scale remain. The markets for ostriches, emus, deer and aloe vera all followed this cycle. Intensification through diversification is subject to the pressures of declining terms of trade just like wheat, wool and milk. Scattered small-scale olive

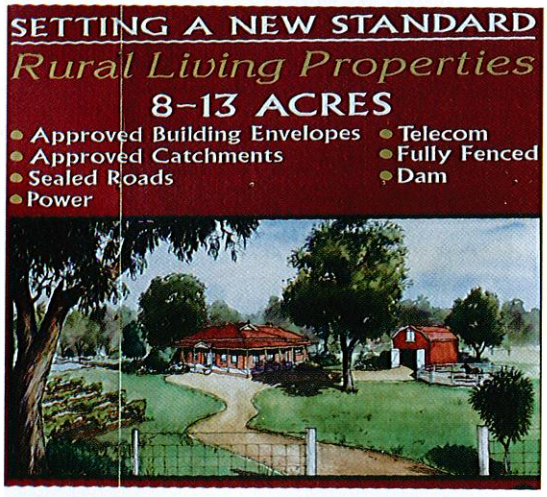


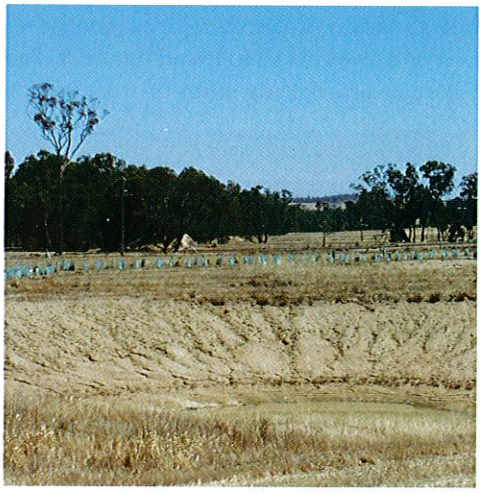
A small olive grove in Central Victoria, and one of the world's largest olive groves (950,000 trees) near Boort in northern Victoria, epitomising two very different visions of agriculture (aerial photo courtesy of OliveCorp).

groves represent an expression of an unattainable dream rather than a solution to the challenge of high land values. Olive oil is a bulk commodity traded in large volumes in world markets. The advantages of scale apply to olives just as they do to wheat.

Another approach to the challenge of high land values is the promise of 'value-adding' onto farm produce. The most celebrated examples of this strategy would be in the dairy industry where a number of milk producers have taken up the challenge of cheese making. For others, the path of value-adding is through the transformation of farm businesses into purveyors of gourmet food experiences or farmstays in which the farm is often communicated as an image that reflects the idealistic expectations of the urban consumer. The secret to success is to be near a major natural scenic or cultural attraction that draws a steady stream of visitors. Being on the snowfields roads, or in the midst of a prestigious wine-producing area will certainly help. Being located on a low-traffic local road away from major tourism destinations will make success improbable.

Of course, the other choice is to actively not farm. For the time-poor commuting landowner, farming must compete with all the other demands on the limited allocation of time in the week. The constant complaints from farmers of poor weed and vermin management on hobby farms indicate the difficulty many new landholders have in finding time for land management. If the land can look after itself, then let it do so. Land for wildlife and conservation covenants is more likely to be taken out by landholders in amenity migration areas, and in areas where farming is undertaken on marginal land with significant biodiversity value, we are beginning to see land purchases motivated by an interest in biodiversity. The Wedderburn region in northern Victoria is not noted for the richness of its agricultural landscape. But the landscape is notable for a diversity of forests and ecosystems. Marginal farmland with intact forest is being purchased by buyers who want to protect the habitat and the rare flora and fauna it supports. Some will eventually transform their weekend occupation of this land into their main retirement base.





Sometimes the dream and reality diverge.

Subdivision and superannuation

It is inevitable that the migration into these attractive landscapes will precipitate statutory planning conflict. On the one hand there will be pressure to protect 'prime farmland' from conversion into rural-residential settlement, but farm owners who have decided to continue their farming careers in a high-amenity location realise that the main financial return from their farm will be from capital gain. With the option of intergenerational transfer of the farm business no longer an aspiration, the farm holding becomes the de facto superannuation holding of the ageing farm couple. The value of this 'policy' can be greatly enhanced through land subdivision. Once subdivided, the market value of the land is directly related to the number of houses that can be built on it. Retiring farmers place pressure on the local council to approve subdivision of their land. Councils struggle to balance the competing interests of younger farmers seeking to expand their farms, older residents farming their superannuation and new residents seeking to protect the landscape that attracted them.

The standard planning tool to protect agricultural land has been the imposition of a minimum subdivision size, often of forty hectares. Generally this has proved of limited worth in stemming the migration to farming areas. The original theory behind minimum lot sizes was that land parcels should be the same size as the minimum required to allow a farming family to make a living. But the minimum size of a viable farm is not fixed. It shifts with the decline in the terms of trade. The cadastral (title) structure of the land does not shift in response. In many parts of Australia, the minimum subdivision size remains at forty hectares. This may once have been a viable size for a farm unit, but there are few places where this is true today, and there will be fewer still in the future.

The township of Bright nestles in a narrow valley near the headwaters of the Ovens River, surrounded by mountains.

Most farms today are aggregations of a number of blocks with many separate titles. This is the legacy of previous generations of farmers buying out their neighbours to keep pace with the declining terms of trade. Therefore, many farms can now be re-subdivided without recourse to cadastral subdivision. A forty hectare farmlet is unlikely to provide any farmer with a reasonable income, but it can be quite attractive to many amenity migrants as a housing block and can provide a buffer to maintain a quiet amenity. But maintaining forty hectares to the socially accepted standards of the older farming community can be time-consuming. Inevitably, the remaining farmers in a district complain about the new farmlet managers being unwilling to control weeds and vermin.

A more effective solution to the challenge of protecting farming land is to constrain the right to construct a dwelling. Governments have generally found this to be a much more difficult proposition than minimum lot sizes. Removing the right to construct a dwelling will have a major impact on the value of all existing lots without a dwelling, and opposition is generally fierce. For the local councils facing these challenges, the protection of farmland will generally be less important than the sustainability of the community as a whole.

Thriving small towns

In the previous chapter we saw how agricultural innovation leads to shrinking farm and community populations and declining local services. The differential loss of the young members of the farming community and of the local towns leads to structural ageing. In those parts of rural Australia with scenic and cultural amenity, migration from major cities into the country has secured the demographic future of many small towns. In the last chapter we examined the population structure of Buloke Shire, situated in a gentle and understated Mallee cropping landscape. I'd like to compare Buloke Shire with the population trends in Alpine Shire.

Alpine Shire is situated on the northern slopes of the Great Dividing Range in north east Victoria. The shire runs from the foothills of the Great Divide up into the heads of a number of alpine valleys. To me the shire is notable as the farming community in which many of my forebears farmed beef cattle. To most Australians it would be more notable as the gateway to Falls Creek, Mount Hotham and Mount Buffalo ski villages and the Bogong High Plains. Like Buloke Shire, Alpine Shire has no major regional city, but has three smaller towns: Bright, Mount Beauty and Myrtleford. Bright and Mytrleford were once local service centres for the surrounding agricultural and timber communities. Mount Beauty was built to service the construction of the Kiewa Hydro-electricity Scheme, but now services the ski industry. For some decades the economic basis of the shire has been shifting from agriculture towards tourism. The shire has mountains, rivers and a gentler climate than Buloke.

Alpine and Buloke Shires make very interesting demographic comparisons. In 1976 the two shires had very similar populations. Buloke had a population of 10,990 and Alpine a population of 10,130. The structure of the two populations was almost identical. The most numerous age cohorts were the children and teenagers. The age profile was relatively flat for working age residents, with lower numbers of people aged over fifty-five. In 2001 the census showed that Alpine Shire experienced its own exodus of young people, but this was not as acute as in Buloke Shire. Let's look first at those children born in Buloke between 1971 and 1976. These were the first to be conceived during the era of subsidised access to the contraceptive pill. There were

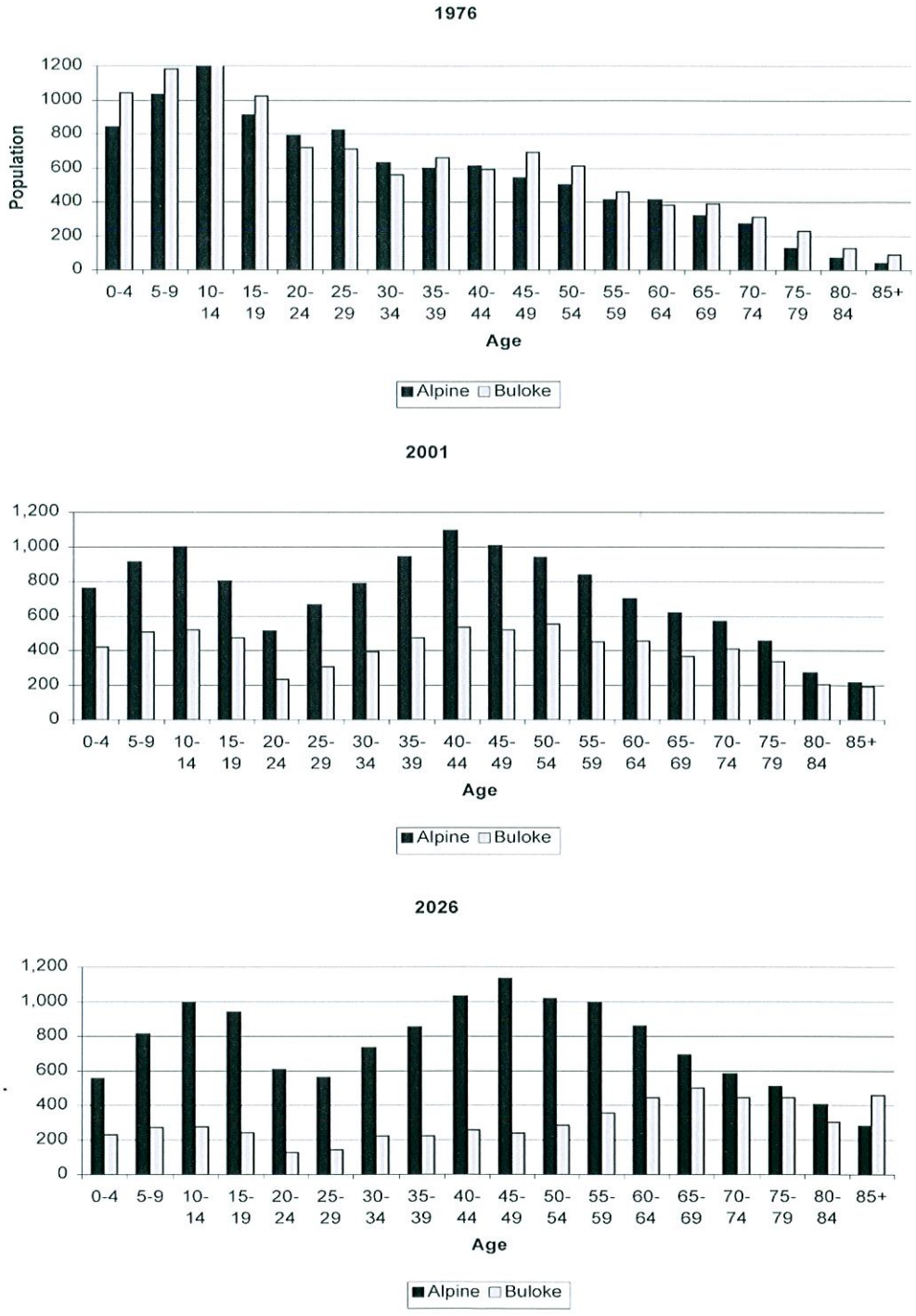


Figure 13 Age profiles of Buloke and Alpine Shires in 1976 and 2001 and projected to 2026.

1,040 in 1976. In 2001, only 304 were left. Seventy per cent had left the district. Alpine Shire lost only 21% of this generation in the same period.

The loss of young people to the city explains only part of the difference between the two shires. Look at the generation born between 1951 and 1956. These are the middle baby boomers. I'm one of these. In 1976 this generation was aged twenty to twenty-four. In Buloke they numbered 720. By the time this generation reached their late forties in 2001, there were 520 remaining in Buloke. At least a third had left, probably because of the aggregation of farms and the flow-on impact on the farm service sector. In 1976 the Alpine Shire was blessed with almost the same quota of middle baby boomers—790. But while Buloke was losing this generation, Alpine was gaining them. In 2001 there were 1,005, an increase of almost a third.

While Alpine has been losing young people, it has been more than compensating by attracting migrants in their late twenties, thirties, forties and even fifties. As a result, since 1976 its population has increased from 10,000 to 13,500. Buloke's has dropped from 11,000 to 7,300. Thirty years ago the shires had equal populations. Today one has twice the population of the other.

Population projections suggest this disparity in growth will continue. Alpine has been able to both retain more of its younger people, and attract migrants in their late twenties and thirties. Because of this, the number of births in the Alpine Shire has changed little. In 1976 there were 800 preschool children. In 2001 there were still almost 800. But in Buloke, the loss of young people means the shire has lost its capacity to conceive a future population. In 1976 there were over 1,000 preschool children. By 2001 this had fallen to 400, and by 2025 this is projected to halve again to 200. Buloke Shire won't be lamenting the loss of the young by then. If this projection is fulfilled, Buloke won't have them to lose in the first place. As a result, the overall population of the Alpine Shire is projected to continue to slowly rise past 14,000, whilst Buloke's is projected to fall to 5,000. Most importantly, the projected population structures of the two shires are for two very different societies.

New cultures

We saw in the last chapter how Buloke's aged-dependency ratio was projected to rise from thirty-eight to ninety-eight within twenty-five years. The same projections say Alpine Shire's aged-dependency will only rise marginally from twenty-eight to thirty-two in the same period. The future projected for Alpine looks quite like what one would see today. Half the population is of working age. For Buloke, the future looks quite different without migration. This highlights a strategic dilemma for rural areas. Migration into the region is the key to population sustainability. But migration generally comes at the cost of decreasing the viability of agriculture. If you had the choice, would you choose a competitive rural sector unencumbered by high land prices, or a sustainable demographic future based upon migration into the region?

It is a gentle irony that migration may save a town in terms of population, but migration can be the most acute threat to a small town community's sense of place. The new migrants whose arrival may save a town, will bring with them new values and outlooks that may clash with the local sensitivities. I discovered the longevity of such a sense of grievance at my own grandmother's funeral. She had lived all her life in a mountain valley, part of the Alpine Shire. It

had once been a small and very closed community of beef producers. The traditional insularity of the valley had been upset by the arrival of the commercial ski industry in the 1960s. After the funeral the relatives gathered for traditional tea, scones and cake. I found myself in the clutches of a distant relative who, like my grandmother, had lived all his life in the valley. After a discussion of the merits of the long-banned insecticide lead-arsenate, he proceeded to lament the loss of the valley to the blow-ins of the ski industry who arrived only thirty years previously. 'They don't understand the values and culture of the community. What the place needed was more true valley people like you.' I was touched but also stunned to realise that he was referring to me, whose only connection to the community was through my mother who had left before I was born. In his world, values came with blood and upbringing. I had been raised by a valley woman, so he assumed I would share his values. I realised my relative may well have preferred his community to follow the path of Sea Lake in Buloke Shire, where most people still knew each other and the community was more supportive as the population declined. I doubt the younger family members in the room would have agreed. I didn't test the proposition, but I was alerted that not everyone in a growing community sees migration as desirable. If everyone felt as he did, the new arrivals wouldn't feel very welcome.

Not everyone in a country town welcomes a bohemian transformation. Not all bohemians guarantee a town's survival. Welfare migrants generally make long-term residents of country towns feel uneasy, if not suspicious. It is often hard to tell one person's welfare migrant from another's bohemian. But there may still be a message for us all in the relationship between cultural tolerance and the innovation that small towns will need to survive. Not every small town is blessed by the advantages of attractive landscapes and a mild climate. Cheap housing may be the only attraction for migrants. Long term residents and migrants attracted by cheap housing may share quite different cultural values. Wealthy migrants who raise the cost of land and housing will raise the cost of living for both long term residents and the early wave of migrants. Yet many small towns need migrants to ensure their long term survival. Migrants will bring new cultures, beliefs, skills, businesses and networks. Herein lies a challenge for small town communities: are we going to get on with each other?

Over the past decade there has been much debate about the importance of social capital. The influential work of Robert Putnam, author of *Bowling Alone*, describes the decline of social networks and the increasing isolation of individuals in modern society.[106] Putnam argues that the network of trust between individuals is a form of capital and that this capital is the basis of civil society. Without it, society cannot function; at its most extreme, failed states are states with negligible social capital. Social connectedness is vital to our sense of wellbeing and state of health with an extensive body of research describing these relationships.[107] Socially isolated people die at two or three times the rate of socially connected individuals.[108] The most popular understanding of social capital is a dense and inter-connected network of close, trusting relationships; a large, close-knit family might fulfil this vision. People living in rural locations have scored higher on network measures than those living in major cities,[109] reflecting the popular stereotype that small town living offers greater social support and friendliness.[110] But not everyone can easily integrate into a close-knit small town.

Many small country towns once had very well developed social networks. Where a social network is tightly linked and has few connections with other communities or networks, the outcome can be a parochial culture that may act to exclude alternative views and new ideas. Most researchers

now consider that effective social capital must be built not only of close 'strong ties' that bind, but also of 'weak ties' that act as a bridge between strong tie networks. A weak tie links networks that may hold differing perspectives of a community. While strong ties provide the greatest level of social support, weak ties provide the basis of social experimentation and innovation. Weak ties increase the likelihood of ideas being combined from different sources.[111] Contrary to the popular lament, who you know determines what you know. Migration into small rural towns will change the balance between weak and strong ties within these communities. In some cases, the social sustainability of small country towns will depend on how the migrants and longstanding residents accommodate each other.

One approach will be to put up the shutters and ignore the new arrivals, either out of fear ('you have to lock your doors these days') or disapproval ('they don't share our beliefs about what is important'). The alternative is to view the newer migrants as helping ensure the sustainability of the town, as well as a potential source of talent and ideas that can help build a better future. Like many other small towns, the Wimmera townships of Rupanyup and Minyip have had a recent influx of new residents: retirees, welfare migrants, alternative lifestylers and downshifting retirees. The town churches have organised welcoming committees in which established residents meet newcomers and vice versa. Each group has made interesting discoveries about the other. The established residents have been surprised to find the newcomers have felt intimidated by the close social networks of the established residents. They have also welcomed the unexpected mix of skills and talents in the new residents. The newcomers have learnt that the established community encourages them to become actively involved in the social life of the town.

In the future many of these small towns will depend on continuing migration for their survival. While the current generation of migrants will include mid-life returnees who were born in the area, in another generation there will be far fewer in this potential pool of migrants because relatively few children have been brought up in these areas in the last twenty years. In the future migrants will be attracted by amenity, be it social or landscape, rather than returning to the land of their youth. United States research on retirement migration shows older migrants have a strong desire to become involved in their local community.[112] Communities with a reputation for welcoming newcomers are likely to be more attractive to migrants and more likely to survive.

Recommended further reading

For more information on the sport of rogaining visit:

http://vra.rogaine.asn.au

On the car and its influence on Australian cities:

Davison G, 2004, *Car Wars: How the Car Won our Hearts and Conquered our Cities,* Allen and Unwin, Melbourne.

On amenity based migration:

McGranahan DA, 1999, *Natural Amenities Drive Rural Population Change,* 781, Agricultural Economic Report, Economic Research Service, US Department of Agriculture, Washington, http://www.ers.usda.gov/publications/ruralamerica/ra174a.pdf

Salt B, 2001, *The Big Shift: Welcome to the Third Australian Culture*, Hardie-Grant, Sydney.
Burnley I and P Murphy, 2003, *Sea Change: Movement from Metropolitan to Arcadian Australia*, UNSW Press, Sydney.

On culture and economic growth:

Florida R, 2001, *The Geography of Bohemia*, Carnegie Mellon University, Pittsburgh.

Florida R, 2000, *Place and the New Economy*, Carnegie Mellon University, Pittsburgh.

On wellbeing and social connection:

Layard R, 2003, *Happiness: Has Social Science a Clue?* London School of Economics. Lionel Robbins Memorial Lectures 2002/3, http://cep.lse.ac.uk/events/lectures/lanyard/RL030303. pdf

5 CONTRACEPTION, RELATIONSHIPS, HOUSEHOLDS AND MARKETS

Buying eggs at the supermarket

*THANK YOU Dear customers after mid November our eggs will no longer be on the shelves of ***** a head office decision they are not going to support the small growers or regional producer as it creates too much paper work all eggs supplied to stores will come from multi-national companies I tried to reason with them that you the customer would be disappointed but to no avail, I would like to thank you for your support over the years to our business, it meant we survived the drought, but this will really hurt but some how we will rally on. See the reverse of this we will tell you our nearest outlets again thank you*

My partner found this note on opening the carton of a dozen free-range eggs she had purchased in a local supermarket. The note was laid on top of the eggs inside the carton. The extravagantly long single sentence tells a familiar story of small farms being excluded from the supermarket supply chain. But in this case the small guy has hit back, not only having a say, but also arranging for the supermarket to unwittingly distribute the message. It's a nice touch, though it won't keep the small producers' eggs on the shelf. In future they will come from one of the small number of very large 'free-range' egg producers in Australia. The supermarket will find it easier to bring these eggs to Bendigo from the Mornington Peninsula, Sydney or perhaps as far away as southern Queensland, rather than source them from a larger number of small local producers. What has happened to this small farmer has happened to many others, not only in Australia, but across the world. This chapter is about this gradual exclusion of small farm produce from the retail food chain, and why this is happening.

My partner and I have very different attitudes to shopping in supermarkets. I am a relatively tolerant shopper, making my visits after leaving work. Shopping is an anticipation of the coming relaxation of cooking for the family. To Julie, shopping, particularly in supermarkets, is a chore that must be endured, but for as little time as possible. She will spend half the time that I do in the aisles for the same purchasing outcome. This attitude comes of having been a working mother. Her life has been quite unlike her mother's, and very, very different to her grandmother's. So this chapter is also about the changing life of women in Australian homes and on farms. Reshaped gender roles have played a part in reshaping the 'food supply chain'. They have also reshaped the expectations on farmers to provide a family living and lifestyle as is understood by today's Australian woman. One could argue that changing gender roles have had as great an impact in the reshaping of Australian agriculture as the declining terms of trade.

Working for the man

I hate my office desk. It's where I have to face the emails and phone calls that make it nearly impossible to write and think creatively. Amongst the clutter of junk emails and calls, there remains the occasional welcome contact that keeps me in hope each day when the phone rings or the email beeps. Amongst these I count the requests from rural and farm groups to share the details of my research. The phone will ring and on the other end of the line will be the secretary or president of the group who will introduce themselves and ask if I would be interested and available to visit them. Generally I say yes if the function is not too distant. I believe I can learn as much from these meetings as the group will learn from me. The Country Women's Association (CWA) takes a much more formal approach. They wrote to the Minister, my ultimate employer, asking if I would be available to speak at their Victorian conference. And so the request slowly wended its way through the organisation to me, via many desks and signatures. The style of the CWA approach fitted my image of an organisation with strong roots in the era of the written letter (rather than the email and SMS text); of an organisation that respected traditional protocols and abided by them. And, of course, I had to respond positively, as any public servant will to a request from his or her minister. The CWA knows how to get its way.

This was not my first contact with the CWA as I have vague memories of sitting behind a couch some forty-five years previously while my mother attended a CWA play rehearsal. I never saw the final production of 'The Mousetrap' but I am told the play was a great success for the now defunct Everard CWA branch. The play was a means to an end, *viz* building a supportive environment for farm women. Today I understand how important the CWA had been for my mother as she settled into that orcharding community. For her, I owed a special effort to the CWA so, rather than using one of my usual 'off-the-shelf' presentations, I embarked on some background research into the women in my family tree. Traditionally, the history of our family is told as a sequence of five generations of men who, in turn, occupied the family property, and for four of them, created and continued the traditions of the mountain cattlemen. It's an iconic story. It's also a perspective that encourages one to overlook the female side of the family farm. Gender

My maternal ancestors—a serious bunch!

researchers argue that the Australian farm sector has been very good at doing this[113] so, at fifty years of age I started looking at my own roots from a new perspective. I followed the story of the women who married the men who inherited the farm, by asking the women who remembered that history, and by delving into the history books. As you can see from the photograph, they could be a serious group of ladies. But they were serious with good reason. What I found there surprised me and helped me think differently about both the position of women in farming and that somewhat unfashionable organisation, the CWA.

A matrimonial family tree

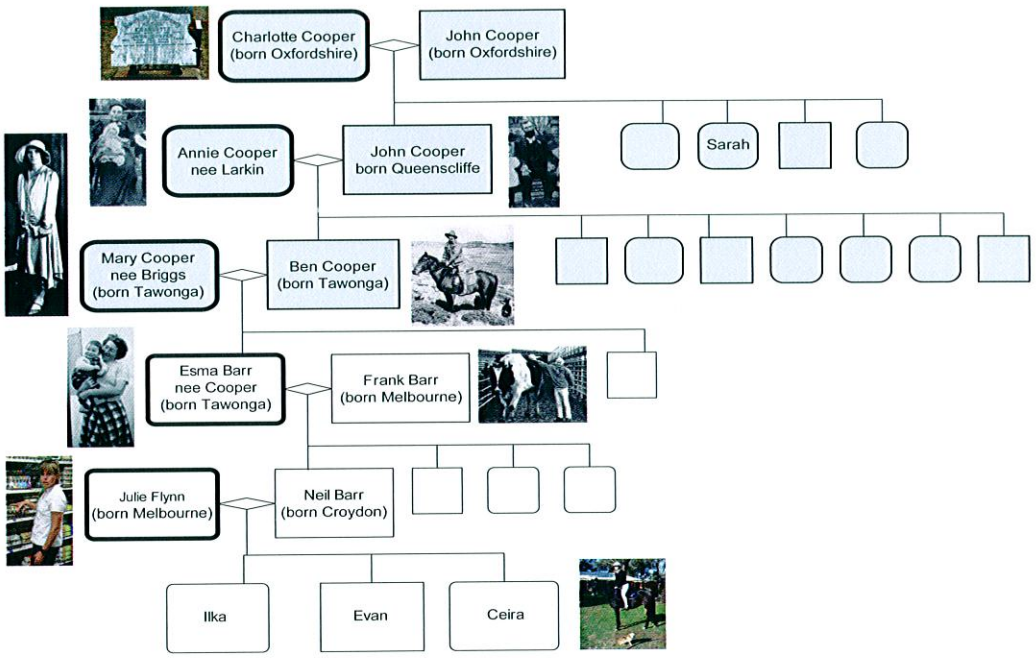


Figure 14 A family tree of sorts.

The story starts in England in 1826, when Charlotte was born—the daughter of a farm labourer in Oxfordshire. In her unmarried years she lived through politically and economically turbulent times. When she turned twenty in 1846, Europe had fallen into economic depression after a period of industrial expansion. This was exacerbated by the widespread failure of the potato crop. In Ireland a combination of famine and exploitative landowners was killing thousands of tenant farm families.

Across Europe, food prices were rising. In England these high prices were exacerbated by the Corn Laws, designed to protect the incomes of English wheat growers, often wealthy landowners, at the expense of other sectors of the economy and working-class consumers. Demands for political reform were in the air. England was in the throes of the Chartist movement, in which the working and merchant classes presented a series of petitions to Parliament demanding democratic reform. Despite three petitions, with up to a quarter of a million signatures, and some limited rioting, the movement achieved little. The propertied classes, which controlled Parliament,

refused to extend the right of labourers to vote. With the rejection of the last petition in 1848, the movement died. In the same year that the English Chartist movement fizzled, working class revolutions broke out in Germany, France, Austria and Italy, inspired by similar grievances. Each of these revolutions was eventually suppressed and the conservative forces had regained power across Europe by 1852. It was in this year, at the age of 26, that Charlotte married John Cooper, an Oxfordshire farm labourer. Within a year her first child was born.

The prospect for the young family was probably bleak. The English economic and political structures offered little prospect of advancement for those not born into property. In the midst of this turmoil and injustice, gold was discovered in California, and then Australia. The gold rushes promised a future prosperity outside the rigid class systems of Europe. In 1853 Charlotte, John and their one-year-old child were amongst the thousands who took the arduous sea voyage across the world to pursue that promise. The Coopers disembarked in Geelong to an echo of the turmoil of the European Revolutions, and the Eureka Stockade was being built in Ballarat. While many new arrivals travelled in search of golden riches, Charlotte and John were seeking a new settled life. They didn't make their way to the goldfields as that trip was for men unencumbered by women and children. The Coopers settled in nearby Queenscliff. With labourers scarce, John quickly found work as a lime burner, and later as a seaman on a service between New Zealand and Australia, whilst Charlotte raised a growing family.

Charlotte had only nine years in Australia as she died in Queenscliff, aged thirty-seven, of an ailment described by the local medical man as 'colonial fever'. Colonial fever was probably what we now call typhoid fever; an infectious disease spread by poor sanitation. Charlotte left a husband and five children aged between one and thirteen. When the Selection Acts passed Parliament, Charlotte's husband took his chance to claim some land for his family. Unlike his father, grandfather and great grandfather and countless ancestors before, he had a chance to become a man of property. John migrated to a mountain valley in north east Victoria. He took with him two sons and a troubled teenage daughter. John left Charlotte in a grave in the Queenscliffe cemetery. Many years later he left money in his will to pay for her gravestone. The headstone has recently been restored.

Annie Larkin and family—the ill-fated second Charlotte is central, Leo in Annie's arms, and Ben is on the left in a dress.

John Cooper also left two daughters behind in Queenscliff. One was aged seventeen. She stayed to make her own life and also to look after her four-year-old sister. The troubled fourteen-year-old, Sarah, travelled to the valley with her father. We have no photographs of Sarah but we do know she had two children in her twenties, and that the father of both children was unknown (or at least not publicly acknowledged). She was written out of the family history, not even acknowledged by some relatives. As a teenager Sarah had lost her mother, was uprooted from Queenscliffe and moved to a valley with only three other families for neighbours. It was surely a lonely existence. The family survived by raising beef cattle, and growing potatoes to sell to the mining settlements of Beechworth and Yackandandah. Sarah was probably expected to remain unmarried and care for her father in his old age. Maybe she rebelled against this. Sarah eventually married at the age of sixty after her father had died, to the man who she then worked for as a 'housekeeper'. This was an 'occupation' she apparently held in a number of residences over much of her life. I'd like to think that she had finally found love and stability. Sarah was rarely acknowledged by the family. Her children were accepted into the extended family on the understanding their parentage was never discussed.

Charlotte's eldest son was named after his father. This second John farmed the family property and also worked as a contract chaffcutter, travelling the region during the hay and chaff season. We believe that son John met Annie Larkin on one of these trips, and eventually brought her home to the valley as his wife. Annie raised eight of her own children. While raising the children, Annie also milked the cows in the dairy and raised the pigs. Here was a woman ahead of her time, managing the farm and its finances while her husband worked off-farm as a carter taking stores between the valley and the nearest railhead. Shopping was a rare experience. Most food was delivered from the local general store on weekly order for staples such as flour, sugar and tea, supplemented by visits from the travelling tinkers. The only meat, fruit and vegetables available were those grown on the farm, or bartered from neighbouring farms.

Unlike her mother-in-law, Annie was blessed with a long life, but it was not a life without tragedy. She gave birth to eight children. Her eldest daughter was named Charlotte in honour of the mother-in-law Annie never knew. This second Charlotte died in childbirth, leaving Annie with a motherless grandchild. The wife of Annie's second son, Leo, walked out of her marriage and the valley, never to return. She left two young children behind. It was Annie Larkin who took on the role of raising these three motherless grandchildren into her seventies. She was a nurturer till the day she died.

Mary Briggs was born in the valley to a farming family. She chose to marry an older man, Ben Cooper, one of Annie Larkin's children. He was later to become an icon of the mountain cattlemen, missing only one High Plains muster between 1916 and his death in 1975. There is a story or two behind that record. One story is of a strategy to resist the pressure to enlist in the First World War. The families of the valley learnt early of the reality behind the recruitment propaganda. One prominent family lost both sons within a year of their enthusiastic early recruitment. Ben was twenty when the conscription debate raged. He had started his own farm business and by 1916 was taking cattle onto the high plains. The isolation and the occupation provided some protection from the social pressure to enlist and a potential release from the possibility of conscription.

The other story behind Ben's enthusiasm for the cattle muster is of a condition of the marriage that encouraged long trips away. The day of Mary's and Ben's marriage was 6 December 1930.

The timing was not propitious. This was the year when the Great Depression hit rural Australia. Mary and Ben raised their family through the Depression years. But unlike Charlotte with five children, or Annie Larkin with eight, Mary and Ben only had two children. They were a typical Depression era family. There would have been much 'sleeping on the porch' for Ben.

The domestic life of Mary was initially much like that of her mother-in-law. Her daily tasks included milking the ten-cow dairy herd and feeding the pigs. Money was always short so most of the household food was produced on the farm. Staples such as tea and flour were delivered from the local store and bread arrived via the mailbox three times a week. There were only occasional trips to Bright or Yackandandah.

Mary was an innovator, and her chance to broaden her horizons came after the Second World War as she became the first person in the family to gain a driving licence and own a car, whilst husband Ben remained happily and stubbornly on horseback to the end of his days. Her VW beetle was lovingly maintained until her final years. The car meant Mary was able to shop for food rather than relying on deliveries, tinkers or sending her husband on a two-day horse journey, and she was able to venture forth and visit the local towns. In her twilight years Mary suffered from Alzheimer's, and the subterfuge of purposely disabling her car was a trauma for the rest of the family.

Ben's and Mary's personal life is intriguing. Similar to his two brothers, my grandfather had a reputation for never having raised his voice in anger throughout his life. Also like his brothers, Ben married a personality opposite—Mary had a reputation for tempestuousness. Family folklore has it that this explains Ben's attendance record at the annual High Plains muster. Every year he had a month away from home to look forward to some relief. And then he purchased a property 20 kilometres down the valley, one day's ride from home. He built a hut there, and this gave him some more reason to be away from home—a day's ride there, a couple of days of work, a day riding back. Why get your driving licence?

Mary and Ben on their wedding day.

Maybe Mary had a reason for her tempestuousness. Fate dealt her a difficult hand. It fell to her to nurse her sister, Liz, the youngest daughter in the family. Liz had a tremor in her hand from an early age. This tremor worsened in her prime years when her thyroid was removed. Today the treatment of an underactive thyroid is a matter of taking a few tablets. Such treatments were not known in the valley. Liz stoically accepted her lot. I am told they never sought medical advice, even in later years when a drug solution was available. Soon after her own children left home, Mary found herself nursing her younger sister until Liz died in the 1970s. My mother tells me that Mary was probably the least temperamentally suited carer she knew.

My mother, Esma, left school early, as everyone did then, and though I am sure there was great potential, education beyond Merit Certificate (Year 8) was unavailable. She left the valley in 1952 when she married a painter who came to work for a short period while the Kiewa Hydro Scheme was being built. She may have left the valley, but farming hadn't left my mother. She and my father, Frank, both shared a desire to farm. They dreamed of the life of the small, independent, self-started family farmer, and their dream started with the house on the hill. They had moved into an established orcharding community less than 30 kilometres from Melbourne. Their early married life involved a series of unsuccessful schemes that were intended to change my father's career from tradesman to farmer.

My grandfather tried to buy a farm in the mountain valley for them, but the transaction fell foul of family politics. Given what subsequently happened to the dairy and beef industries when Britain entered the Common Market, this failed transaction was in fact a favour to my parents, and to me. My parents then unsuccessfully applied for a farm in the Heytesbury Closer Settlement Scheme. I experienced the wettest and muddiest day of my life on a visit with my parents, so I was glad when that idea failed. Then there was the small pear orchard in northern Victoria, and the Campaspe West Irrigation Scheme. All came to nothing.

Eventually they planted an orchard on their block of land on the outskirts of Melbourne, but it was never quite big enough for my father to give up the trade. He painted houses most of the year while Esma stayed at home and raised the family. Then for three frantic months of harvest each year, they both worked long hours picking, packing and marketing peaches. My parents felt they were never fully accepted by the established orchardists. They were 'blow-ins', not real local farmers. The friends my mother found in the district were other women who had likewise moved into the district as part of their own marriage migration. Looking back, my mother thinks it significant that none of the women living on orchards were born in the district. The daughters of the local orchardists rarely married another orchardist's son; perhaps they knew too well the life of the 'orchardist's wife' and were not willing to walk in their own mothers' footsteps.

My mother did eventually become a beef producer in the mountain valley where she was born. After my grandparents' deaths, she became the first woman in the family line to inherit farmland. The process of gaining that inheritance reflected a deeper cultural struggle. The tradition had been that farmland passed to the sons, and daughters married other farmers' sons. In retirement, my parents now farm the block of land that was my grandfather's occasional refuge.

In her life my mother experienced the rise of the supermarkets, both as a consumer and as a supplier. Early in her marriage she shopped at a local shopping strip. With only a motorbike and then a car to share, shopping was a full-day bus trip, or later a Saturday morning excursion. Meat came from the butcher, fruit from the fruit shop, bulk foods from the grocer. The latter was

the 'Preservation' store, where bulk honey, rice, oats and many other commodities could be purchased by filling containers one brought to the store. When supermarkets began stocking fruit and vegetables, she refused to buy them because of the poor quality. Later, she refused to buy supermarket fresh produce because of the supermarket treatment of their own farm business.

Mother and son, 1955.

Common threads

My own partner, the purchaser of those eggs mentioned earlier, did not marry a farmer, or marry into farming. In choosing me, she chose the first in five generations of the family whose life would not revolve directly around farming or dreams of farming. She and her generation are also quite different from the women who came before her in the family history. Her generation was the first to expect to follow their educational aspirations through to tertiary studies. They were the first to expect to have a career as an end in itself, rather than as a means of passing time until marriage. And despite her distaste for shopping, she is part of the first generation that has grown up with the supermarket as an integral part of life.

If my partner had instead married a farmer, she would have lived a farming role quite different from that of previous generations of farming women. Today's farm women often work in non-farm jobs. They have access to transport. They are active partners in the farm business. They generally expect to share in farm inheritance. But one underlying matter is little changed. Despite the massive changes that have followed the feminism of the sixties and seventies, and the lifestyle implications of the contraceptive pill, farming has not been feminised. Women are still entering farming through marriage. It's not the love of the farm, but the love of the man that generally makes a farming woman.

Women in farming, women in work

In the 1970s I spent a fortnight interviewing farmers in an isolated mountain community over on the other side of the Great Dividing Range from where my mother was born. Amongst many memorable experiences, including a hastily arranged dance for the young local men to meet the visiting female researchers, the highlight was meeting a seventy-year-old woman who managed a farm. In the shearers' quarters out the back lived her 'farm boy', a retired forestry worker also in his seventies, who was the farm help. This arrangement was quite exceptional in this community, where farming was seen as a man's business, and where unmarried

co-habitation was frowned upon. Today the 'Women in Agriculture' movement has a prominent profile in the agricultural community. No-one would dare publish a report on the farm workforce that reported data on male participation only. But while I was busy interviewing, colleagues at Melbourne University were working on such a report.[8] The absence of women from statistics was not the researchers' choice. They were reporting statistics gathered over the previous twenty years by the Australian Bureau of Statistics, and those collecting the statistics had generally assumed that farmers were men. In answering the census questions that made the statistics, women on farms had generally assumed they weren't farmers. Both these assumptions were rapidly changing in the 1970s.

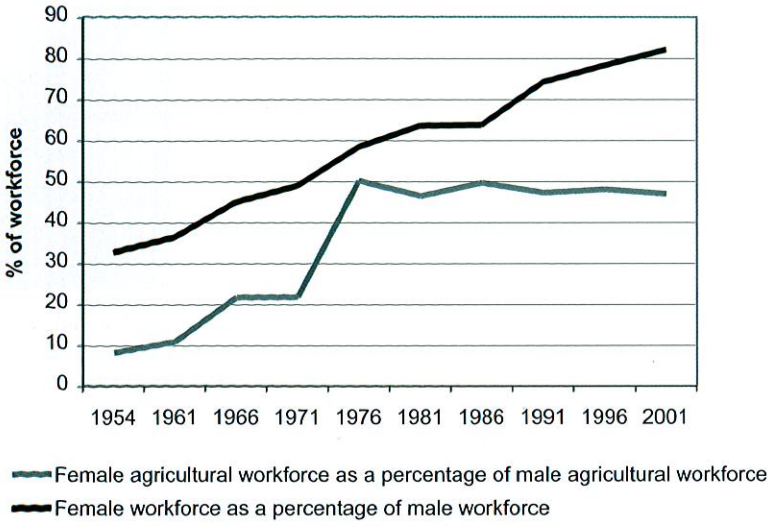


Figure 15 Female workforce numbers as a percentage of male workforce numbers for the Victorian workforce and the Victorian farmer workforce 1954–2001.

The graph above shows changes in the participation of women in the Victorian workforce as a whole, and in the Victorian farmer workforce over the last fifty years. This figure is built from data obtained in successive censuses of Population and Housing. The darker line shows the number of women in the workforce expressed as a percentage of the number of males in the workforce. In 1954 there were thirty-three Victorian woman employed for every hundred men. Since that time the participation of women has been gradually increasing, to the extent that in 2001 there were eighty-three employed women for every hundred employed men.

The grey line shows the participation of women in the farmer category of the workforce. This follows quite a differing trajectory to the steady rise of women's overall workforce participation. There are three quite separate periods portrayed in this graph.

The farmer's wife phase: In the 1950s there was one female farmer for every ten male farmers. This is probably a reflection of cultural beliefs about women's roles. Workforce and occupation status in the census are based upon self-definition. The census asks each respondent to report his or her 'main occupation'. In the 1950s many women living on a farm and married to a male farmer described themselves as a housewife. The ratio of female to male farmers rose gradually from 10% to 20% over the next fifteen years to 1971, but remained less than half of the ratio of women to men in the total workforce.

Women become farming partners: Between 1971 and 1976 the number of women farmers rose sharply from 20% to 50%. This dramatic rise can only be explained by a cultural shift in how women viewed their role on farms. In 1963 a new book appeared on American, and soon after, Australian bookstands: *The Feminine Mystique* by Betty Friedan. This book, and the feminist movement it stimulated, questioned the assumptions about women's roles in the household and the wider economy that underpinned the baby boom. The message was further underlined by the work of Germaine Greer. The cultural pressure for female equality in the workforce changed the way women on farms viewed their role on the farm. In 1976 women's participation in the farm workforce had almost matched the rate of participation in the wider workforce.

Women become breadwinners: Since 1976, the ratio of women to men in the farmer workforce has remained constant at just under 50%. In the same period, the ratio in the wider workforce has been steadily rising. What we are seeing here is the gradual increasing participation of farm women in off-farm employment and decreasing recruitment of younger women into the role of farmer. When I showed this to a colleague who is married to a farmer, she laughed and said 'We are the breadwinners now. We work to support the farm!'

The two lines on this graph signify profound changes in the social structure of agriculture. The static participation rate of women in the farmer workforce is a symptom of the masculinising of the social landscape of some of our more remote rural locations. The increasing participation of women in the Australian workforce is changing the food-supply chain. In the next sections we'll explore the farm implications of both of these trends.

The masculinisation of farming

In the previous chapter on demographic change we explored the inexorable loss of young people from rural areas, but that chapter tells only part of the story. For farming, this loss of young people is not gender neutral. The next figure shows the number of young farmers in 2001 as a percentage of the number of young farmers in 1976. The number of young men in their twenties is less than 60% of what it was in 1976.

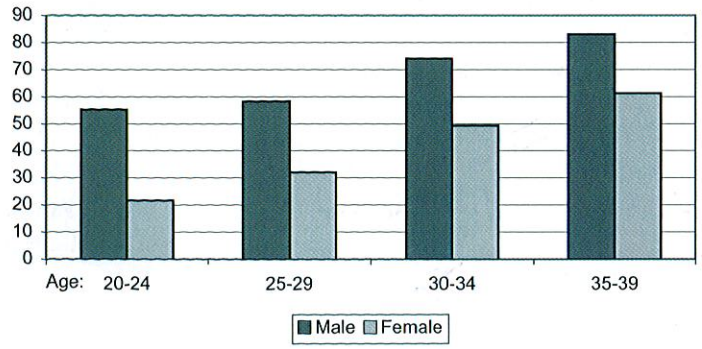


Figure 16 Number of young farmers in 2001 as a percentage of young farmers in 1976 by sex.

Given the gradual disappearance of farms over this period, this decline is what one would expect as the aspirations of the young farm men come to match the opportunities remaining. The number of young women has declined at double the rate of young men. In 2001 they numbered only 30% of the 1976 population of young women in farming. There is also a differential decline

for men and women farming in their thirties, though not as extreme as that seen in the twenty to twenty-nine age group. This decrease in the population of young women is due to more than just the declining number of farms. It is also an outcome of three major social changes over the past forty years:

- increasing age of first marriage
- increasing uptake of higher-education opportunities
- increasing female participation in the workforce.

Let's look first at the impact of later marriage. Marriage remains the main pathway through which women enter farming. This statement is based on a detailed examination of the entry of young people to farming using population census data. The data show that women are much more likely than men to enter farming by migrating into an established household. The average age of first marriage in Australia has been rising steadily over the past three decades. The rate of marriage amongst farmers in their twenties has halved since 1976. With young women expecting to develop their own careers, education is an important goal for many of them. The opportunities for education, training and career development are predominantly in major cities so the result is a disproportionate exit of young women not just from farming, but also from rural areas. Young men are more likely to stay behind on the farm. In 1976 82% of farmers aged in their late twenties were unmarried. In 2001 almost half of the farmers of this age were married.

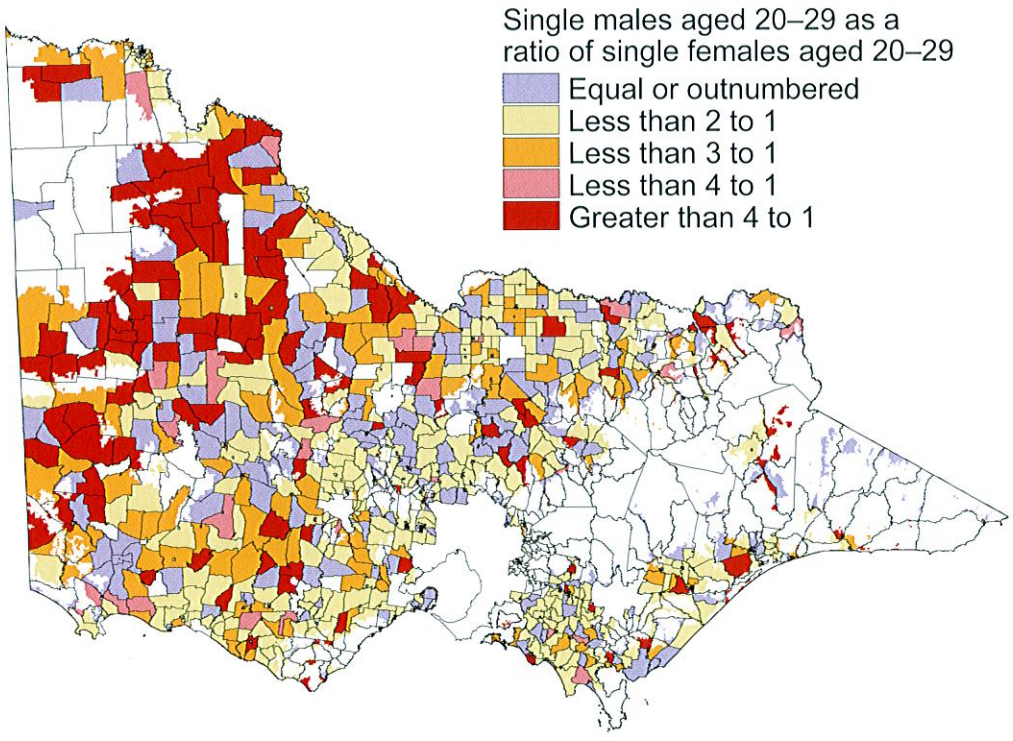


Figure 17 Single males aged 20–29 as a proportion of all persons aged 20–29 by Victorian collector district, 2001.

Finding the beaut bloke a wife

Young men planning a long career in broadacre agriculture are experiencing increased social isolation because of this differential migration of young women to the cities. We saw in the first chapter on the grains industry that a secure position in the race against the terms of trade is most achievable in districts with limited amenity competition for land. By their nature, these will generally be districts where agriculture is the predominant economic activity. The lack of a diversified economic base ensures there is little to encourage young women seeking education or career development to stay in the district. The result is an imbalance in the population of the sexes.

The map opposite shows the balance of single men and women aged in their twenties across the state of Victoria in 2001. Generally it is the isolated farming districts of the west and north that have an oversupply of single males. In some localities the imbalance is as great as four to one. Those single young women who are in rural Victoria are much more likely to be found in regional cities than in the rural hinterland. In an unofficial experiment to verify these census figures, a colleague and I visited Australia's major internet dating site and counted the male and female advertisements in north west Victoria and central Melbourne. We chose only a couple of age groups and started counting, and counting. There are many single women and men out there searching. But they might have to travel to find each other. Males advertising in our chosen age groups outnumbered females two to one in the northwest, and most of the women there were in regional centres. The ratio was almost reversed in inner Melbourne where advertising women clearly outnumbered advertising men.

There have been several highly publicised efforts to help the single young male farmer. The *Woman's Weekly* magazine called for single farmers to volunteer to be featured in a series of articles called 'Find the Farmer a Wife'; they imported the concept from overseas. The feature promoted the young (and not so young) men and sought expressions of interest from women willing to consider moving to the bush.[114] The *Weekly* was overwhelmed with interest from young male farmers. The publican in the community of Harrow, Ange Newton, ran a series of 'Beaut Blokes' weekends. This was essentially a weekend of community hosting of single young women from the city. The aims as stated by the organisers:

> *Simple! Beautblokes is about introducing (and sometimes re-introducing in the case of ex-country girls) single women from the cities, to life in the country. Many country girls head for the big smoke to complete their education or gain qualifications, often meeting partners, leaving the young men to work on the family farm or work in the many trades and services that support the rural/farming sector. Beautblokes is a program of events designed to give people a stress free opportunity to make new friends, and to give city girls a taste of country life in a genuine, safe and fun way.*[115]

For the young city woman, a 'Beaut Blokes' weekend included farmstay, a formal ball and the chance to meet the local 'Beaut Blokes'. Each Beaut Bloke was expected to host a visitor for the weekend, to introduce her to all the local Beaut Blokes and to behave as the perfect gentleman.

Ange Newton saw it as a crucial project to sustain the community in which she lives. The 'Beaut Blokes' concept has taken off, with the organisers offering to run three events in each state of Australia. It clearly meets a need by providing the chance to meet young people in a pleasant and 'stress-free' environment. But it's not just the geography of sex that has changed for young men. The sexual politics has also changed in a generation. The whole structure of the 'Beaut Blokes'

weekend is an interesting counterpoint to the more traditional Bachelors' and Spinsters' Ball, perhaps demonstrating how young rural blokes need new strategies to impress the young urban woman.

The new rural 'bride price'?

Part of the cultural change in gender relationships has been a de-traditionalisation of marriage relationships in the modern Australian farm family. Research by the Institute of Family Studies shows how women's expectations of marriage relationships are now much different from what they were a generation ago. The decision to marry is less likely to be influenced by the financial prospects of the potential husband—a recognition of the crucial role healthy relationships play in personal wellbeing.[116] Fewer women today are willing to endure what they consider to be an unsatisfactory relationship or family lifestyle.[117] The alternatives to continuing in an unsatisfactory marriage are more socially acceptable than a generation ago.[118] Together with changed expectations over property settlement, this is changing the way the farm sector adjusts to the declining terms of trade of farm products.

I discovered this almost by accident whilst doing my PhD research. For eight years I had been tracking the changing structure of farming in an irrigation settlement in northern Victoria. The research had been funded because of the high levels of salinity in the area and the potential for future restructuring with changes to water law. The Institute of Family Studies had also played a part in the early stages of this research. Thanks to its contribution, there were measures of the happiness of farm family members with the farm lifestyle, their family and their community. After eight years of study, I was interested in what I thought was a simple research question. What types of farms were being sold? Simple economic theory suggested it would be the smaller farms that were least able to capture productivity benefits and were falling behind the declining terms of trade the fastest. But the data didn't support this proposition. I embarked on a journey of curiosity through the rest of the data, and discovered a surprise. Farms with dissatisfied women were much more likely to have been sold. Female relationship satisfaction was a much better predictor of farm sale than farm size or profitability.[66] Marital and family dissatisfaction can lead to a divorce settlement in which the farm is broken up and sold. The implication of this is that the successful farm business management team today has a greater need to develop the skills of communication and teamwork within the household than may have been the case a generation ago.[119] A friend of mine who is a farm consultant puts the matter more bluntly: 'Relationship failure is the greatest threat to farm business sustainability today.'

For the single young rural man negotiating a new relationship, the old relatively simple option of offering a steady income and the role as a 'farmer's wife' or farming partner will rarely be successful. The income will not be steady. The woman will have her own career expectations. Issues of quality of family life may also need to be negotiated. In most relationships both parties will perceive the crucial importance of protecting their dual careers. Dual-income households have become the norm for most Australian middle-class families. While this expectation has grown in a generation, many farms have not increased in size to match the new income expectation.

The need to consider dual careers in relationship establishment is leading to new patterns of migration, as aspiring farmers seek to accommodate the needs of potential partners who do not wish to adopt the farming family lifestyle. The premium that must be paid to purchase a farm

within commuting distance of major centres in part reflects the proximity to employment and social amenities for members of the farm household and the attractiveness for prospective partners.

Of course, the premium also means that land prices will not be conducive to future farm expansion. In these areas a partner's career is crucial for the family standard of living. It provides a stable income to match the volatile income derived from a farm. This income stability has a profound impact upon the process of structural change in agriculture as it reduces the pressure for structural change by alleviating the need to increase farm income through farm business expansion.

In more isolated rural settings, the young farmer negotiating a potential marriage may have to consider a new residence beyond the family farm. It may be the farmer who commutes from town out to the farm, rather than the wife who commutes from the farm to work in the town. As farm housing stock ages, more and more families will have to consider whether they can afford to invest their capital in an isolated house with limited resale value. High building costs and a shortage of tradesmen willing to work on isolated projects will make the choice to build even less attractive. A house built in town will retain its value. Commuting farming may be a good investment choice. In some relationships, the price of love may be leaving the farm altogether to seek a new life in town.

More money, less time

It's time to look back at that graph of female and male workforce participation. Up to now we have been discussing the implications of changing gender roles on the farm. Now we shift our attention to that other line showing the steadily increasing female participation in the workforce as a whole. Today the dual income household is a middle class norm. As household work commitments outside the home increase, the available time for domestic chores and leisure decreases.[120] Leisure takes precedence over chores in most households. The result has been a gradual change in expectations of how much time one should take to create a meal at home. In the marketing literature, evening meal preparation times are quoted as falling from two hours in the 1950s, to one hour in the 1980s and between twenty to thirty minutes at present. Work lunches are generally purchased rather than prepared. Breakfast is increasingly minimised, skipped, or purchased on the way to work. Estimates of future evening meal preparation times are as short as ten minutes by 2030.[121]

Shortening meal preparation times are being pushed by two other important social trends. Households are becoming smaller, and the number of single person households is increasing. Divorce, lower marriage rates, smaller families and longer life spans are all contributing to this trend. Meal preparation is a social task and many people are less likely to prepare a meal if they are alone for the night than if there are others in the household. The other trend is a generation growing up with less developed culinary skills. The result is a gradually rising demand for convenience food, with this trend most evident in the United States.

The growing interest in food convenience has also driven a generational shift in the pattern of shopping. The parents of baby boomers would have shopped at a selection of stores including the grocer, the fruiterer, the butcher and the baker. Shopping was generally a day excursion conducted once a week. I was raised with this pattern of shopping. As a baby boomer I learned to shop in supermarkets and saw the gradual displacement of many specialty stores as supermarkets progressively expanded into bakery, butchery, fresh produce and liquor. My shopping patterns

changed from a once-a-week shop in my early twenties to almost daily visits to the supermarket today. The research literature claims children of the baby boomers have grown up with parents who have spent less time cooking and, as a consequence, the younger generation has spent less time learning to cook.[122] This is the first generation to be raised with the regular advertising of hand-held food.[123] They are major consumers of fast foods.[124] They are also spending far less time in the supermarket or kitchen.

United States consumer segmentation studies are dividing consumers into two groups. One is price sensitive. The other is convenience oriented. The mix has been gradually changing and recent studies are claiming an almost 50/50 split has been reached.[124, 125] The divisions can be seen in the emergence of two quite different types of supermarkets in Australia. The now 'traditional' supermarket offers the convenience of a wide range of product choices, the one-stop shop option. The cost of this convenience is often higher prices. A new style of supermarket offers lower prices, but without the guarantee of one-stop shopping. You might save money there, but you may well have to visit another shop to complete the shopping list.

To market, to market

These changes in product choice and shopping behaviour are having profound impacts on the food supply-chain which are stretching right down to the farmer. Forty years ago most consumers purchased raw ingredients as the basis of their food consumption. In Victoria fruit and vegetable producers generally sold through wholesale markets, initially at the Victoria Market in North Melbourne, and then the wholesale market in Footscray. Each major city has its own wholesale market. These markets were the main purchasing point for retail fruiterers and for the initially relatively small volume of fresh produce sold through supermarkets. Each farmer either sold his produce personally to a multitude of clients, or sold through an agent. Transactions were generally in cash and often took place within an intricate web of personal obligations and traded favours. Farm produce was relatively undifferentiated. Potatoes were just potatoes, from the new season or the old season. There was no such thing as 'iceberg lettuce'. There was just lettuce.

That world of the small market with many players is rapidly fading from memory. This structure was economically sustainable in a world with consumers who were happy to shop at specialty stores and prepare meals from raw ingredients. That world is no longer with us. As a consequence, the world into which the fruit and vegetable farmer must trade has been radically reshaped by the shift to convenience food and convenience shopping:

- A greater proportion of food purchases are being captured by the processing sector.
- There are fewer purchasers of bulk farm commodities.
- Increasing quality compliance costs demanded by the supermarket chains and processors favour larger farm businesses with the capacity to invest in quality assurance.

The growth of the processing sector

Modern households are achieving greater convenience in food consumption by shifting preparation workload from the kitchen to the factory. Jars of pre-minced garlic are a reminder of my own changing food preparation behaviour. I once thought these jars were an utter

extravagance and that the small task of peeling and crushing a few cloves of garlic would never justify the price tag on the bottle. The jars sell, and I have purchased my share. I know the taste is not as good, but I avoid the task of cleaning the garlic press. The United States Department of Agriculture Economic Research Service cites their own symbol of this transformation of food products—chicken meat.[126] In the 1960s most United States chicken meat was purchased as whole frozen chickens. By the 1980s chicken-parts sales had overtaken whole chicken sales. Today 'further processed chicken' has overtaken chicken parts as the major form of consumer chicken purchase. 'Further processed chicken' includes products such as chicken nuggets and prepared chicken meals. The same trends can be seen in the other produce lines. Brushed potatoes have been gradually replaced by washed potatoes, and increasingly, frozen chipped potatoes. Peas in shells have been all but replaced by frozen shelled peas, and frequently with added flavours.

One consequence of this is that the farm share of the dollar spent on food is declining. An oft-quoted example, perhaps apocryphal, is that the farmer's share of a $2 bag of potato chips is represented by a single chip. Another consequence is that the many traditional retailers who once purchased raw produce are being replaced by a much smaller number of food industry purchasers who create the value-added convenience products sold on supermarket shelves. Relationships in this world are contractual rather than market based. The industrial purchaser needs a guarantee of security of supply and clear quality and price standards.

In Australia the processed tomato and chicken meat industries are the most developed examples of how contractual supply chains can quickly lead to the rapid contraction in the number of industry suppliers.[127] The tomato processors produce an undifferentiated bulk commodity, and the competition is increasingly global. To a consumer, the contents of a tin of tomatoes or tomato paste from Australia are quite indistinguishable from the contents of a tin filled in Italy. It is only a label on the outside of the tin that will inform the consumer. The terms of trade pressures on growers are intensified in the world of contract agriculture. Cost pressures felt by the processors are rapidly relayed down the supply chain to the tomato grower. The processor can minimise its own costs by dealing with fewer, larger farm businesses. It can also expect larger tomato-growing businesses to have a lower unit cost. So each year when arranging contracts, the processor will favour those fewer, larger farms that they expect to operate at lower margins. Smaller businesses lose contracts or opt out of them when they cannot match the required price. The processing sector is effectively accelerating the restructuring of the tomato-growing sector. These pressures have dramatically reshaped the Australian tomato-processing industry in a few short years. In 1984, 350 growers supplied 183,000 tonnes of tomatoes. In 2004, 32 growers supplied 360,000 tonnes. The number of producers has fallen by 90%, while the average farm production has risen from 500 tonnes to 11,000 tonnes.[128] This dwarfs the productivity gains of the grains and dairy industries.

The trends in the tomato industry can be expected in any other farm commodity that becomes tied to the supply of produce to the global food-processing industry. At the time of writing, the potato industry in Tasmania was experiencing pressure to consolidate. Once potatoes were shipped from Tasmania to be sold in mainland wholesale markets. Gradually consumption of potatoes has shifted from home prepared towards frozen chips from the supermarket or cooked chips from fast food outlets. A small number of companies process the chips that end up in freezers or fast food stores. In the 1980s these companies sourced their potatoes from a number of locations in Australia. Within a decade, contracts were cut in Victoria and Western Australia in favour of the lower-cost producers in Tasmania. Then, in 2005, a major processor announced

that contracts in Tasmania would be cut in preference for supply from New Zealand. The CEO of that company argued in a food industry newsletter that he had a choice of sourcing his potato requirements from several hundred Tasmanian producers, or from just 13 New Zealand producers. Not only were the New Zealand producers able to produce the spuds at a lower cost, but the processor's transaction costs could be greatly cut by the dramatic reduction in the number of contracts that needed to be managed.

The problems faced by the vegetable industry have been succinctly summarised by leading horticulture consultant David McKinna. The processed vegetable industry is 'a third world industry, being run in Australia with first world cost structure'.[129] Competitors for the industry include New Zealand, Thailand, Taiwan, the Philippines, Italy, Turkey, China, Mexico and the USA. Vegetable production is often labour intensive and labour costs in Australia are high compared with the costs in many of these competing countries. In Australia costs can reach $33 an hour for some producers, compared with $23 in New Zealand, $6 in South Africa, $5 in the Philippines and $1.25 in China.[130] The high cost structure in Australia includes provision for superannuation and safety laws that are absent in most competing countries. Those high income countries that remain competitive in the processed vegetable sector often have generous government support or a steady supply of cheap immigrant labour.

Selling to the supermarkets

In the old style wholesale fruit and vegetable market all the participants understood the value of market power. Market power shifted between growers, merchants and retailers depending upon the supply of a particular commodity. A good season for stone fruit production meant bad news for the growers.

More fruit was presented to the market and prices fell. Growers often took fruit home at the end of the market. Oversupply placed power in the hands of the purchaser for this season. A cyclone in Queensland might destroy the banana crop, so for several months, merchants selling bananas

Doing the deal in the wholesale market (photo Ian Barr).

have market power. Maybe the merchant will sell you some bananas if you also buy some of his peaches. Growers and retailers managed their risk by nurturing a complex network of reciprocal obligations.

The move of consumer purchasing to the convenience of supermarkets has dramatically shifted the power of players in the fresh produce supply chain. The market power of the supermarket sector has grown rapidly since the early 1970s. In Australia in 1975 the three largest retail chains held 40% of the dry grocery market. In a little over twenty years this share had risen to 80%.[131] The National Association of Retail Grocers (representing independent grocers) has claimed that since the demise of the third player, Franklins, the big two supermarkets, Coles and Woolworths, will soon capture 80% of the sector. Meanwhile, the major two supermarkets dispute these measures of market power, preferring to use a more general measure of consumer spending which shows the big two having a 50% share. This includes alcohol sold at hotels and liquor outlets, as well as take-away food sales.

The rise of the supermarkets has been at the expense of the traditional small retailer. The family retail business has found it difficult to offer time-pressed consumers the advantages of 'out-of-hours' trading and one-stop shopping. The result has been a continuing decline in the number of butchers and fruiterers, as well as independent grocers. The primary producers have seen the gradual shrinking of their pool of contacts and the network of mutual obligations. More and more fresh produce is sold direct to supermarket distribution centres. The market has become less transparent with fewer transactions taking place in an open market.

Like the food processors, the supermarkets are engaged in a continuing quest to reduce their own transaction costs. They have been reducing the numbers of produce purchasers (category managers) to reduce their own costs. This inevitably means they seek to deal with fewer producers. In the search for improved performance, the supermarkets have also embarked upon a house brand strategy to capture the value of brands. The major supermarkets plan to have 30 or 40% of their sales in home brands. The number of private brands in stores has been reduced, while plans are being made for three different house brands to capture different market segments: quality, budget and mid-range. Generally the home brand product is being sourced from overseas producers. In 2005 Tasmanian horticulturalists led a tractor tour to Canberra demanding improved country of origin labelling. In response the supermarkets displayed a degree of patriotism, highlighting their purchase of local *fresh* produce. Meanwhile, the tinned imported home brand lines colonised the aisles.

The capacity of supermarkets to use their market power to exploit the smaller suppliers of fresh produce has become a contentious issue, both in Australia and overseas. The Canadian National Farmers Union has produced a strongly argued account of the impact of supermarket power on farmers.[132] After citing examples of static farm prices and comparing them with supermarket prices which have risen steadily, the submission argued as follows:

> *Other than the farm link, every link of the agri-food value chain is dominated by between two and ten multi-billion-dollar transnationals, and perhaps not coincidentally, everyone of these links is characterised by large profits.*

In Australia the practices of supermarket buyers have been described in less than flattering terms by the NFF[133] and on the ABC.[134] Political pressure from independent retailers, a coalition of independent suppliers and from farmers' federations, led to a series of inquiries.[134,

[135] Farmers' groups argued strongly for an enforceable code of conduct in the retail sector. Supermarkets argued this was unnecessary and were able to point to their positive relationships with long term suppliers.[136]

The federal government-commissioned Buck Review of the Retail Grocery Industry code of conduct found that direct relationships between large suppliers and supermarkets generated relatively little discontent, but that supermarket supply arrangements through intermediaries generated substantial anecdotal evidence of dissatisfaction.[135] Its recommendation of an enforceable code of conduct was the subject of much debate and lobbying at the time of writing. If the existing 'Grocery Code of Conduct' is any guide, few complaints will be raised by suppliers. [135] Those with long term contracts have no incentive to upset their relationship with the customer. Those that do formally invoke the Code would be making themselves a high transaction-cost supplier.

The food supply chain reshaping agriculture

The supermarkets have been able to use their dominant position to establish alternative supply chains that by-pass the wholesale markets. In 1995 supermarkets purchased between 30% and 65% of various fresh produce volumes outside the wholesale market.[137] In twelve years (1990–2002) the volume of beef sold through saleyards fell from 65% to 45%.[138] Seventy-five per cent of domestic vegetable purchases are made in supermarkets.[130] The supermarket supply chain is based upon the central hub of the distribution centres, rather than the wholesale market. Suppliers deliver produce to the distribution centre, and from there the supermarket delivers to its stores. The objective of the supermarket supply-chain control is to minimise both transaction costs and exposure to risk, and to transfer risk cost to the supplier. One of the risks managed is that of quality control. The major supermarkets require suppliers to have implemented food safety Quality Assurance Schemes. In practice, they now require a complete 'cool chain' from grower to distribution system. Produce must always be stored in refrigeration. These pressures on the small producer are even more acute in the food services industry that supplies the restaurant and fast food sector. Restaurants and fast food businesses have even less tolerance than

Specialty organic fruit and vegetable shop and supermarket aisles provide very different shopping experiences and cater to different markets.

supermarkets for variable supply or transaction costs associated with ingredient purchase. Many are supplied by intermediary companies. The largest of these companies in Australia is Golden State Foods. This company supplies chains such as McDonald's. It buys more lettuces than anyone else in Australia. In the mid-1990s it purchased almost all its vegetables from the wholesale market. Today almost all vegetables are purchased through direct contracts with growers.[139]

Not all farm producers are welcome in the new supply chain. Requirements for Quality Assurance, cool chain supply, and for large volumes mean smaller producers are effectively unable to compete. Quality standards demanded by supermarkets are gradually increasing and becoming more complex as a result of schemes such as EUREP/GAP, in response to the 'credence quality' preferences of the more affluent consumer. Credence qualities cannot be perceived by the consumer. Food that comes from 'ethically superior' production systems may have no qualities that can distinguish it from the less ethical other than claims on the label. I doubt I could distinguish commercial free-range eggs from cage-laid eggs on the basis of taste and appearance alone. Commercial egg producers can easily manipulate eggshell colour and yolk colour by changing the feed supply. The Tasmanian Government estimates that only a quarter of its vegetable producers have an approved Quality Assurance Scheme in place. The supermarket buyers are prohibited from purchasing from the other 75%.[130]

The bifurcation of the supply chain into those who can and those who cannot supply to supermarkets, processors or the food service industry means that traditional smaller scale horticulturalists are increasingly left in the shrinking rump of the wholesale market. Supermarkets and food service companies are instead developing relationships with their preferred suppliers who operate large farms, often new and in greenfield locations. These suppliers have a scale that enables them to provide a stable supply of produce at lower margins. Preferred suppliers will have a record of consistent quality, consistent supply and a transaction history free of complexity or dispute.[139] These relationships can be long-lasting and highly cooperative.

The wholesale market for some commodities will be left for producers unable to meet the supply standards of the supermarkets. The wholesale fruit and vegetable markets of Australia appear to be in slow decline as the retail sector moves to contractual supply arrangements.[139] To survive, the small farm sector must seek other strategies to market their produce. That is the challenge faced by the egg producer who slipped that subversive note into the top of the egg carton. Not every small scale producer is going to be successful. Commercial pressures from overseas producers will increase as bilateral free trade agreements are progressively negotiated with developing economies in Asia. The future competition from China is much discussed. In 2005 there were over 4,000 vegetable producers in Australia. At the Ausveg Crisis Conference in June of that year, industry consultant David McKinna predicted there would be less than 1,000 within five years.[129] This is a structural shock that hasn't been seen in Australian agriculture since the loss of the British butter market in 1972. Not everyone believes this will happen. Few in the industry hope that it will.

Slow Food, Food Miles and Farmers' Markets

Despite their dedicated attempts to capture the market for food with credence qualities, the supermarkets do not hold all the cards. The supermarket does not easily capture some credence attributes, as regionalism and taste are two of those qualities. In 1994 the SAFE Alliance of London published the Food Miles Report and sparked a continuing debate about the energy

implications of new food distribution systems.[140] This report argued that these systems with their emphasis on production efficiency, out-of-season produce and catalysed business mergers, was rapidly increasing the distance food travels and the level of investment in roads and transport systems. The supermarket food supply chain based upon the mega-distribution centre can appear quite illogical to some purchasers. Produce may be transported from a rural region to a distant centre, and then transported back to that region for retail sale. Regions that specialise in a particular fruit or vegetable can find competing produce from a distant competitor on their local supermarket shelves. This was illogical to the free-range egg producer excluded from our local supermarket. From the supermarket perspective, this can be a logical outcome of striving to minimise transaction costs. It is cheaper to centralise purchasing and distribution, rather than operate purchasing arms in each region.

At the core of the Food Miles Report was a claim that subsidised road transport was facilitating the expansion of major retailer dominance over independent retailers. In turn, this created many socially undesirable outcomes:

- 'misery miles' caused by the prolonged transport of live animals
- transport pollution
- increased packaging
- breeding that emphasises the qualities of transportability and shelf life over taste
- loss of agricultural biodiversity through homogenisation of supply
- post-harvest chemical treatment of food
- reduced farm-gate share of the total price of food
- increased greenhouse gas consumption.

The Food Miles Report was followed up by a Food Miles Action Pack and a campaign to promote the value of purchasing local food. With growing community concern over greenhouse gas pollution, the campaign is having an effect in Europe, where logistics advocates are now encouraging the supermarket chains to obtain market advantage and improve their corporate image by increasing local sourcing and processing.[141] This market response has in turn catalysed a response from New Zealand, a country whose economy is dependent upon the sale of agricultural produce to the other side of the world.

Researchers at Lincoln University estimated the total embedded energy and greenhouse gas consumption in New Zealand lamb, cheese, apples and onions on sale in the United Kingdom, and compared this with similar lines produced in England[142]. The result was a salutary lesson in the danger of policy based upon over-simplification. United Kingdom cheese had twice as much embedded energy as imported New Zealand cheese. The energy embedded in the transport of New Zealand cheese was far less than the energy differences in the English and New Zealand production systems. United Kingdom lamb embedded four times as much energy as the imported New Zealand lamb. The differences were less extreme for apples, but still, imported apples were more energy efficient. The production of New Zealand onions used more energy than the production of United Kingdom onions. However, New Zealand onions arrive outside the European onion-producing season. They compete against local onions that have been held in storage. When storage energy is included in the calculations, United Kingdom onions used 30% more energy than imported New Zealand onions.

Then there is credence quality of taste. Remember, you cannot detect a credence quality through observation of the product at the point of purchase. Can you tell if a honeydew melon will be a

taste sensation or a disappointment? I can't, but I keep purchasing them and treat the experience as a lottery in which I sometimes hold a winning ticket. The efficient food supply chain into the supermarkets does not tolerate wastage and spoilage. For many years this has been changing the fruit and vegetables we eat. David McKinna describes the supermarket sector as placing too high an emphasis upon minimising spoilage at the expense of taste, thereby minimising the consumption of some fresh food types.[129] This claim resonates strongly with my personal experience. Thirty years ago one of the main varieties of peach was the Beale. A white slip-stone peach ripening in the first two weeks of January, it was bred by a pioneering orcharding family from Doncaster. It had both a superb taste and a soft and very juicy flesh. In my own privately conducted taste panels this fruit was acclaimed. Today the variety is commercially extinct; you will not find it on supermarket shelves. It is extremely easily bruised and required careful handling. It could not endure the rigours of self-service marketing so it has been replaced by varieties that have been bred to look attractive, to endure prodding and squeezing by consumers and to show no sign of damage from refrigeration. But many of the new varieties have not been bred for taste. Those that do have desirable taste characteristics will often be picked at an immature stage of ripening to minimise the risk of spoilage. Such fruit will generally not develop full flavour, so spoilage is in fact a moot point. It is spoiled before it arrives. My personal reaction has been to rarely purchase stone fruit. That is a sad response from someone who grew up with stone fruit, who knows what a good peach tastes likes and who loves to eat them. I am not heartened by the latest trend in stone-fruit breeding—low-acid fruit that is sweet whilst still firm.

My reaction to taste disappointment is not unique. The opening of a McDonald's fast-food outlet in the Plaza di Spagna in Rome in 1986 spurred a Dr Carlo Petrini to found the Slow Food movement. The movement is dedicated to 'protect the pleasures of the table from the homogenisation of modern fast food and life'. Today it claims 80,000 members in 100 countries across the world, though the majority of these members are in Italy.[143] Slow Food is unashamedly hedonistic in outlook. But from these roots its objectives have much in common with those of the altruistic Food Miles movement. As well as teaching the pleasures of food appreciation, Slow Food aims to conserve agricultural biodiversity and protect regional food and cuisines.

Slow Food and Food Miles represent the apex of a growing consumer interest in the credence value associated with local produce. It is the small farm business being excluded from the supermarket supply system which has the most to gain from this opportunity. Small farm businesses on the outskirts of urban areas or in tourist areas are developing new marketing methods or re-opening older marketing forms that are based upon a personal relationship between the consumer and producer. These include direct marketing by mail, regular food basket deliveries, pick-your-own, roadside stalls, and farmers' markets. In essence, these market local produce and farms as an experience rather than just as a commodity. The ultimate transformation from commodity to experience is the development of the farmstay. The major advantage of these transactions to the farmer is the higher share of the return that is captured by the farmer. This can compensate for the lower turnover.

We should not be overly optimistic that the development of the farmers' market movement will ever rival the fully commoditised supermarket supply chain. Department of Primary Industry research into attendance at the Collingwood Children's Farm Farmers' Market shows clearly that attendees represent a very small market niche. They are very highly educated, affluent, altruistic

buyers who seek not just food but a social experience and an association with altruistic outcomes from their purchases (Max Coster, pers. comm.). If the niche were to grow, we could expect small retailers to increasingly exploit it and supermarkets to move into the action. Eventually, this would create the same market relationship inequality from which small farmers are presently seeking to escape. The current experience of organic food in Europe demonstrates the risk. Organic agriculture has its roots in small farm production and personal relationship marketing, either through producer–customer transactions or through small independent organic produce shops. The growing involvement of the supermarket sector in the organic food niche is bringing with it the same issues of market power and supply chain length that typify the non-organic supermarket sector. There is evidence of organic farmers losing their accustomed share of the retail price of their produce as they become subject to the normal agricultural cost price squeeze and the compression of margin share when dealing with the supermarket sector.[144, 145] Ironically, organic food in the supermarket sector is also increasingly clocking up food miles, such that from this credence perspective, it is little different from conventional food.[146]

The future of family farming

The days of the small scale fruit or vegetable grower as the main source of our fresh food appear to be numbered. The pressures of free trade and low wage competitors on the one hand, and a rapidly aggregating wholesale and retail sector suggest there is only one type of farm business that will survive in the mainstream food supply chain. These will be the large, extremely efficient family and corporate farms producing those horticultural products which can compete against low-wage competitors and meet the exacting food quality and supply standards demanded by the supermarkets and processors. These farms will use state-of-the-art technology to minimise labour costs. Each year more of these super-efficient farms are appearing in the Australian farm landscape. Some are developed using superannuation funds that are swelling with the influx of compulsory superannuation contributions. This growth in superannuation trusts is driving a demand for diversified investment vehicles [147] and large agricultural developments are one component of this diversification. Other agricultural developments are being marketed to private investors by creating financial mechanisms that allow full tax-deductibility in the year of investment. As a result, capital flowing into horticultural Managed Investment Schemes quadrupled in the first five years of the new millennia. Advertisements for these schemes can be seen in the financial press in the run up to the end of the financial year, as investors are offered the opportunity to buy shares in commodities including timber, wine grapes, almonds, mangoes and glasshouse tomatoes.

The tax arrangements, which allow the creation of agricultural investments with an immediate tax deduction are highly contentious in the farming community. [39, 148, 149] These new developments compete against traditional farmers for land (in the case of timber plantations) and water (almond plantations) and are seen as driving up the prices of both land and water beyond that which normal farmers can afford. Tax-driven investment is blamed by some for creating an oversupply in the wine grape market and driving grape prices below the average farmer's cost of production.[150] Strong opposition from the farm lobby has convinced the federal government to phase out some of the tax arrangements used by Managed Investment Schemes, but this is unlikely to stem the transformation of the farm sector. The 'preferred supplier' strategy of the major purchasers of farm products will open opportunities for superannuation investment. The preferred suppliers

will require capital investment in new large and efficient farm businesses. The farm sector has traditionally been constrained by limited access to capital. The superannuation industry has that capital. In a decade the reserves of Australia's Managed Funds quadrupled from $250 million to $1,000 million, mainly as a result of compulsory superannuation contributions and an ageing population.[151–153] These funds are expected to quadruple in the next decade. Those charged with managing our superannuation funds are seeking investment in all sectors of the economy, including farming. Across Australia superannuation funds and merchant banks are developing differing models of new farm investment.[39] Macquarie Bank is buying beef farms to create a new pastoral giant. Another company is following a similar strategy in the dairy industry, lured by the promise of Chinese demand for milk products.[154] Another is buying farms in northern Victoria to reconfigure the landscape for a suite of biodiversity and farming outcomes. Yet another is exploring joint venture arrangements with high-performing family farm businesses in the grains industry to take advantage of growing world demand for feed grains and biofuel stocks.

I believe there is another ideological divide that exacerbates the farming community's suspicion of these new farms. These businesses may look like large farms, but their business structures are nothing like the business structures of the traditional image of the Australian farm. If the farm is a Managed Investment Scheme, the investor might directly own a share of the income stream that the farm produces. But he or she will not own the land on which the farm stands, or the water that irrigates the farm. These will be owned by another business. The management of the farm and the marketing of the produce will be the responsibility of yet another business. The 'farm' may in fact be a complex web of corporations, unit holders and subsidiaries.[155] For superannuation or corporate investments, the investor may be totally unaware of the investments being made on his or her behalf. He or she will only be interested in the annual statement that reports the return to investment over the past twelve months. In each case, those making decisions about the running of the farm are salaried employees, or independent consultants. This is a world away from the traditional image of the yeoman farmer owning and managing the land from which he or she derives a livelihood. If these are the farm structures best placed to be competitive in the future, as the promoters of these companies claim, what will remain for the smaller family farm?

Some family farms may achieve sufficient scale to remain competitive. They will become family corporations. The small horticultural farm will not be able to compete directly against the larger businesses. The owners of these smaller businesses might choose to remain in more labour intensive production systems that the new corporate farms are avoiding. But farmers that make this choice run the risk that labour intensive horticultural products will increasingly be imported from overseas by the supermarkets. The small scale producer may instead choose to focus upon niche markets that service customers interested in the credence qualities of the food. Farmers' markets may become a cultural alternative to the supermarket. But the prospects for growth in this segment are limited. Farmers' markets will never rival the supermarket unless we all learn to slow down and smell the fruit.

Recommended further reading

On women in Australian agriculture:

Alston M, 1995, *Women on The Land: The Hidden Heart of Rural Australia*, Allen and Unwin, Sydney.

Gaurnaut J, C Rasheed and J Rodriguez, 1999, *Farmers at Work: The Gender Division* (No. Report 99.1), Australian Bureau of Agricultural Economics, Canberra.

Rasheed C, G Rodriguez and J Garnaut, 1998, Patterns of Employment of Men and Women in Farming, *Australian Farm Surveys Report*, pp.43–47.

Barr N, K Karunaratne and R Wilkinson, 2005, *Australia's Farmers: Past, Present and Future*, Land & Water Australia, Canberra.

On supermarkets and the food supply chain:

Neill Buck and Associates, 2004, *Retail Grocery Industry Code Review*, Department of Industry Tourism and Resources, Canberra.

Parsons H, D Burch, R Rickson and G Lawrence, 1996, Supermarkets and the Supply of Fresh Fruit and Vegetables in Australia: Implications for Wholesale Markets, in *Globalisation and Agri-Food Restructuring: Perspectives from the Australasia Region*, Avebury, Aldershot, pp. 251–270.

On Food Miles:

Saunders C, A Barber and G Taylor, 2006, *Food Miles—Comparative Energy Performance of New Zealand's Agricultural Industry*, Lincoln University, Lincoln.

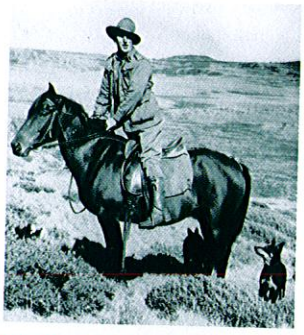
Smith A, P Watkiss, G Tweddle, A Mckinnon, M Brown, A Hunt, C Trevellen, C Nash and S Cross, 2005, *The Validity of Food Miles as an Indicator of Sustainable Development*, DEFRA, London, http://statistics.defra.gov.uk/esg/reports/foodmiles/default.asp

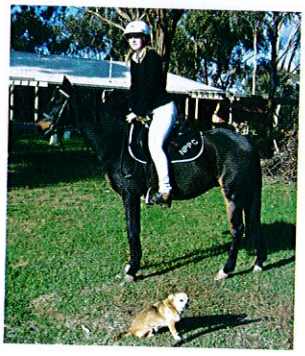
Various publications on the SustainWeb website: http://www.sustainweb.org/

6 THE VIEW FROM CITY AND COUNTRY

The household vegetarian

When our eleven-year-old daughter presented the consent form for her grade six school excursion, we had no anticipation that by providing our signature, we would be turning our family kitchen routine on its head. The school excursion to Phillip Island was a traditional year six trip. Our two older children had already made the journey and enjoyed their overnight stays at the seaside resort of Cowes. They made the obligatory trip to Seal Rocks, took every chance for beach walking and made an evening visit to the Penguin Parade. The Parade allowed the amateur naturalist an opportunity to watch the penguins returning home from a day at sea to feed their young, and the amateur anthropologist the opportunity to observe the culture of mass Asian honeymoon tourism. For the trip home, the Gippsland Giant Worm was an early break in the journey. Here the visitors paid their money for the chance to glimpse the giant Gippsland earthworm. Besides being white and a metre or two long, this creature is just like your average suburban garden earthworm. It likes to stay underground, a characteristic that is a major obstacle for any tourism entrepreneur seeking to transform the worm into a tourism spectacle.





Ben Cooper and Ceira Barr both on horseback, but following different cultural journeys.

Unknown to us as we were signing the consent form, this was the year the unobligingly shy worms had won their battle with the operator of the Giant Earthworm display. The creatures had been refusing to live in their artificial habitat, and the Conservation Department had refused a permit for the operator to harvest the worms from the wild. Without a willing worm, the attraction of a fibreglass Big Worm, unoccupied by live worms, was not enough to keep the business solvent. It had closed some months earlier. The news had not yet reached the school.

Now the secret to a successful school excursion is to keep the children busy. The demise of the business had created a problem for our daughter's teachers that only became apparent on the journey towards Phillip Island. They saw the 'Closed' sign, and asked themselves an obvious question—how were they to fill the now empty time? Maybe these were desperate times for the teachers, but were they desperate enough times to justify the substitution of a trip to an operating meat-packing establishment? So the last stop before the long drive home was a profound experience for the students, followed by a very quiet journey, and a transformation. We had dropped our daughter at the bus a few days earlier as a habitual omnivore. We picked up an ethical vegetarian.

Living with a young vegetarian in a household need not be a problem, but it is when the interest in vegetarianism is not

matched by any interest in nutrition and when there is no accommodating compromise on previously disliked sources of vegetarian protein. This was a vegetarian who hated lentils, tofu and soy products. Food preferences were determined by taste and a simple dictum: 'You should only eat meat if you would be willing to kill the animal you placed in your mouth'. To do otherwise was 'bad karma'. For the household cooks, the bad karma was finding combinations that met the needs of the ethical vegetarian, a teenage son committed to meat eating and an older teenage daughter with a taste preference for vegetarianism, but a predilection to anaemia exacerbated by endurance sports training. Many nights the simplest kitchen solution was to prepare two main courses. More than once we have pleaded with our son not to explain to our vegetarian daughter the link between veal and milk production. Our menu planning was complicated enough without having to cope with an ethical vegan.

It's six years since that trip to the meat packer and our daughter is still an ethical vegetarian. Her ethical stance is a milestone in the transformation of our family from a farming 'dynasty' into an urban Australian family. On my mother's side of the family, we could trace Australian farming roots back to the 1850s. Beyond there were uncounted generations of farm labourers in rural England. We could boast four generations of mountain cattlemen in the family tree! And now one of the family refused to eat beef! The heritage counted for little (except at Pony Club). Any pleas to eat beef to support beef producers (such as her grandparents) would fall on deaf ears. The family vegetarian is more concerned for the life of the animals. To her this is an utterly logical position. To her farming ancestors it would probably be inconceivable.

What sets my daughter apart from her forebears is that she is one of the first in the family not to grow up on a farm. Put another way, I was the last to grow up on a farm. I have helped kill and dress a steer for the household. Having this skill on my CV, I can partly justify eating beef to my daughter. But I must admit I have no desire to prepare another steer. If required to do it again, I think I would become a lazy and squeamish vegetarian. Looking to the future, I realise that my descendants will be like my children. None will grow up on a farm. If they do farm, they will probably start later in life after raising children. But unlike my children, my grandchildren will not even have the farm connection of a visit to the grandparents. Their image of farming will not be informed by any personal experience. It will be a product of the media, and will probably be seen by professional farmers as ill-informed, unrealistic and impractical. The professional farmers may be correct, but it will not matter. These uninformed images will transform farming. The transformation has already begun.

Fewer farms, more Australians

The transformation of my family is a microcosm of urbanisation of Australian society. One of the inevitable consequences of agricultural efficiency is the growth of the urban population relative to the farm population. The Industrial Revolution of the eighteenth century would not have been possible without advances in agricultural efficiency, which displaced farm workers who were forced to move to cities in search of factory work. Internationally, agriculture has been shedding its workforce ever since, whilst other industries have been growing, producing new goods and services, and cities have been expanding. During the last century Australia was on the frontier of agriculture, with the number of Australian farmers peaking in the years following the First World

War as governments settled returning soldiers on farms. Since then the number of farmers has been gradually declining whilst the major cities in Australia have been steadily growing.

The result of these simultaneous trends is the inexorable erosion of the place of farming in the experience and culture of the majority of Australians. I find it interesting to compare the place of farming in the world of my vegetarian daughter, Ceira, with the experience of her farming ancestors. We learnt about her female ancestors in the last chapter, so let's go with the men this time. Ceira's great great grandfather started farming during the Selection years. During his farming life, the number of farmers in Australia increased as the Settlement Acts opened up the squatters' land to the working class. Farming, and the fate of farmers, was pivotal to the politics of the nation. The class struggle of the time was over the right of the average citizen to have access to land to farm, as farming was (often over-optimistically) construed as a path to prosperity.

Ceira's great-grandfather began farming during the First World War. At that time many Australians could count a farmer among their relations, friends or acquaintances. Most people knew that Australia was economically riding on the sheep's back and the canon of school literature portrayed rural Australia. But the tide of population and agricultural expansion had turned. During his working life the ratio of the general population to each farm rose from twenty to fifty.

Her grandfather started farming in the 1960s and during his working life the ratio of people per farm rose from 40 to 160. He has lived to see a world in which the majority of Australians have no personal contact with agriculture through work or relatives. By the time I retire, this ratio will have passed 200. Ceira will work in a world where there are 400 people for every farm in Australia. In this world, the farmer will be a novelty. The farming lobby will no longer be in a world where it influences the agenda of society, but a world in which it must respond to society's agenda. The farmers' situation will often be wildly misunderstood, and the political influence of the farming community will be negligible. The ethical beliefs of society will diverge from the beliefs traditionally associated with farming.

'Post-modern' moral values

The first settlers to East Gippsland in southern Victoria were confronted by forests of stupendous mountain ash, wondrous tree fern gullies, and a struggle to forge a livelihood from the land. With the exception of some scattered reserves, much of that forest had disappeared within a generation. The settlers appreciated the majesty of the forest but the forest had to be cleared to meet more basic human needs. In their twilight years the remaining pioneers gathered together to record their history and, anyone who has spent time browsing through the local histories of rural Australia knows not to expect works of great literary merit. For every history that is readable, there are many that are, well, challenging; they can read like the genealogies of Genesis. Many are read by few, and are read for the scattered gems of information hidden within. Most are memorials to a lost sense of place. *Land of the Lyrebird* is a great memorial to a sense of lost place and it deserves to be read by many. It is the collected memories of that generation which saw those magnificent forests and then felled them. William Johnson was one of those fellers. He helped his father clear a block of land at Poowong. Poowong is also part of the habitat of that shy Giant Gippsland earthworm. Johnson penned a poem full of the ambivalence of a special forest he knew was lost:

A remnant of the old forest at Glen Nayook.

Never more shall I see the green forest again
Wave free in the sunshine, droop sullen in rain;
The axes and fire great havoc have played
With grim forest giant and lovely fern glade.

Never more shall I list the lyrebird's song
That boldly he trolled forth, so clear, so strong.
Or listen, mazed, as he mocked every bird,
And mimicked to life every sound that he heard.

Never more shall I wander, awe-struck and subdued,
While the shades of deep night in the forests did brood,
And feel when along those great aisles I have trod,
I worshipped alone in a temple of God.

But away with these fancies, 'Tis better today
Where the forests encumbered the children now play
In meadows bespangled with flowers whose hue
Is brighter than those that the pioneers knew.

Where the forest delighted, perchance two or three,
The present rich meadows fill hundreds with glee.
Our wives and our children, our homes and our farms
Are dearer and better than nature's wild charms.
William Johnson, *Land of the Lyrebird* [156]

Times change. Fewer children now play in those paddocks. The remaining forest delights many more than two or three; thousands now travel in their cars and four wheel drives to Tara-Bulga National Park further to the west, to experience the beauty of the rainforest and the tree fern gullies which remain. And it is less clear that society still values homes and farms more highly than the forest. If you want to understand our values, the real estate market is a solid indicator. A quick scan of the property section of rural newspapers is instructive. Cleared farmland within half a day's drive of major cities is generally worth less than virgin forest. It seems our collective values have changed. Some first year psychology might come in useful at this stage.

Maslow's Hierarchy

Anyone studying first year psychology is inevitably confronted with Maslow's theory of human needs. Unlike much that one will meet in later years, this theory is simple, statistic-free and passes the test of intuitive common sense; perhaps this is why it is so loved by lecturers as a basis for their first year students. Maslow, the man behind the theory, was the son of Russian Jewish immigrants to the United States and was raised in a poor household in a poor district of New York. His parents lived a frugal life, working towards the immigrant's dream of lifting one's children out of the poverty the parents could not escape. The Maslows pushed their son hard to study with the aspiration of one day being the parents of a wealthy commercial lawyer. As a result, young Abraham Maslow's life was not only impoverished, but lonely, so it should be no surprise that after a short stint in law school, he shifted his interests to psychology and the study of normal human needs.

Maslow theorised that human needs could be represented as a simple pyramid, with most basic needs on the bottom and higher needs towards the top. The lowest level of needs are basic physiological wants for food and drink, and a desire for basic safety.[157] Humans won't put much attention towards higher needs until these more basic needs are met. Primo Levi, a Jew who did not escape Europe before the Holocaust, described this truth in his stories of the life of the residents at Auschwitz:

> *'To him who has shall be given; from he who has not will be taken away'. In the Lager, where man is alone and where the struggle for life is reduced to its primordial mechanism, this unjust law is openly in force, is recognised by all.*[158]

Above the simple needs on Maslow's pyramid are the intermediate needs of belonging, the need for love, family, community. Above these again are the needs for the esteem of others and then self-esteem. At the top of the pyramid is the quest for 'self-actualisation'. Self-actualisation is an elusive concept. According to Maslow it could encompass a desire for meaningfulness, truth, beauty, justice, goodness and environmental richness. Maslow used a research technique called 'biographical analysis' to explore self-actualising personalities. In short, he studied the life stories of ordinary and extraordinary human beings. He concluded that what differentiates those aspiring to these values and those uninterested in them is not inherent personal goodness or badness, but the extent to which a person's 'lower' needs are being met. The bush poet William Johnson experienced the joy of the beauty of the Gippsland forest he helped fell. He balanced the loss of the forest against the need for food, shelter and family security. The farm was the only means he saw of meeting those basic needs.

Since Johnson's childhood of the late 19th century, the Australian economy has grown massively and standards of living have risen. For many, the basic needs of water, food and shelter are guaranteed. Maslow's theory tells us that with these needs satisfied, the human being will turn to satisfying higher needs; to search for happiness. 'Happiness' is now an intellectual field of study and some basic lessons are emerging. The first is that a base national income level is needed for basic happiness. Increasing national income beyond this base level gives no guarantee of increased national happiness.[159] This is consistent with Maslow's insights that basic physiological and security needs must be met first. Strangely, while increasing national income will not increase national happiness, increasing an individual's income will often increase happiness. Research is showing that it is not the absolute income that matters, but the income of an

individual relative to the income of others. Relative income is being used to meet the need for status—the esteem of others. Because esteem based on income is a relative good, the quest for status through increased income is self defeating at a national level.[160] Any pay increase I gain will not increase my relative income position if everyone else gains a similar pay increase. If you gain a greater pay increase than me, then your pay increase can help me to feel less happy. It is a form of happiness pollution![161]

With basic needs satisfied, and the search for esteem being self-defeating, the search for happiness is more likely to lead those of us fortunate enough to be born in rich societies to explore the higher levels of Maslow's hierarchy. Seeking happiness in values of beauty, justice, goodness and truth has encouraged the growth of new political movements such as environmentalism, feminism, gay liberation and the animal rights movements. The incursion of these values into popular politics has thrown traditional right/left political structures into confusion. Once political leanings were based upon one's standing within the class conflict so the parties of the left were the natural leaning of those who worked for wages, particularly blue collar workers. Those of this persuasion believed in income redistribution to decrease inequality, and by inference, increase happiness. Those who were wealthy, owned businesses, or were well paid, supported the parties of 'the right'. The politics of the new 'isms' has seen increasing numbers of affluent voters throw their support behind the new political issues, and disaffected blue collar workers throw their lot in with conservative parties who promise economic growth.[162] The latter often do so in response to perceived threats to their basic needs by proposals to protect natural resources made in the interests of environmental values. The media calls this 'wedge politics'.

Agriculture's 'licence to operate'

The farm community is often at the centre of the new political conflicts as it is trapped in the convergence of a *troika* of inevitable outcomes including agricultural productivity and urbanisation. The first of these is changing priorities from satisfying basic human needs. The second is the increasing ignorance about the nature of farming and the practical problems faced by farmers, and the third is farming's gradual loss of its iconic status.

At the time of the Selection Acts some 150 years ago, the small farmer was a symbol of the common man seeking freedom from the repression of class-bound Europe. Many selectors had migrated to Australia to escape the class oppression that had spawned the failed revolutions of Europe. By the middle of last century, farming was seen as the engine that drove the nation's prosperity. As a country we 'rode on the sheep's back'. Even in my childhood years of the 1960s, I, like many others, was inculcated with the notion of the essential 'Australianness' of farming and the rural life. If I leaf through one of my readers from primary school the images of the farm culture return to me. We learnt the iconic Australian farming culture through the stories and poetry of Lawson, Paterson, McKellar, Adam Lindsay Gordon and others. I read of the Drover's Wife, the Flooded Creek, the Fire at Ross's Farm, the Pioneers, the Droving Days, the Sick Stock Rider, and the Women of the West. These were the government-sanctioned readers of the day, the state's own 'little red books'. It's a far cry from titles such as *The Day My Bum Went Psycho* that my own children read.

Today the place of agriculture in our education system reflects its place in the Australian economy. Agriculture contributes an ever-declining share to the national economy. The sector's pre-eminent

export performance is being displaced by the mining industry. At present, less than one in twenty people is directly employed in agriculture, but this is not to say that agriculture is unimportant to the economy; it clearly still is. A recent drought knocked 1% off the annual economic growth numbers. But agriculture's importance is far less obvious, particularly to the modern urban Australian. Agriculture has far greater competition for the emotions and support of the modern Australian. This is no facile matter to the Australian farming community.

At its extreme, the farm community fears the loss of its 'licence to operate'. This is not an official licence, but a more powerful unofficial decree granted in the court of public opinion[163], and the loss of this privilege can be devastating to an industry. The whaling industry in Australia lost the approval of public opinion in the early 1970s, and it is no more. In Victoria, the Alpine grazing industry has fought a long battle for its 'licence to operate' over many decades, and one of its weapons was the iconic image of mountain cattlemen and their tradition. Its enemies, however, were images of sphagnum mosses destroyed by cattle. The Victorian cattlemen lasted many years longer than their cousins in New South Wales, but the final exclusion of grazing from the high plateaus of an Alpine National Park was inevitable. In the final years the battle was as much about symbolism as income.

These examples stand as warnings to many other less marginal farming industries. The cotton industry has invested to protect its public image from the damage caused by aerial spraying of pesticides. The rice industry faces a challenge over its heavy use of irrigation water; intensive animal industries over the welfare of animals; the feedlot beef industry over food safety; grazing industries over drought support; and horticulture over the patriotism of eating locally produced food. In this chapter we will look more closely at three issues facing agriculture in the court of public opinion: animal welfare, the environment and irrigation water. Each gives some hints as to how agricultural industries will need to change in the future if they are to survive. In each case, the field of 'battle' is a clash between an older culture of pragmatic exploitation of resources and an urban culture increasingly concerned for the environmental and animal welfare implications of farming.

Animal welfare

It's hard to believe that the arse-end of a sheep could cause so much trouble. Merino sheep are bred for their wool. Without the wool, there would be no merinos in this country. But the wool can also be a problem. More specifically, the wool around the tail is a serious problem. The breed has more arse-end wool than most other breeds of sheep. There is an old joke about mammalian anatomy that if the intelligent designer was so intelligent, why did he place a recreation zone adjacent to a waste disposal facility? Sheep breeders have complicated this errant divine planning by breeding sheep that have folds of breech skin hanging around the sheep's anus. In the Australian environment the inevitable combination of wool, urine and faeces around the sheep's rear end creates a microenvironment very attractive to bacteria and the green bottle fly. The green bottle fly is quite a pain in the backside for both the merino and the wool producer. The fly is attracted by the smell of active bacteria that breed in the sodden woolly mess that can develop at the rear of a merino. The fly lays eggs in this morass and the eggs hatch within a day or two. The green bottle larvae are particularly unpleasant. They excrete enzymes that liquefy the nearby flesh, which the maggot then consumes before falling off to pupate in the soil. Needless to say, the experience of being flyblown is painful and potentially fatal for sheep.

Control of flystrike is achieved by a combination of chemical dipping, regular removal of wool from the rear of the sheep, and mulesing. Mulesing is the surgical removal of the flap of wool-bearing skin near the sheep's anus. The procedure was accidentally discovered by a Mr J.W. Mules after he slipped with the crutching shears and noticed some weeks later that the sheep so offended against seemed immune to flystrike. After repeating the accident with further sheep, he confirmed that this did indeed reliably protect against the flesh-eating maggots. The practice was codified and adopted as standard management of blowfly strike on Australian sheep farms.[164] Modern practice has been to mules sheep early in their life, when the skin wrinkle is smaller and when the period of protection against flystrike can be longest.

Wool producers considered the mulesing operation to be a good choice from both financial and animal welfare perspectives. Neglect leading to flystrike is considered a form of animal cruelty which can lead to the laying of charges against stock owners. The industry claims that without mulesing, up to three million Australian sheep may painfully die in any one year. But not everyone agrees that mulesing is being cruel to be kind.

In 2004 a major United States clothing retailer, Abercrombie and Fitch, boycotted Australian merino wool products under pressure from the organisation People for the Ethical Treatment of Animals (PETA). The issue in contention was the mulesing of merinos. The reaction of many wool producers was disbelief that anyone could advocate against mulesing on the grounds of animal welfare. After heated debate and the instigation of a lawsuit against PETA, the wool industry made an agreement with retailers to phase out mulesing by 2010.[165] This was a leap in the dark, and quite contentious within the industry. The 2010 alternative to mulesing needs to be less painful for the sheep, safe and financially viable for the farming community, and ethically acceptable to the consumer and the community at large. An alternative needs to be tested against these criteria over the average eight year life span of a sheep. To the surprise of many, in late 2005 the industry announced the testing of a plastic clip solution. Three plastic 'pegs' applied to the folds of skin in question would cut off blood circulation, leading to the folds eventually dropping off and leaving a wool free area similar to that left by mulesing. The pegs eventually decompose. This probable solution is still in its testing phase, but it is surprisingly simple. Other potential alternatives involve intra-dermal injections or the breeding of sheep with a bare breech. Industry leaders will see the success of these innovations as a future marketing advantage. If PETA is convinced the alternatives are not cruel, it will more than likely claim its boycott strategy was both successful and justified. If an alternative to mulesing could be found within five years, then it is clear that prior to the PETA intervention, mulesing was not seen as a problem within the industry, let alone a problem worthy of research investment.

If the current hopes of a solution prove illusory, then the parties in the dispute can be expected to further polarise around their current positions. The growers will be arguing that there is no practical alternative to mulesing, so mulesing will have to continue. This is a version of practicality based on the assumption that wool production with merinos must continue. PETA argues that there are 'practical and compassionate alternatives'—buy other fibres. Taken to its extreme, this is an argument that merino sheep should be phased out of production systems as the production system is unethical. This is entirely impractical for merino wool producers, but quite ethically logical for animal liberationists.

Wool producers are not the first to face the ethical challenge of the animal rights movement. In Europe, intensive animal production industries that produce chicken meat, eggs and pork

have been targeted with far more radical tactics than those experienced by Australian wool producers. There has always been a concern for animal suffering in human cultures. The religions of Judaism and Islam have slaughter rituals based in part on ancient concern for suffering. We will return to these later. Philosophers have dealt with the issue. The modern animal liberation movement follows in the path of one of the pioneers of economics, Jeremy Bentham, who in 1781 argued that because animals can suffer, they have as great a right as humans to be protected from suffering.[166] But the modern animal rights movement appears more radical and less anthropocentric than past animal advocates. There are two important reasons for the emergence of this new culture.

One reason is the gradual disconnection of the bulk of the population from the practice of farming. We talked about this earlier in this chapter, recognising that modern urban dwellers generally lack an understanding of the practical constraints under which farm businesses operate. But the disconnection has a deeper emotional impact. Everyday farm life may act as an inoculant against the less pleasant realities of the food production system. My own part in the killing and dressing of a beast was part of a childhood when the sometimes unpleasant realities of farming could not be avoided. My daughter was not inoculated against the unpleasant realities of meat production when confronted by them. Recent market research shows that Australians are generally unconcerned with animal welfare issues and believe our country has a good track record in protecting animals. However, this viewpoint is based upon very little understanding of animal welfare issues.[167]

The practices of modern intensive farming are undertaken behind a screen that separates the public from the production process. In a sense, ignorance has been a convenient state for some forms of agriculture and removing that screen can be confronting for the sheltered urban resident. Anyone who doubts the power of removing this screen need only visit the many websites sponsored by animal liberation, PETA and similar groups. There one can see video footage of animals suffering immense cruelty in abattoir accidents, pigs and poultry in squalid and cramped living spaces and animals suffering experimentation pain. These images will not go away.

Perhaps the other reason for the new animal culture is the increasing sophistication of our scientific understanding of emotions and animal behaviour. While scientific research may provide solutions to particular challenges, such as flystrike control without mulesing, it is unlikely to come to the rescue of agriculture in the philosophical battleground.

Like many countries we have an established tradition of laws to prevent cruelty to animals. These laws will punish anyone who beats a dog, starves a horse or sets fire to a cat. But they are not used to protect sheep from mulesing, rabbits from phosgene gassing or hens from a lifetime of caged confinement. There are clearly different standards for the protection of different animals. We wouldn't accept the gassing of dogs or the caged confinement of horses. This suggests that the basis of animal cruelty ethics is anthropomorphic subjectivity.

Thanks to modern neurophysiology, subjectivity is gradually being replaced by objective science so we now have a much better understanding of the physical basis of pain. As a result, medical researchers now have reasonably objective criteria for assessing the capacity to suffer. Animals that have nociceptors (pain-sensing cells) connected to a central nervous system, are capable of producing natural pain killers. They respond to analgesics plus stimuli that would induce pain in humans and are deemed to be capable of suffering pain.[168] These criteria extend the

human recognition of suffering well into the animal kingdom. Most of the species we eat can be assumed to be capable of experiencing pain. Debate currently seems to be focused upon the pain experience of shellfish, and the consensus emerging in the animal welfare movement is that even bivalves meet sufficient criteria to be deemed worthy of concern. Prominent animal liberationist, Peter Singer, is said to have removed shellfish from his diet in response.

Perhaps even more challenging is the neurophysiological work on happiness. Happiness is being shown to have a biochemical and anatomical basis. These basics are shared with other mammals.[169] This, of course, raises the prospect of identifying the capacity for happiness and unhappiness in the brains of other animals. Where this is identified, then there are good grounds for extending arguments for animal protection into the realm of psychological suffering. The decade-long campaign for the world's apes shows where this line of argument is leading.

Peter Singer and other adherents to the animal liberation movement have campaigned for the recognition of the 'personhood' of the Great Apes. In 1993 Singer and co-editor Cavalieri released a book that argued for the recognition of chimpanzees, orangutans, gorillas, gibbons and siamangs as people. This recognition would end the enslavement of apes in research establishments.[170] This book, perhaps the ultimate in anthropomorphic arguments, has morphed into a political campaign based upon the capacity of apes to display the 'human' qualities of emotion and cultural behaviour. Apes have been taught to use language, demonstrating a capacity to communicate with a human-like originality. Economists have even played their part, unwittingly perhaps, in advancing the argument for the personhood of apes. Possibly more interested in demonstrating the universality of the market than providing insights into the culture of apes, a Yale economist, Keith Chen, has taught capuchin monkeys how to use money (round tokens) in exchange for goods (food). [171, 172] The monkeys respond to supply shocks and potential loss in a way that Chen claims is statistically indistinguishable from stock market investors. Whether this makes monkeys more deserving of personhood, or stock market investors less deserving of that status, I leave for you to decide. Perhaps the most telling indication of the 'humanity' of these monkeys was the appearance of robbery and prostitution behaviours on the founding of a currency.

With the barriers between our species and other species being gradually blurred by knowledge of common experience and motivation, arguments for intensive animal production may become more and more difficult to sustain. The practices seen as cruel will become subtler. This can be seen in the recent attacks against the dairy industry on the basis of the psychological pain caused to cow and calf by separation soon after birth, rather than just the slaughter of young calves. My educated guess is that the pressures against intensive animal farming will not wane in the foreseeable future, but will more likely increase. The pressures will come in two forms—one through the market and the other via the regulatory process.

Markets and culture

The animal rights movement has a long track record of using consumer sentiment to force industry change. The long-running campaign against the caged hen industry has created a significant market niche for free range eggs. Some consumers are prepared to pay a price premium to support more humane treatment of these birds. My partner is one of this market segment. I'm part of a different market segment—the segment that buys free range eggs and uses eco-friendly supermarket bags for fear of domestic disapproval. There are enough of both our types to ensure

the demand for ethical eggs has created a price premium. It's a premium for a credence quality that cannot be readily discerned by examining the product. I have to believe what the box is telling me. A credence quality like this needs to be supported by a credible labelling system.

There are two threats to the credence of the label. One is definitional differences over what is ethical production. Turn to the example of eggs again. Free range ain't necessarily free range. Industrial free range systems are quite different from cottage free range systems. The consumer is generally unaware of this and industrial free range producers are quite comfortable with the confusion.[173] Add to this the persistent claims of the substitution of cage laid eggs for free range eggs and the inevitable result is calls for greater regulation and accreditation. Free range eggs are bellwether products. Other products claiming the credence of ethical production systems will join them. One of these may be a wool product with the PETA stamp of approval. Organic agriculture products appearing in supermarket aisles are claiming ethical superiority over conventional production systems. The Australian horticultural industry is promoting buying home grown as an ethical choice, and stricter Country of Origin labelling laws have followed.

The majority of Australia's agricultural production is exported. Domestic market pressure will be ineffective in influencing production systems' treatment of animals. Domestic market pressure in destination markets will work where the destination market is receptive to that pressure. PETA has utilised domestic United States market pressures against mulesing. But not all domestic markets are as receptive as the United States, Europe or Australia to credence qualities. Many of the consumers in our newer Asian markets are interested in the healthiness of food, but less so in more ethically motivated credence qualities.[174]

With destinations in a dozen Middle East companies, the live sheep export trade is a good case in point. The journey to these destinations can be a disaster from an animal welfare or public relations perspective. The carrier *Cormo Express* is synonymous with what can go wrong with the trade. The *Cormo Express* is a converted ferry with eleven decks that can hold 59,000 sheep. In 2003 the Saudi Arabian authorities refused to allow the *Cormo Express* to unload its live cargo after allegedly finding the sheep disease scabby mouth. Such a disease makes the animal unsuitable for the ritual halal slaughter. Over the following eleven weeks the ship was denied entry to a succession of Middle Eastern ports until the sheep were finally purchased by the Australian government and donated to Somalia. By that stage it had been claimed by opponents of the trade that 20,000 sheep had died on board of heat stroke and other conditions. The exporters claimed that 52,000 were unloaded alive and in good condition, suggesting a death toll of 7,000, although this latter figure was not directly cited in the LiveCorp (the Australian live sheep export industry body) communications.

The *Cormo Express* incident is but one of a number of mass-death/unfortunate events in the trade. The same ship lost thousands of New Zealand sheep a decade earlier. Even on trips which go to schedule, many sheep can die and activists claim that in the first twenty years of the trade, ten million animals died in transit or in holding yards prior to slaughter. LiveCorp has countered that during the same year as the *Cormo Express* incident, live sheep death rates reached an annual record low of just under 1%, compared with 2.6% just a decade earlier. It seems that sheep transported from a cold southern Australian winter into a stifling hot Persian Gulf summer are at particular risk. New protocols preventing winter exports from Portland in southern Australia have lowered death rates.

Objections to the trade do not end with the journey. Death rates in the destination feedlots are claimed to be as high as for the journey. Then the conditions of religious halal and kosher slaughter are questioned. The ritual slaughter of both halal and kosher law involves death by a single knife cut to the throat without pre-stunning. The original religious prescriptions for halal and kosher slaughter were the most humane available methods of the time. Technology has moved on, and there is now tension between the original objectives of religious slaughter and ritualistic adherence to the written word of the religious texts. Ritualistic religious killing that entails the suspension of live beasts is one extreme of the practice. The hanging, by the way, is not specified in religious law, but was a western invention to improve hygiene and efficiency, but at the cost of animal welfare.[175] At the other extreme are religious authorities that have countenanced immediate stunning after the ritual cut. These leaders place less emphasis on the ritualistic interpretation of the prohibition against the eating of carrion, in favour of the perceived original intentions of religious law to promote human health and animal welfare.

In some of our live sheep markets it would seem ritual wins over intention. The loss of animals at sea is not interpreted as confounding halal and kosher principles. Herein lies the challenge for the animal welfare lobby. The markets in many of our export destination countries are not as susceptible to the influence of animal welfare arguments as the markets of Europe and North America.[174] The only alternative is to act in the court of public opinion in the exporting countries to regulate against the live sheep trade. Live sheep exporters have been battling for some years to maintain their 'licence to operate' granted by the court of public opinion within Australia. In the wake of the *Cormo Express* incident, the Australian Government suspended the export of live sheep to Saudi Arabia.

The industry counters the loss of this export right has been detrimental for Australian sheep producers and for sheep as live sheep, exports have not been replaced by the sale of sheep meat from animals slaughtered in Australia; quite the contrary. The loss of live exports has been accompanied by a fall in exports of chilled Australian meat. Producers from other countries now supply the live sheep which once came from Australia and it is ironic that one of the alternative suppliers is Somalia, the country which received the donated *Cormo Express* animals. LiveCorp argues that the alternative suppliers generally have looser animal welfare regulations than Australia, and unlike Australia do not invest in post-discharge animal welfare programs. This probably means an overall reduction in animal welfare outcomes.

This argument for the Australian live sheep trade based on the overall welfare of all sheep consumed in the Middle East, has failed to win the political battle. Perhaps what is needed is shocking footage of live exports from competing countries screened on prime time current affairs shows. If they chose to do so, sheep exporters might have to look no further than the Australian Pork Council for moral support.

Australian pork producers are fighting their own battle against calls to regulate against the use of the farrowing pen. Farrowing pens are criticised for being cruel close confinement for the pig, a naturally browsing animal. Pig producers are making the usual direct contradiction of cruelty claims contending that current practice is not cruel, but kind, as it prevents aggression between animals (echoes of the chicken debeaking debate). The pork industry is also facing severe competition from international imports. It argues that if its use of the farrowing pen is regulated against, it will be competing against Canadian and Dutch producers who do not face such regulation. World Trade Organization rules do not allow import controls on the basis of domestic

animal welfare practices so, we are back at the argument that improving animal welfare practices in Australia achieves little if it shifts trade towards producers with lower welfare standards. And with that argument, Australian farmers would be joining the ranks of PETA and other animal welfare groups arguing against production systems in foreign countries. I suspect it is an irony few future participants in such a debate will perceive.

Fighting the trends

The rural proponents in these debates have tended to see their adversaries as being ill informed, impractical and emotional, [176] but pointing out the lack of knowledge and impracticality of animal liberationists quite misses the point. Their opponents do not see the relevance of arguments based upon practical business reasons. The only effective argument in the court of public opinion will be one which ensures the challenged agricultural practice is actually not painful or cruel; arguments about the least undesirable outcome do not win emotional debates.

The two sides are taking their battle into the classroom, with a number of agricultural industries producing curriculum material to educate school children about farming. Generally the messages are that farming is important, interesting and ethical, but the other side of the debate is also seeking entry to the curriculum and meeting stiff opposition as both sides face a crowded curriculum space. It's hard to see how either will gain a foothold sufficient to win the minds of future consumers. Inevitably, farm based curriculum materials will be taken up in rural areas where there is strong parental support for their inclusion, thereby exacerbating the future rural-urban attitude divide.

The supporters of the live sheep trade and mulesing are showing increasing anger at their inability to counter the simple emotional arguments that animal welfare advocates advance in what they see as misleading and emotional campaigns. Lined up against them are not only the extremes of the animal welfare movement, but also the RSPCA and current affairs television. They are finding it much harder to sell a message that inflexible regulation has a real impact on profitability and sometimes unintended consequences. The arguments in favour of the trade and mulesing are clearly presented on the various websites of LiveCorp and similar organisations. Also on the LiveCorp website are more direct attacks on the morality of PETA. I suspect these sites are well visited by the converted within the industry, but their impact on the general public is probably limited.

Perhaps the farm lobby needs to transfer the lessons it has learnt in using humour to market agricultural products such as milk. The most potent response to the animal welfare propaganda sites may be the propaganda spoof sites, such as People Eating Tasty Animals and Vegetable Liberation. With lines such as 'There's room enough for every one of God's creatures, there on my plate right next to the mashed potatoes', they are probably attracting greater uncommitted traffic than official farm organisation websites.

The debate in the Australian wool industry over the response to PETA seems to hang on this question. Is the opposition to mulesing a difficulty that will fade away with time, or is it potentially just a beginning? Looking to one extreme of possibilities, I find it impossible to envisage the nation following the example of ex-pat Australian philosopher Peter Singer and turning to a vegan diet. The popularity of the high-protein CSIRO diet suggests otherwise. Peter Singer considers veganism the only ethical option for a privileged Westerner. I expect in time my

daughter will come to the same conclusion. But will animal liberation as a cause go into retreat? If ethical concern for animal welfare is related to increasing affluence, then maybe the trends of urbanisation and science will be on the side of the animal rights movement in the long run. It seems the strategy of the farm movement is dependent on this latter question. There are some pointers to the answers in the study of environmental concern.

Environmental values

Simon Kuznets was a truly notable economist starting his professional life working for the Russian statistics office in the Ukraine during the early days of the Russian Bolshevik state. However, a devotion to the understanding of economics by impartial analysis of data was unlikely to ensure a secure career in his native country, so in 1922 he escaped Russia and settled in the United States. His new home allowed Kuznets the opportunity to throw himself into economic data in a manner few would ever wish to emulate. He devoted his career to the development of methods to measure Gross National Product (GNP) of national economies. As part of this work he recreated detailed national accounts for the United States for the previous fifty years! He helped the United States Department of Commerce develop protocols for measuring GNP, but resigned from this role when the Department refused to count unpaid domestic labour as part of the economy. Eventually he received a Nobel Prize in 1971, but not for his work on GNP. Rather, it was for his discovery that economic growth in poor countries generally leads to greater income inequality, but in rich countries it leads to reduced inequality. This finding led to the Kuznets Curve theory: that undeveloped economies have low levels of income inequality, but as societies develop, inequalities rise, before falling again as societies reach a high standard of living.[177]

Kuznets's theory is today a standard lesson in economics courses. But as with most theories in economics, it has its opponents. The modern empirical evidence for the theory is mixed. Comparisons of the current income inequality and current economic growth of many different countries produces results consistent with the theory. But evidence based upon longitudinal data for individual countries is inconclusive.[178] Advocates of 'pro-poor' growth believe the theory is a convenient rationale for inequality. To them, the Kuznets Curve theory is the modern equivalent of the 18th century ruling class using the Biblical admonition of Jesus, 'For ye have the poor always with you' (Matthew 26, 11), to justify social injustice.

We can leave the economists and their quest to verify or debunk the inevitability of the Kuznets Curve theory, but I suspect the debate will be active long after I have passed on. My interest in the theory is because it has spawned a related theory about the relationship between environmental protection and economic prosperity. The discipline of economics is the hydra of the academic world. It grows new heads with each new policy fashion. Some of the leading thinkers in today's happiness studies call themselves psychological economists. In response to the growth of environmentalism, environmental economics has emerged from relative obscurity within the economics discipline.

The Environmental Kuznets Curve

Environmental economists, like most environmentalists, support the concept of recycling and, as proof of their commitment to the cause, have taken the Kuznets Curve theory and applied it to environmental protection. The Environmental Kuznets Curve (EKC) theory argues there is a

bell-shaped relationship between per capita income and pollution.[179] Initial industrial development in a country will lead to increased levels of pollution, but eventually per capita income will reach a level where public demand for environmental goods will lead to decreasing levels of pollution.

Interestingly, the theory was not created as an argument for environmental protection, but rather as a justification for something much more important to neo-liberal economists—free trade. One of the domestic objections to the United States proposed North America Free Trade Agreement (NAFTA) under debate in the 1990s, was the fear that free trade between the United States and Mexico would encourage a race by American industry towards the lower environmental standards in Mexico. To counter this objection, Grossman and Krueger developed the EKC theory to argue that NAFTA would increase living standards in Mexico, and increased living standards in Mexico would lead to political pressure for greater environmental controls. The theory was quickly adopted by the World Development Bank and made a starring appearance in the controversial and influential book *The Skeptical Environmentalist* by Bjorn Lomborg.[180]

The EKC theory was obviously going to have immense attraction to those who wanted to inject a 'markets will solve all ills' argument into environmental policy. This was clearly going to make it a contentious proposition. As a result, a very large body of research has developed in a very short time that tests the model against many forms of pollution and environmental destruction.[181] The results are inconclusive. Researchers have found an EKC-type relationship between national income and forms of air pollution, including sulphur and particulates.[182] A similar relationship has been found for reforestation and ecosystem protection.[183, 184]

Other forms of pollution do not show a clear EKC relationship. Water pollution rises with initial development, then plateaus but does not fall with further economic growth. Carbon dioxide pollution keeps increasing with increasing wealth. The richest countries are the greatest per capita carbon dioxide polluters.[185] Why the differences? Unlike sulphur pollution, the economic activity that generates carbon dioxide—transport and electricity generation—cannot be easily shifted to poorer countries through trade. Further, the problems of carbon dioxide pollution are initially much harder to perceive than the effects of sulphur dioxide pollution.[186]

These observations lead some economists to theorise that the EKC prediction of declining pollution in wealthier countries is merely an international version of the NIMBY (Not In My Back Yard) phenomenon. Environmental improvements in air pollution in industrialised countries may have in part been achieved through the power to transfer environmental costs elsewhere in the world through trade mechanisms.[183, 187–190] If this is true, then it puts a new twist on the origins of the EKC theory. United States jobs would be exported to Mexico where environmental standards were less stringent but, as Mexico became wealthier, it in turn would raise its emissions standards and as a consequence, export those industries further south. It's not just the United States and Mexico which would be playing this game of environmental pass the parcel. Japan has a strong tradition of protecting its forests, yet imports woodchips from forests harvested unsustainably elsewhere in the world. Australian horticulturalists complain that they face environmental regulation within Australia, yet must compete against food imports from countries where farmers operate in a far less regulated environment. New Zealand farmer organisations are concerned that their country must achieve stricter agricultural greenhouse gas emission standards than Australia, putting their industry at a competitive disadvantage against Australian farmers.

The EKC theory has much in common with Maslow's theory of human needs. The evidence shows that as incomes rise (i.e. our lower level needs are secured), as a society we become more

willing to pay for improved environmental conditions. This interest is always tempered by the potential for environmental improvements to threaten our basic needs for income that provides security, food and shelter. Recent history tells us that our environmental preferences are closely related to our sense of personal economic security.

The late 1980s in Australia were an era of low unemployment and strong economic growth. Sometime in early 1989 there was a rapid escalation in public concern for environmental issues, particularly global warming. Probable causes for this were the enormous media exposure given to environmental issues during that year and publicity visits and television programs by high profile international environmentalists including David Suzuki.[191] The rapid rise in environmental concern was followed a few years later by a fall in concern. This fall coincided with rapidly rising unemployment rates in Australia. Fear of losing one's job diverted the attention of many Australians from the longer term environmental issues back to the shorter term concerns of employment and economic growth.

The preference for immediate self interest at the potential expense of the environment seems a universal trait we can infer from Maslow's theory. Most intervention to improve the environment is likely to threaten the self interest of some sections of society. The EKC research literature suggests that our increasing social preference for an improved environment will not prevail without a functioning democracy allowing the interests of the majority to be articulated against the interests of those who derive income or wealth from resource exploitation.[192] Environmental advances could be seen as an enforcement of the wishes of the majority against the interests of pollution or resource-dependent minorities. Australia's farming and timber communities sometimes see themselves as part of this minority. Over the past two decades each has experienced public and political pressure to restrict their activities in return for improved environmental outcomes. Restrictions on timber harvesting and tree clearing to protect biodiversity have been the main media attention grabbers.

Two threads run through the debate over these issues. One is the financial question of who bears the cost of lost production. In the jargon of economics, does the polluter or the beneficiary pay? Naturally, the resource user believes the beneficiary (the wider public) should pay compensation for the resource user's loss of income. And, equally naturally, the environmental interest groups believe the polluter (or resource user) should pay for the costs of its activities. Compensation increases the cost to government and reduces the probability of the resource being protected. A second more subtle thread is often present. Challenging the practices of a resource dependent industry can be interpreted as a challenge to the values and value of those working in that industry. To a man who has worked all his life felling trees in the forest, the protection of the forest brings into question the worth of his lifetime's work. To the farmer who may have developed land in the 1960s, the value placed on natural bushland may be seen as a devaluing of his past achievements. The fight to maintain mountain cattle grazing on the Bogong High Plains was, I suspect, more about the values and culture I was raised with than just about economic losses.

You have to feel sorry for those whose task it is to find a resolution of the contest between environment and economic exploitation. It's not just money; it's self worth that can be at stake. Given time, you might expect a skilled operator to find a way to resolution, but often these sorts of political problems are compounded by impossibly short time frames. We, in a very general sense, are often at fault. We are the general public, and our attention can shift quickly. Nature can

surprise us, and we want a quick solution. In recent years major ecological events have triggered changes in public policy in a relatively short time. The dust storm over Melbourne in 1983 led to renewed public policy commitment to soil erosion and dryland salinity. An enormous algal bloom along the Darling River catalysed the development of policy targeted at nutrient pollution in waterways. A crisis in the transporting of live sheep to Saudi Arabia highlighted the issue of farm animal welfare. A drought killed river red gums along the Murray, and we want to save the river with environmental water.

In the remainder of this chapter we have a good look at this latter issue—irrigation and environmental water. Our irrigation communities have the potential to reshape themselves radically in the next few decades. Whether you believe this reshaping is for better or worse will depend on your values and where you live, but you don't have to be an irrigator to take an interest in irrigation futures. The history, the present and the future of irrigation make a wonderfully interesting story. It shows how the social values of our community have been constantly changing and how this has been translated into changing government policies about how we use our water. Sometimes these changed policies have had unintended consequences, sending water managers back to the drawing board. Read on about fickle public opinion, unexpected consequences of government intervention, unpredictable climate change, interstate rivalry, baby boomer investors, almond plantations and even the Regent Parrot.

Irrigation and rivers

One function of the calendar is to give us reason to pause and reflect. Come New Year's Eve we review and set resolutions. To the Australian Government, the turn of a century seemed a good time for a stocktake of Australia's land and water resources. The National Land and Water Resources Audit (the Audit) produced five major reports, and many more subsidiary reports. The Audit achieved major progress in our understanding of sensible policy responses to salinity, [193] and identified areas of ignorance where Australia should be doing better.

One of the major tasks of the Audit was to produce sets of data which can be used by others to explore and play 'what if' games, and sometimes these games can change the way you see the world. Two CSIRO economists, Mike Young and Stefan Hakowitz, constructed a rough estimate of the profit from agriculture from each square kilometre of land in Australia in 1997.[194] By itself, this map was interesting. It showed that much of the profit came from a relatively small area. But they didn't stop there. They then selected the areas with the highest profit and identified the 1% of Australia's land area that produced 80% of agricultural profit. Yes, you can read that sentence again. One per cent of Australia's land area produced 80% of the agricultural profit during 1997. It's a result that surprised many people, including some who shouldn't have been surprised. For many years economists have talked of the 80/20 rule. Eighty per cent of the production in agriculture comes from 20% of farms. Then there is the consistent research that productivity increases in agriculture are generally captured by the largest 25% of farms. What Mike and Stefan showed was that the larger farms capturing productivity are not spread over the rural landscape. They are clustered in particular locations.

As with the map of disappearing football clubs, this map also attracted much more than its fair share of attention. It showed Australians a novel way to look at its agriculture. It presented the information in a clearly understood form. The implications of the map were profound. Does

Australia really need as much land under agriculture as it has at the moment? Are there some areas where agriculture could be 'phased out' without any damage to the country's economy? A map like this was bound to be controversial. Critics rightly pointed out that this was a single year when dairy, cotton and crops were in a peak of prices. Another year might be very different. There were many assumptions behind the map which needed to be made more explicit. It assumed average profitability for all farms in each particular industry when there may be very great differences between individual producers. The map also overlooked the profitable enterprises basing their production on very extensive agriculture, which included beef production in northern Australia and some very large cropping farms in the West Australian grain belt.

The profitable areas displayed on the map generally were one of three distinct farming landscapes. One was the cropping country based upon high quality soils—the volcanic soils of the Darling Downs and the grey soils of the Wimmera, whilst another was the capital intensive market garden sector surrounding our major capital cities. The third area was the irrigation settlements and diversion schemes along the Murray, Darling, Goulburn and Murrumbidgee Rivers. Irrigation was a major contributor to the profitability of the Australian farm sector. Some other sectors, including wool and beef, were hardly visible on the map.

Irrigation history as ideology

The agricultural profit map's message about irrigation was important in the context of the public's opinion of irrigation. Over the previous 20 years irrigation had been engaged in a public relations battle over its legitimacy, its own 'licence to operate'. The irrigation sector seems to be faced with its own 'Irrigation Kuznets Curve'. Researchers at the International Water Management Institute have collated data from sixty-six tropical countries covering the period from 1972 to 1991 and discovered good evidence of an inverted U-shaped relationship between a country's affluence and its use of irrigation. In the earlier stage of economic growth, countries will invest in building irrigation capacity. As they become wealthier, they begin to reduce the allocation of water to irrigation.[195] For Asian countries, this reduction commenced after per capita income reached US$7,000. Perhaps this is why this Institute is no longer named the International Irrigation Management Institute.

Something like an Irrigation Kuznets Curve can be found in the history of Australian agriculture. Historians describe Australia's water policy as passing through two or three phases. In the development phase the states took control of rivers and built dams and irrigation systems.

The objective of this phase was regional economic development, leavened by concern for social stability following depressions and war. Then followed the 'mature phase' when the emphasis changed from development to maximising economic efficiency. Are we now entering a 'sustainability' phase, when the policy emphasis is shifting from economic efficiency to environmental sustainability? Behind these phases have been major shifts in public beliefs about irrigation and its value to the country.

The seeds of Australia's irrigation industry were sown in the 1850s gold rushes. There was a massive migration to the promised riches of the alluvial goldfields of central Victoria. Masses of diggers reshaped the landscape of the goldfields with little more than pick, shovel and pipe. One can see the remains of their work in the forests surrounding Chewton, Bendigo or Creswick.

The convoluted landscape is testament to the fervour of the search for gold; it is also a dream landscape for the country's orienteers. Behind the diggers' fervour was a desire to escape the poverty and injustice of the European Industrial Revolution. Alluvial goldfields don't last and the gold at the surface is quickly exhausted. The outcroppings of surface quartz informed the diggers that most of the remaining gold was underground and exploiting the deeper gold would require mine shafts, batteries, lift cages, steam engines and capital. The diggers had the choice of moving on to the next alluvial gold rush, staying and working as miners for the reef mining companies, or finding some other occupation. Many of the diggers had once been farm labourers. They had walked to the diggings from Geelong, Melbourne and other ports. The walk had given them time to study the strange new countryside and to someone coming from Europe it seemed almost unoccupied. Land was controlled by squatters who had grabbed it without seeking leave from either the colonial government or the original Koori inhabitants. They paid minimal rental, invested little in developing the land and stocked it lightly. It was natural for the diggers' attention to turn to the possibility of farming and the politically charged question of access to land.

The pressure for land access eventually resulted in Selection Acts of various forms in a number of Australian colonies. The resulting skullduggery between squatters and selectors over land is now part of the canon of Australian history, and the ill feeling between the two is celebrated in classic Australian literature such as the Lawson poem 'The Fire at Ross's Farm'. Within a decade, the Selection Acts were deemed a failure in many parts of the country. Selected farms were too small, the climate was too erratic and the farmers often unskilled. Farms were failing, selectors were walking off the land and their farms were being purchased by 'boss-cockies'. The dream of an egalitarian rural society was being supplanted by the rise of this new class of land barons. Some communities saw an answer to their problems in the development of irrigation, and in Victoria local farmers set up numerous small irrigation trusts whose activities were generally limited to building small diversion dams on local streams, and distributing the water to nearby farms. Under pressure from a coalition of local farmers and churchmen, the state government acted as guarantor for the loans taken on by the trusts, but within a few years the trusts had failed magnificently, caught by the 1890s Depression and grand incompetence. There was no thought given to how water was to be managed. The rivers flowed in spring, but the demand for water was in the summer and autumn. No one had invested in large water storages, just small diversion dams. So farmers ended up fighting each other for the meagre water flowing down their rivers. All the trusts went bankrupt and the government was left with the debt.[196]

In the political climate of the day, the failure of irrigation was not an acceptable outcome so the political response was to take over the development of irrigation as a state responsibility. The Chaffey Brothers and their fellow American, Mead, assisted in the development of irrigation settlements in Victoria, New South Wales and South Australia. The vision driving this work was the creation of farming communities based upon irrigation to counterbalance the growth of cities. Behind this vision was often a belief that city life was less wholesome than farm life, even that farming was morally superior to labouring in the cities. Given sewerage was yet to save the cities from the smell of excrement, the country may well have been a more wholesome alternative. Yet even when the cities were well-sewered, the belief in the ennobling nature of farming persisted in rural Australia.

Irrigation development continued with two waves of soldier settlement after the two world wars. Putting returning soldiers on the land was seen as both a reward for active service and

an investment in social stability. Even when the supply of soldiers ran out, the development continued with Lake Dartmouth—the last major dam built on the Murray River in 1979. Its construction was the outcome of a dispute between South Australia and the upstream states. The small storage called Lake Mokoan is worth mentioning. It is a small dam near the town of Glenrowan in north east Victoria and was one of the last irrigation dams to be constructed. It was opened in the late 1960s and may be the first to be decommissioned.

The 1979 completion of Lake Dartmouth in the Alpine region of Victoria marked a turning point in water politics. It probably helped that there were few places left to develop dams in Victoria and New South Wales as any remaining undammed rivers were increasingly appreciated for their wildness. The possibility of a dam on the Franklin River in Tasmania galvanised the environmental movement and played a part in the 1983 election of a Federal Labor Government. From the other direction came the economic arguments. The book, *Australia Wet or Dry*, by Bruce Davidson first appeared in 1969[197] and in it were compelling arguments that irrigation developments for closer settlement objectives had generally been heavily subsidised by the taxpayer and were unlikely, in the current state, to stand on their own financial feet. This clearly wasn't what irrigators wanted to hear but governments were listening.

During the 1980s, water departments embarked on an economic reform program in the irrigation sector so that irrigation supply authorities were transformed into public companies or government owned trading enterprises. Their brief was to generate a return on capital so water was transformed into a tradeable commodity and the price of irrigation water gradually rose towards 'full cost recovery'. When settlements had first been developed, water rights were allocated to farms according to an equity based formula. Every farmer with access to the water channel could expect an equal share of the water resource, so once allocated, that water right remained attached to that farm's title. During the early 1990s some states introduced trade between different irrigation districts, whilst South Australia and Victoria allowed inter-state trading. When the last new water for irrigation became available from the Dartmouth weir, the Victorian Government auctioned it off to the highest bidder, rather than freely allocating to irrigators by formula. More than anything else, this auctioning symbolised the new world of irrigation. Some irrigators attended the auctions and did their best to disrupt the proceedings but other irrigators turned up to bid for the water. Stories emerged of some protesters quietly bidding for water themselves.

These changes were intended to achieve two outcomes: to ensure irrigation was no longer a burden on government budgets, and to discourage the use of water for low value crops and encourage production of more profitable crops. In Victoria this would come to mean more dairy cows, grapevines, olive and almond trees and fewer wheat crops and sheep. This would stimulate rural economies. This template of reforms was eventually codified into a Council of Australian Governments agreement. All Australian states committed to reform in return for competition payments from the federal government.

Water trading

Victoria and South Australia moved the fastest on water trade reform, and within these two states, it is the Riverland, Sunraysia and Goulburn-Murray districts which have traded the most water. The Sunraysia lies along the Victorian side of the Murray River downstream of the riverside town of Swan Hill. Government established irrigation settlements can be found surrounding the towns

of Mildura and Robinvale. The horticulturalists in these towns have traditionally been known as 'blockies'. The blocks were a byword for hard work and had been managed by successive waves of migrants growing dried fruit, grapes, oranges and stone fruit.

Outside the government irrigation settlements are the new 'greenfields' horticultural developments. These are increasingly being built by agribusiness companies rather than traditional family farms. These businesses are quite unlike traditional irrigation farms; the farms are very large. One business, OliveCorp, has established a million tree almond plantation further upstream. The irrigation and cadastral layout of the government settlements is unattractive to these investors. They need large spaces with no houses or roads to break up their farms. They seek to manage their own water supplies rather than rely upon a shared infrastructure so they establish their farms beyond the existing settlements.

In the Goulburn-Murray irrigation region most water has been used by dairy farms and sheep farms. The dairy farms are generally family operations milking between 200 and 1,000 cows. The milk is supplied to local dairy factories which produce cheese and other milk products, generally for export. The irrigation water supplied to dairy farms is used to grow permanent clover and rye-grass pasture and a typical dairy farm might use between 500 and 1,500 megalitres of water in a year. (As a yardstick, it takes about a megalitre of water to fill an Olympic-sized swimming pool.)

The sheep farms generally grow annual pasture (pastures that die off in the summer) to feed sheep that produce meat and wool. A dairy farm generally grows permanent pasture (that does not die in summer) to feed dairy cows and produce milk. One rule of thumb is that a dairy farm can produce $300 of trading surplus for each megalitre of water while a mixed farm will generally produce less than $100 of surplus with the same amount of water. Both types of farm produce far less surplus per megalitre than a horticultural property during a season of average prices.

It took a few years for irrigation farmers to accustom themselves to the opportunities afforded by tradeable water. A trickle of temporary trades soon grew to a steady flow of temporary and permanent trades, from sheep farms to dairy farms. Then water started being traded downstream to the Sunraysia and South Australia's Riverland. Most irrigators were happy with this pattern of trades. Trades at $300 a megalitre saw the value of farmers' water assets increasing.[198]

The trade increased the value of production from irrigation water, but some localities around Kerang, where sheep farming was common, were losing water. Local farmers sometimes expressed concern over the future of these communities.[199] The truth that was probably not spoken aloud, was that these losses were seen as acceptable for the economic gains elsewhere. And the farmers in these areas selling water were doing so willingly. One response of the Kerang community was to implement a development plan to attract new irrigators to underutilise 'prime development areas'.

Just across the Murray River is New South Wales Murray Irrigation. The main product from irrigation farms in this area is rice. Farms here generate a relatively small profit for each megalitre of water, but because they are highly labour efficient, most farms can create a reasonable living by holding very large volumes of water. New South Wales had followed a different strategy to Victoria to remove irrigation schemes from the government budget. Murray Irrigation, once a government irrigation scheme, is now a private company owned by irrigators. The company owns the irrigation water and irrigators own shares in the company. Irrigators are allocated water within the irrigation district each year according to the shares they own. This arrangement effectively locked Murray

Irrigation farmers out of water trading. They did not own water to trade, and if they did sell their shares, the new owner could only apply the water to land within the irrigation district.

Unexpected consequences, unanticipated climate change

One of the claimed advantages of the introduction of water trading was that it would benefit the environment by ensuring less water was wasted, but this quest for efficiency had unintended consequences. The creation of tradeable rights further accelerated the extraction of water from the river system. Prior to trading many farmers had owned water entitlements that they rarely used. These were a low cost insurance, ready to be used not on a rainy day but in a dry year. Suddenly these licences were tradeable and worth a substantial amount of money. Farmers sold these 'sleeper' licences to those who would use them every year. Further, the irrigation authorities had been turned into commercial entities of various forms. Most were under financial pressure to produce a return on their assets for their owners. There was every incentive for them to maximise the volume of water sold.

These pressures increased rather than decreased the consumption of irrigation water in the Murray-Darling Basin. In 1995 the Murray-Darling Basin Commission published an audit of water resources in the Basin[200] which showed that in the previous six years, basin-wide diversions had increased by 8%, driven, in part, by the application of new water policies. There was massive scope for further increases in diversions with only 63% of water entitlements being used. The response was to attempt to cap extractions for each state at 1994 levels of development. Each state made a commitment not to exceed its capped water allocation and performance was to be monitored by independent auditors each year.

As luck would have it, just as the cap was being introduced, the south east of Australia was entering a prolonged period of low rainfall and reduced water inflows to reservoirs. Many of the flood plains in the trench along the river experienced a prolonged dry spell. Iconic stretches of river red gums started to die, mounting arguments that the cap was insufficient to guarantee the ecological sustainability of the river ecosystem. A scientific review of the health of the river argued that the Murray needed a 1,500 gigalitre (1,500,000 megalitre) increase in environmental flows to provide a reasonable chance of maintaining its ecosystem.[201] The question was—from where would this water come? Fifteen hundred gigalitres is equivalent to the annual water use of 1,500 dairy farms. In 2002, the Murray-Darling Basin Commission commenced the 'Living Murray' consultation process aimed at finding an answer to this question. It was hardly a propitious time to talk to the irrigation community about environmental flows in the river. The drought was causing increasing pain in the irrigation farming community. At this stage in the story, we need to look more closely at the irrigation dairy industry in Victoria.

Historically the dairy industry has benefited from a degree of domestic market protection. Milk has been divided into two types; milk that is used to make cheese and butter is 'manufacturing milk'. The milk that fills the cartons in the supermarkets is known as 'whole milk'. Generally, dairy farms have pronounced peaks and troughs in production. When grass is growing quickly in the spring, production goes up and when it is growing slowly in the winter, production goes down. Most of the milk produced in the peak of spring was used for manufacturing with the lesser amounts produced in winter being used mainly for whole milk. Most states developed marketing arrangements that maintained a high price for whole milk supplied throughout the year on

contracts. This meant that in the peak production in spring, a proportion of the milk was deemed to be whole milk and the dairy farmer received a higher price for this than for the rest of his or her milk production. Trade between states was constrained to maintain this price differential. These trade constraints were a subject of lobbying between states for many years.

Australian milk trade was finally deregulated in 2000.[202] This ended price differentials between whole and manufactured milk, and price controls for retail milk. You may have noticed this when home brand milk cartons appeared in the supermarkets with lower prices than brand milk. In compensation for the loss of market controls, dairy farmers received compensation payments. Deregulation of the milk industry placed many dairy farmers in a position where they could take their compensation and leave the industry, or use the compensation to invest in increased productivity. A significant number of farmers increased debt and invested in production expansion. High debt levels make farm businesses less resilient when problems strike. After a period of stable prosperity in the 1990s, the problems were coming.

In farming, it's the problems you can't foresee which cause the greatest stress, and one problem was the United States economy. In response to the collapse of the 'dot-com' boom, the United States dropped interest rates rapidly from 6% to just 1%. The value of the United States dollar fell and the value of the Australian dollar rose. Dairy farmers felt this as a fall in the price they received for milk and, on top of this, came the drought. To understand the impact of the drought, we need to quickly explore the world of water products. To you and me, a bucketful of water out of the river looks like a bucketful of water out of the river, but if you are a farmer, each bucket can look very different.

To the north of the river, in the New South Wales rice-growing region, a 'general security' bucket is filled with water that flowed into the reservoirs that season. Each year as many buckets as possible are filled until the reservoir is empty. Nothing is saved for next season's allocation. This style of allocation ensures that every drop of water that one can store for irrigation will be used for irrigation. It also means that farmers will be confined to growing annual crops. Water from this bucket is too risky to be used for vines and orchards, or even dairying. As rainfall and reservoir inflows declined, rice growers on this 'general security' allocation experienced immediate reductions in their water allocations. In the driest season they received no water allocation at all.

Goulburn dairy farmers owned Victorian water rights which specified how many megalitres of water each was entitled to each season, which had high reliability. Reservoir managers attempt to hold water in reserve each year to cover the next year's allocation. With a full reservoir, it will take more than one season of low rainfall before there is a drop in the water right allocation. Once the reservoir holds the following season's irrigation allocation, additional water was made available as 'sales water'. This additional allocation is low security water. The higher security strategy for water rights enables farmers to grow permanent crops and it also means reservoirs are managed in a way which ensures there is more water in them. When a flood comes, there is less storage available and the reservoir is more likely to spill over. This is generally a better environmental result.

Despite the low security of sales water, many dairy farmers had built their business on the assumption of having access to their water right plus an additional 50% of their water right volume as sales water every year. An unprecedented period of low rainfall within the upper catchment quickly resulted in a series of seasons with no sales water. Then, in 2002, water supplies were so low that farmers were only guaranteed half their water right for the following season.

Irrigation farms in northern Victoria: dairy, olives, sheep, canning tomatoes, pears and maize. Which is the highest value use of water? Which is the most sustainable use of water? Which is the most resilient production system? Each question yields a different answer.

For dairy farmers the low water availability was a serious shock. None had experienced this situation before and on top of this, milk prices had begun to fall. Hard times were falling on the dairy industry at a time when many had increased their debt. Farming as usual was out of the question so, to keep producing, a dairy farmer would need to go into debt.

The irrigation dairy industry was in a situation that has happened many times before in Australian farming. The traditional farmer strategy is known as 'pulling in the belt'; that is, cut all possible expenditures and ride out the hard times until prices recover. This is not a senseless strategy because, as we saw in an earlier chapter, during these periods of crisis, there are few willing buyers of farmland. The farm is the family superannuation account. To sell into a depressed market will generally be equivalent to cashing in the family superannuation policy early at a reduced value. Rather than taking a large cut in their superannuation, farm families will hang on as best they can until the situation improves. Some will then sell, and many others will decide to remain, caught up in renewed optimism.

Dairy farmers on the Goulburn system did not follow this traditional strategy. The new water market created a unique situation in Australian agriculture. After a decade of stable returns, many dairy farmers had been planning to retire within the next five years. If it was possible to sell the business immediately for a reasonable price then this would be a far more attractive option than working another five years to repay debt. The shrinking water entitlements coincided with the rapid growth in horticultural 'managed investment schemes' along the lower Murray River (see the previous chapter). One company, Timbercorp, was establishing 8,000 hectares of almond plantation. The strong demand for water for these massive developments helped triple the price of water in the space of five years. Dairy farmers had a financially attractive possibility of quitting farming.

Some dairy farmers sold their water downstream, a previously unthinkable outcome for a community that expected dairy farmers always to be water purchasers. Districts that had been experiencing economic growth through the purchase of water from sheep farmers now saw irrigation water leaving for the vineyards and almond groves of Sunraysia and the Riverland. Paddocks once covered in productive perennial clover pastures were now growing weeds. Those who stayed publicly expressed their fears at the future sustainability of their communities and called for an enforced cap on water exports. Downstream horticultural communities celebrated the economic growth that

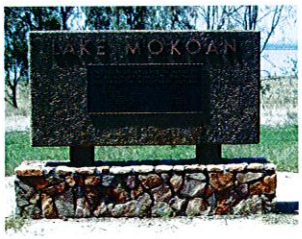
came from water purchases. Meanwhile, the sheep farming communities that had been gradually selling water over the past decade made the most of the situation. Many sheep farmers sold water, either temporarily or permanently. The price was more than enough to compensate for the value of stranded farm infrastructure and housing. Those who were considering retirement had an opportunity that might not return. Those who planned to stay could temporarily sell their water and make a greater income than they could by continuing their normal farm operations.

Living Murray to CoAG

Given the pain being felt in the rice and dairy industries, setting out on a mission to find more water for environmental flows might seem a foolhardy step. Irrigators in the rice industry in particular were incensed at the prospect of losing water to the river and made the Murray-Darling Basin Commission aware of their angst in many angry submissions. But the history of water policy in Australia shows us that drought is often the catalyst for change. In the past, the response to water shortages for irrigators was often the building of dams, but the tide of public opinion was now focused on river health. As a sign of the high stakes, the Prime Minister stepped in and took charge of the process. In 2004 the Council of Australian Governments (CoAG) made a commitment to return 500 gigalitres of diversions to the Murray as a 'First Step'.[203]

With the commitment made, it was still unclear where the water would be sourced. The general hope was that by repairing, renovating or replacing old water infrastructure, water could be saved by preventing channel leakages, reservoir evaporation and spillage. An obvious alternative would be to reduce allocations to irrigators. This could be done either by a general reduction in

Irrigated pasture before and after the water has been sold—the decline of pasture and the spread of weeds is a cultural symbol of the decline of a way of life (photos N Barr and Barry Hancock).



Lake Mokoan and its dedication plaque.

allocations, quickly dubbed 'clawback', or by purchasing water from irrigators in the water market. Farm industry bodies held a clear position. The water should come from infrastructure investment, whatever the cost. Clawback was unfair. Government intervention in the water market would raise the price of water, making it harder for successful farmers to purchase, hence limiting their ability to maintain their competitiveness.

In making this argument, farm supporters were implicitly asserting a moral hierarchy of water use, with environmental use being a less legitimate use than farm use. But new values beyond the farm community were turning this once unquestioned farming belief on its head. Environmental supporters publicly asserted the reverse view that water for the river took precedence over irrigation. From this perspective, the best solution was clawback as it gained the greatest water volume for the smallest cost. Economists favoured whatever was the most efficient option. General clawback was inefficient as it reduced production in high-value irrigation as well as low-value irrigation. Infrastructure investment was efficient as long as the cost per megalitre was cheaper than the cost of water on the water market. Once it became more expensive, it was more efficient to purchase water from irrigators. This was a compromise with the potential to upset all sides!

Many infrastructure projects are being investigated for water savings as some can save water at a price below that of the water market. One such project is the decommissioning of Lake Mokoan, a shallow lake with high evaporation losses. Once an ephemeral swamp, it may be returned to this former state but one

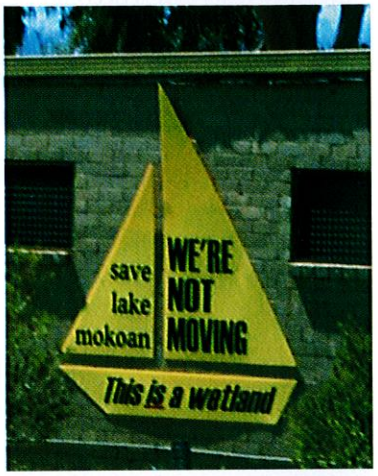
shouldn't assume that decommissioning a lake will be easy. Opposition to the proposal has been fierce as irrigators fear a loss of water security, despite guarantees their water allocation will be secure. The lake's decommissioning may also have become a symbol of the wider community's waning esteem for irrigation farming. It is not just farmers agitating to maintain the lake. Irrigation lakes have become an important part of the lifestyle of more than just irrigators. Sailors, anglers and those who had built houses for the lake views have fought the proposal. With more shallow lakes out there with high evaporation losses they are also obvious targets for water savings, but with the higher amenity values, each attempt to decommission a lake will meet similar resistance.

If Lake Mokoan is converted back to a swamp, the location probably deserves a monument to symbolise the massive change in water policy that we are living through. A reservoir that was built only forty years ago is decommissioned to improve the river environment, and just downstream one of the largest farms supplied by the lake has already been purchased for the environment. It was a large dairy farm and the owners took the opportunity to sell to the state to escape the financial difficulties of the drought. This was the first state purchase of irrigation water for environmental flows.

To further complicate the public debate, continued drought conditions placed the provincial cities of Ballarat and Bendigo at risk of exhausting their water supplies. The most immediate (and the cheapest) way to get water for Bendigo was to purchase it from irrigators in the neighbouring Goulburn irrigation district.[204] Town water supply authorities will always be able to outbid irrigators in any competition for water. Towns without water cannot function. Sewerage systems

Rural dissent over water policy.

stop working. A proposal for the purchase of a relatively modest amount of water raised a hostile response in the irrigation community, under the slogan 'Plug the Pipe'. Despite the far greater volumes of water being purchased for downstream irrigation developments, and despite the knowledge that those irrigators who sold water would be well compensated, the prospect of urban users purchasing farm irrigation water became a focus of the debate over water trade. Urban purchase was described as 'stealing our water' to 'flush down the toilet'. It is clear that there is more at stake here than just the economic impact of water trade. Urban purchases of irrigation water represent a shift in public values which question the importance of irrigation farming in modern Australia. The irrigation water market has become an arena to observe an ideological conflict between new public values arising in urban Australia and an older rural culture.



Rural dissent over water policy.

Recommended further reading

On happiness and the human condition:

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Levi P, 1993, *If this is Man?* Colliers, London.

On the environmental Kuznets curve:

Lomborg B, 2001, *The Skeptical Environmentalist: Measuring the Real State of the World*, Cambridge University Press, Cambridge.

Stern DI, 2004, *The Rise and Fall of the Environmental Kuznets Curve,* World Development, 32, 8, pp. 1419–1439.

Bhattarai M, 2004, *Irrigation Kuznets Curve Governance and Dynamics of Irrigation Development: A Global Cross-Country Analysis from 1972–1991*, International Water Management Institute, Colombo, Sri Lanka.

On the history of irrigation development:

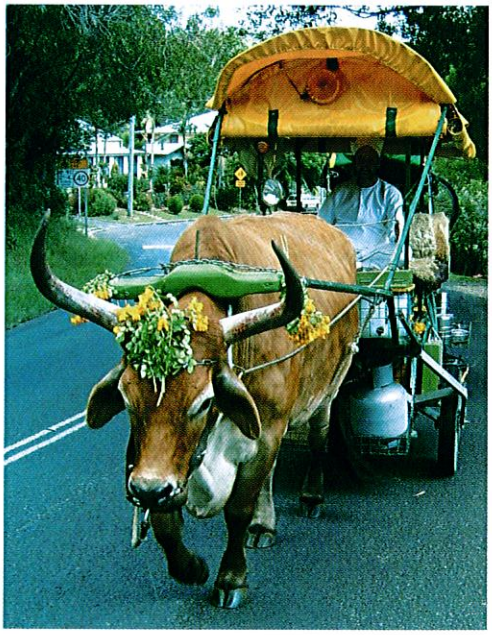
Barr N and J Cary (eds), 1992, *Greening a Brown Land*, Macmillan, Melbourne.

7 THE SOCIAL LANDSCAPES OF RURAL AUSTRALIA

Are we there yet?

I began this book with the story of my first car trip. I have no memories of that trip, but I do remember many others. In particular, I remember the long drives to holiday destinations through landscapes offering no enticement to my imagination. Leaving our home on the rural outskirts of Melbourne, we navigated through a relatively green and hilly landscape dotted with numerous small farms and houses. Gradually the landscape flattened and opened out into vast vistas of nothing much in particular. Like any pre-teen in the back seat, I inevitably pestered my parents with the 'are we there yet?' question. The answer was obvious before I asked. Even to my young eyes, it was clear that this country was not 'there' and never would be. My memory is of flat or gently undulating landscapes of paddocks bordered by trees. Nothing much was happening in the paddocks to catch my attention. The towns were some distance apart and when we passed through, the most interesting feature was their symbolic marking of the distance remaining till we reached 'there'. We had already travelled many kilometres from home and my tolerance for boredom was waning. As we approached 'there', the landscape became less boring as the hills rose up around us, perhaps eventually becoming Australian 'mountains'. Rivers and streams sometimes flowed with water. I could begin to imagine climbing that mountain or walking up that stream. And most importantly, we would soon be 'there'.

Many years later I hitched a ride with a Krishna pilgrim. The pilgrim may once have been an impatient child in the back seat, but those days were well behind him. His cart was bullock-propelled at a speed a little over two kilometres an hour along a narrow mountain road. On his cart was loaded cooking and sleeping gear for a three day journey of 30 kilometres. At the end of the journey the devotee planned to meet his Saddhu who would minister to his spiritual health. At the end of the cart was a mountain bike on which the pilgrim rode thirty or forty kilometres



Making the journey as important as the destination—a cultural migrant to the north coast of NSW.

each evening to minister to his bodily health. While impatient drivers queued behind the cart, the pilgrim advised me that the journey is as important as the destination, whether the journey is from Uki to Murwilllimbah, or from birth to death. He also advised that patience is a blessing in all journeys and he was helping other road users to learn this lesson.

Four decades have passed since these regular family summertime journeys. I have now learnt to appreciate the country journey as well as the destination. I still make many similar trips, and I no longer sit in the back seat. Behind the steering wheel today I can appreciate the changing view beyond the windscreen as a narrative which fires my imagination. The landscape I now observe is created by the interaction between economic pressures on farming encouraging farmers to buy land to increase the size of their farm, and the aspiring tree changers who are seeking to buy land for its beauty and the lifestyle the land promises them. The shifting balance of these forces has created a production landscape where the farmer determines the land market behaviour, an amenity landscape where the amenity migrant controls the market, a transitional landscape where the land market is actively contested by both groups, and an intensive agricultural landscape where farming survives in the face of high land values by occupying little land and producing high value products. This is how I understand the world beyond the windscreen.

The production landscape: shaped by the declining terms of farm trade

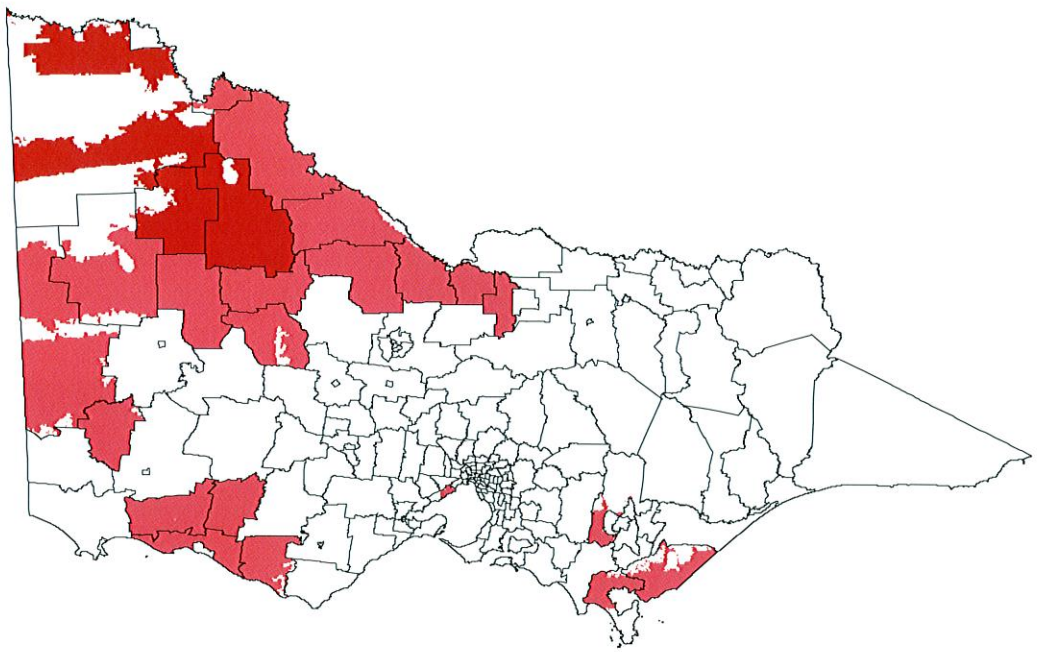


Figure 18 The production landscape of Victoria estimated using ABS census data, Statistical Local Area boundaries and Victorian land transaction data—the deeper the red, the deeper the production influence on the social landscape.

For many Australians the production landscape is the 'are we there yet?' of rural Australia. It is the unexciting scenic wallpaper on our long car journeys to distant destinations. This landscape is rarely the destination unless family or work dictates. Increasingly in this era of cheap air travel, affluent urban Australians fly over, rather than drive through, this landscape. It is this urban indifference to the landscape which provides a competitive advantage to the farms and threatens the sustainability of the small towns.

Commercial farming there is the principal and almost the only use of privately owned land, and this production landscape is occupied by a third of Australia's farmers. By national standards, the farms in this landscape are large and collectively produce half of the value of Australian agricultural production. In 2001, the average farm business produced goods to the value of $234,000.

The economy of this region is reliant upon agriculture and, in some localities, mining. A quarter of the labour force is employed directly in agriculture and the continued success of farming is crucial to the local community. The community depends on its farms to generate productivity increases to match the declining agricultural terms of trade by achieving increases sufficient to match or surpass this decline. While the terms of trade for Australia's grain producers have declined by approximately 2% each year, the industry has increased productivity by an average of 2.5% per year. The dairy industry hasn't quite managed to match the performance of the cropping industry, but it has also kept ahead of its terms of trade compression. During the 1990s the average value of produce from production landscape farms increased by 25%. Productivity increases are often achieved by the owners of large farms buying out medium sized farms. There are very few, if any, small farms to buy. And there is little competition for farmland from outside the farm sector. Farmland is 'tightly held' because few other than farmers want this land. And of course, when somebody buys land, someone has generally sold that land and has quit farming.

The decision to leave farming is generally made by farmers operating medium sized farms. In this landscape a farmer is more likely to quit farming when young or when old. As recounted in the second chapter, those waiting for an opportunity to expand their farms are watching to see whether the next generation will take on the neighbour's farm, or leave the district. This pattern of farm aggregation has been the norm for generations and is an important factor in the history of sustained increases in farm productivity in this landscape.

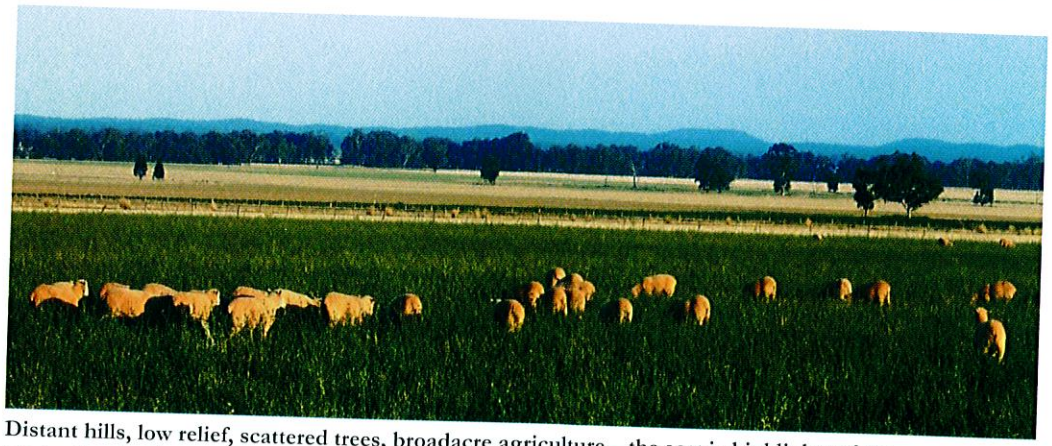
Part of the production landscape in the Victorian Mallee (photo Lindner family).

Farms into the future

I expect the future restructuring of the farm businesses in the production landscape to continue as it has over the past fifty years. Farms will continue to increase in scale, and the number of farm businesses will continue to shrink. Assuming no other major changes to the world economy, we should expect the number of farm businesses to halve in the next forty years. However, there are two important caveats to this prediction: climate change and superannuation investment.

No discussion of the future of farms in the production landscape can avoid the uncertainties of climate change. Current projections suggest that there will be less rainfall in much of southern Australia, particularly during the spring growing season. This has been likened to a contraction of South Australia's Goyder's line that delineates land with rainfall suitable for cropping, from land that is rainfall sufficient only for rangelands grazing.[205] In effect, the zone of land suitable for cropping will shift towards the coast. Not only is the extent of climate change uncertain, but the impact on farming systems is possibly even more uncertain. There is every reason to believe that farmers will be able to adapt to slow and gradual climate change using a combination of improved cropping technology, improved risk management systems and gradual withdrawal from areas no longer suitable for cropping. Of course, climate change may only be gradual in the averages and will be felt as an increasing frequency of poor seasons. On the margins of the cropping zone, this will shift the pattern of crop farming towards opportunistic sowing when the conditions are suitable and away from a more regular pattern of seasonal sowing. This will also further increase the financial pressure for farm aggregation into larger units. Only the largest farms will survive in this new agricultural ecosystem.

Traditionally, farming in this landscape has been dominated by family farms. Continued growth in farm scale will see many more family farms looking increasingly like small corporations rather than the traditional image of the family farm. There are signs that as farm businesses have increased in scale, they have become more attractive to some corporate investors. Managed investment schemes have been created by listed companies to develop large irrigated olive, grape and almond plantations along the Murray River and its tributaries. Some superannuation funds are purchasing groups of farms to achieve scale advantages normally unavailable to the family farming business.[154] Superannuation funds are growing rapidly, having increased fivefold in the



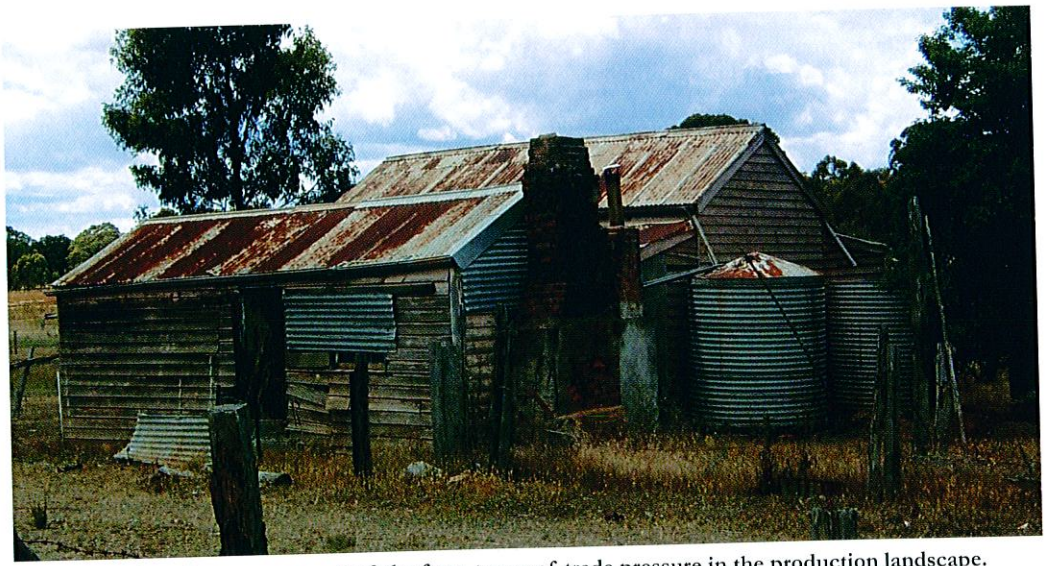
Distant hills, low relief, scattered trees, broadacre agriculture—the scenic highlights of the production landscape.

past eleven years, and this rate of growth is expected to continue for another decade. To remain viable the funds need to diversify their investments. The good returns to capital being earned by the skilled managers of the largest Australian farms may make these farms an attractive target for investment. If this happens, the largest 10% of Australian farms will not only produce the majority of farm production in a generation, but many of these farms will have ownership structures quite different from those of today's farms.

The future farming lifestyle

Change will not be limited to the economic and production side of farming. For younger farm owners and farm managers, the challenges of forming life partnerships may reshape the farming communities of this region. As these communities gradually lose their young women to education and employment in major population centres, the remaining young men will need to draw upon the resources of the internet and their own travels to find love. Generally speaking, the young women they find will not share a farm upbringing, and their vision of marriage will often include residence in a town with access to facilities, services and employment. Young farmers will have to develop new farming lifestyles based on the formation of households in town rather than on the farm. There will be a gradual trend towards commuter farming in different forms; the farmer may drive to the farm each day or the couple may live apart during the week and come together on the weekend in town or on the farm. In more remote locations, the farm may be the residence for only part of the year and can be seen as a farming parallel with the modern 'fly-in/fly-out' workforce operating in many mining developments in remote Australia.

The commuting lifestyle will also be encouraged by decisions about the investment of farm capital. If the farmhouse available to young couples is in need of repair or replacement, rebuilding a new home on a remote farm may be a dubious investment. Financially, it may be safer to invest in a house in town as it will have greater resale value and be less likely to become redundant as the farming population shrinks.



Abandoned farm houses—a result of the farm terms of trade pressure in the production landscape.

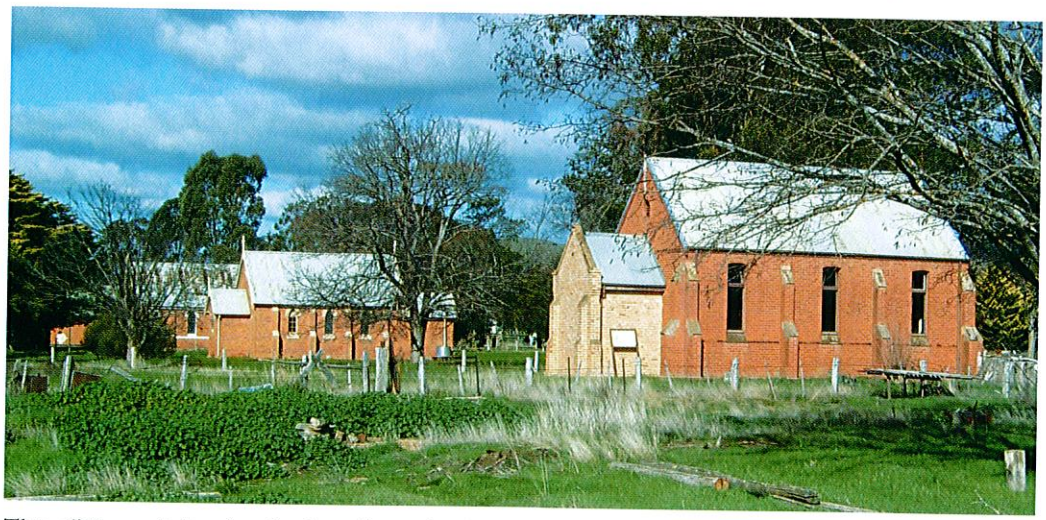
If this commuting scenario becomes reality, it will change the nature of farming, the land market and the aspirations and outlook of farm children. Land close to population and service centres will offer the advantage of less time spent commuting. For some this will mean more time for the farm. For others it will mean more time with partner and family. This will increase the existing premium now paid for land closer to centres of population, irrespective of whether there is an attractive landscape. The premium is for a modern family lifestyle.

The commuting farmer will need to change the management of his (or perhaps her) farm. Cropping is more suitable to a commuting lifestyle than is livestock management. This will encourage a trend towards specialist cropping and away from mixed cropping-livestock farming. Governments seeking to encourage perennial farming systems based upon lucerne and similar livestock-pasture systems will be pushing against this trend. Instead, they may find increasing interest in perennial tree crops.

The farm family based in town will raise children who will not grow up on a farm. Perhaps this will create a generation of rural youth with less emotional attachment to farming. In this respect they may be more similar to the children of most other professionals who see their father's career as separate from home. The job of the farmer becomes a job which takes the parent away from home, rather than bringing the family to the workplace. The result could be a new generation of farmers' children that has a less nostalgic view of farming, seeing it as just another business rather than as a way of life.

The transformation of small towns

A future of commuting farmers will depend upon the survival of the towns within this landscape. Over the past four or five decades the populations of the towns have generally declined and structurally aged, as local births and retirements from the surrounding farms have failed to offset the migration of younger people to larger towns and cities. The ageing populations of many towns means the number of local births can be expected to fall in the future. In the past few



Three little used churches for three denominations—a sign of changing cultures and changing demographics in rural towns.

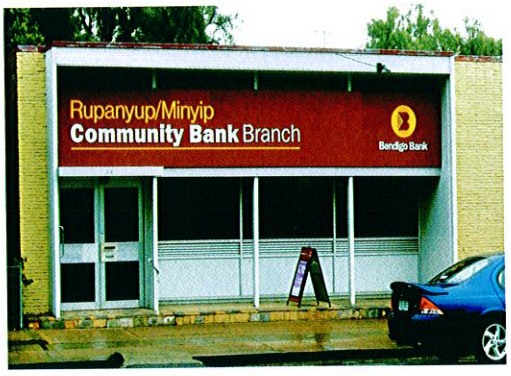
years, low housing affordability in our major cities has stimulated a migration into many of the production-landscape towns by families in search of cheap housing security. Cheap housing has sold quicker than higher quality housing and this has ensured that now, unlike a decade ago, there are few empty houses in small country towns. However this migration has not built many new houses; it has slowed the rate of population decline rather than stimulating growth.

The recent migrations to many small towns are changing their culture and we will probably see the slow demise of the voluntary organisations which grew from the farm culture. This change in small towns will help persuade many retiring farmers to settle in larger centres further afield. The result will be a continuation of the growth of larger 'sponge towns' that can provide a wide range of services and a wider cultural experience.

Small hamlets within comfortable commuting distance of the sponge towns may find a new lease of life as dormitory suburbs. Many smaller towns more distant from the major centres will become economically and culturally disconnected from their farming hinterland. This disconnection may open opportunities for towns to develop new identities, but we should not assume this is a probable outcome for all small towns. Those towns planning to prevail are developing new business and service structures which may survive in the new environment where traditional business structures have failed. Most well known of these is the community bank movement. There are now many community business structures keeping services alive for the moment in these small towns—community general stores, community service station cooperatives and rural transaction centres.

The farm amenity landscape and the price of social sustainability

After the long drive through the lonely production landscape, the view begins to change as one approaches within a couple of hours of a major city. There is more to see in this landscape; there are more hills and trees, more farmhouses and they are often built on top of a hill. More beef cattle are seen, replacing sheep and cropped paddocks. You have entered the rural amenity landscape; almost a quarter of Australia's population lives in this environment.



Geranium cooperative store and the Rupanyup branch of the community banking network. The community banking movement started in the twin towns of Rupanyup-Minyip.

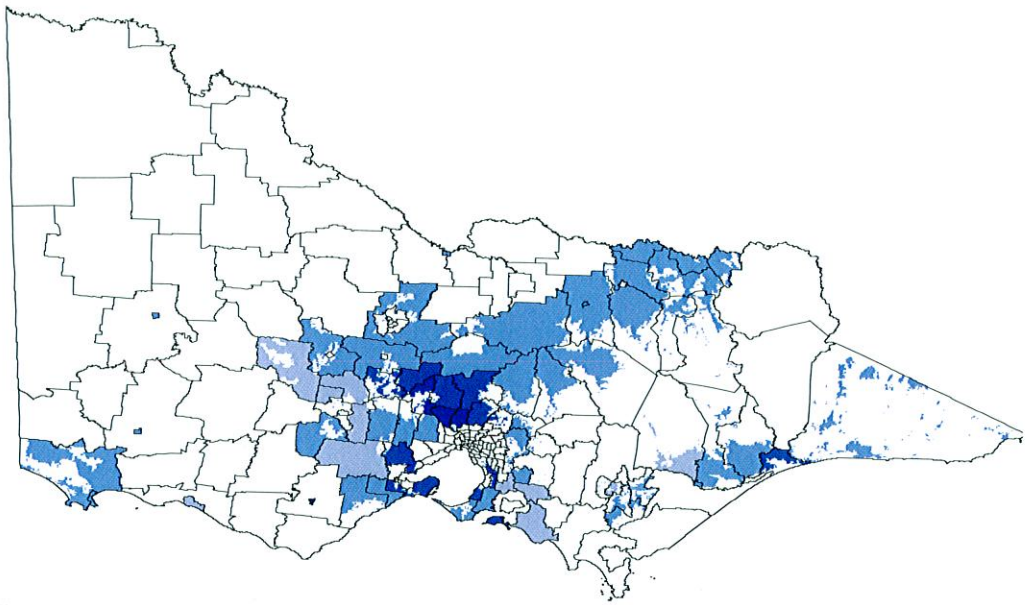


Figure 19 My interpretation of the Victorian amenity landscape in 2001—the deeper the blue, the greater the influence of amenity pressures on land use.

The rural amenity landscape is that part of rural Australia described in Chapter 4 where the price of land is determined by its attractiveness for housing and holidays rather than its potential value to neighbouring farmers. Farming in this landscape must compete for land with purchasers whose aspirations have little to do with commercial agriculture. Australia's rural press markets many of the farms in this landscape as 'lifestyle properties', an implicit admission that there is little or no likelihood of earning a living from the property. Unlike land in the production zone, rural land in this landscape is not 'tightly held'. Buyers who live outside the district purchase most properties placed on the market. These purchasers are seeking somewhere to live in the country, either permanently or on weekends. For them, farming is a well informed secondary consideration, or an ill informed and unrealistic aspiration.

The agriculture that remains

At present, the rural amenity landscape is occupied by 37% of Australia's farmers and, despite being home to more than a third of Australia's farmers and farms, this landscape produces only 21% of the total value of Australia's production. This is because most farms are much smaller than in the production landscape. The average amenity landscape farm produces a little less than $100,000 worth of food and fibre in a year. The average production landscape farm is two and a half times larger.

The traditional farm in the amenity landscape faces a limited future. The usual path to improving productivity, land purchase, is constrained by high land prices. Intensive farms can often survive because they can afford to pay more for land. But broadacre farms producing wool, meat or grains will find expansion difficult. Over time, the number of farmers chasing productivity increases has declined. In the 1990s the average value of production of Australia's rural amenity-

landscape farms declined by 10%. By comparison, the average value of production in the production landscape rose by 25%. The decline will have been due to a combination of declining terms of trade and the creation of small farms by the breaking up of larger farms into lifestyle properties.

One strategy for farm survival is to intensify production within existing land. The beef producer may invest in pasture improvement and gain some breathing space for a time. A move into horticulture will require greater capital investment than pasture improvement, but may also provide greater rewards. Other strategies might be to invest in value adding, such as cheese production, or in greater control of the supply chain. The farmers' market provides the farmer with a greater share of the retail dollar, and these markets are much more likely to be found in the amenity landscape.

For many farmers in this landscape, the best strategy to remain on the farm is to find off-farm work. A quarter of amenity landscape farm managers say farming is not their main occupation. Many of the other managers who claim farming as their main occupation live in households dependent on a significant off-farm income earned by the farmer or the farmer's partner, and the old joke that a viable farmer is one who is married to a nurse or teacher applies here. With many farms operated as a part time occupation, the business of choice is often beef production. Beef cattle demand less of an operator's time than sheep, and require a much lower capital investment than cropping.

The future of the farm community

The future for many farms in the amenity landscape will be economic contraction as the terms of trade decline. In a sense these farms are shrinking by standing still. For the operators of small farms, the aspiration of a family farming dynasty is highly unlikely as few farms in this

Hazelnuts on what was once wool country but is now part of the farm amenity landscape.

In some locales the farm can become a commodity in itself—consumption of farming as a cultural experience in the Ovens Valley.

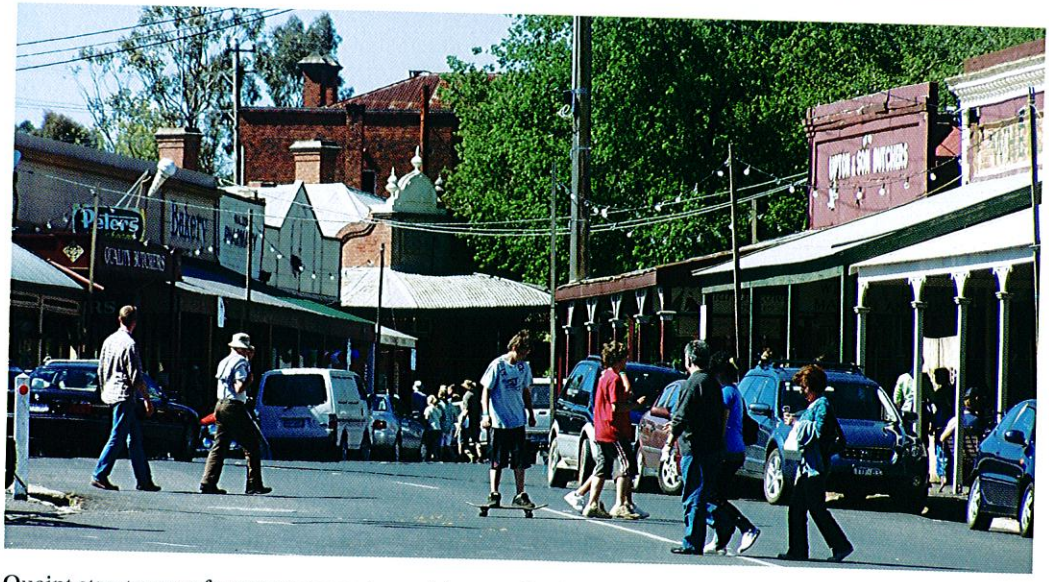
landscape are large enough to offer the promise of a bright future for any succeeding generation. As a consequence, few farms are passed on to the next generation in a traditional farming apprenticeship. Farms are more likely to be sold when the time comes for the operator to retire. They are likely to be purchased not only by someone from outside the district, but by someone in mid-life. In 2001 the average age of new farmers in the amenity landscape was forty-two. These new farmers are generally well established in a career or business outside farming. This new style of farmer is causing a gradual gentrification of this farming landscape. In fifteen years time most farmers will not be related to anyone who farmed their land before them, and many will earn the majority of their income from off-farm work or investments.

Changes in agricultural markets and technologies will have a limited influence upon the future of settlement in this landscape. This is because many 'farmers' in the future will not need to respond to declining terms of trade or market signals from beyond the farm fence. Far greater influence will arise from changing cultural beliefs about lifestyle and home. Culture will shape aspirations to migrate to the country, and will also shape the planning rules that control the extent of subdivision and house construction.

Small towns in the amenity landscape

In a previous chapter we saw how the small towns of the rural amenity landscape generally face a secure future. The farm sector plays a smaller part in the economic and social life of this landscape as only 6% of the amenity-landscape workforce is employed directly in agriculture thus insulating the local economy from the changing fortunes of its local agricultural industries.

The attraction of this landscape to migrants is ensuring a healthy population growth. Steady migration of families and retirees more than compensates for the loss of young people to the cities but this strong population growth is not good news for all residents. Long-established



Quaint streetscapes from yesteryear draw visitors to the farm amenity landscape—the same streetscapes in the production landscape remain quiet.

families with low incomes will often find they are gradually forced out of the local housing market. Many will eventually migrate to the transitional landscape where house prices are cheaper and where they find a less gentrified rural culture.

The intensive farming landscape

There are financially large farms within the rural amenity landscape, but proportionally fewer than in the production landscape. These farms survive because they produce higher value produce on a relatively small area. These farms are often dependent on local markets and on local labour, so the proximity to large population centres offers benefits to outweigh the disadvantage of high land prices.

The intensive agriculture remaining close to our cities is often protected by planning laws aiming to preserve high value agricultural land but this protection does not last forever. These intensive agricultural industries have a history of shifting out from the city as it expands and land prices rise. The problems of living within an urbanising landscape become increasingly difficult as intensive animal industries do not make valued neighbours. Horticultural properties face increasing problems with objections to spray drift and noise as strict quarantine arrangements can become more difficult to maintain. The activities of surrounding neighbours can themselves become problematic for the farm business and the spread of weeds is an oft-cited complaint about the peri-urban farmer. The pressures for greater scale communicated through the supply-chain from the purchasers can often only be satisfied by building a new larger farm on a new site in a less settled location.

The transitional landscape: decline and re-establishment

The boundary between rural amenity and agricultural production landscapes is not static; it has been shifting over the past forty years as the influence of cities has spread outwards into the countryside. The transition landscape is where the influences of the terms of trade decline on farming and the pressures of amenity migration are in tension, with neither acting as the dominant force on the social landscape.

Intensive agriculture—vegetable production on the outskirts of Melbourne.

To the traveller much of the transitional landscape gives few clues to differentiate it from the production landscape. It is relatively sparsely populated, with 3% of Australia's people living within it. A quarter of its workforce is employed directly in agriculture, making agriculture a major contributor to the local economy. Population growth has been slow during the 1990s, little different from the slow growth of the production landscape. The pressures of amenity migration on the farm sector are limited. Despite this, the transition landscape does share some important characteristics with the rural amenity landscape. Transitional-landscape farms are not large. The average farm financial turnover in 2001 was $150,000. Farm scale grew only slowly in the 1990s, insufficient to compensate for the long-term decline in the agricultural terms of trade. Because there are many small farms, 17% of farm managers reported in 2001 that farming was not their main occupation.

Declining agricultural fortunes open opportunity

How can a region be subject to only a minimal influence from urban amenity pressures, and yet have many similarities to the amenity landscape? Part of the explanation lies in the decline of the industry traditionally associated with much of this landscape. No farm industry is guaranteed its future in the farm economy. In 1961 there were many, many small dairy farms scattered across the high-rainfall farming country of Australia. Then came the introduction of stainless steel to milking sheds and the entry of Britain into the closed European Common Market. Stainless steel milking sheds were a disruptive innovation. They greatly increased productivity, but their cost made it difficult for small businesses to install them. The loss of access to the British market further increased the financial difficulties and the only option for many dairy farms was to switch to beef production. However, a property too small to support a viable dairy farm is also too small to provide a full-time income for a beef producer. The turmoil of the 1960s produced a new landscape of small, often sub-economic, beef farms. This landscape full of small unviable farms worried many economists of the era who wrote research reports about the 'high rainfall, small farm problem'.[206-208] This was a transitional landscape—a landscape which could not remain as it was and, as a consequence, since the 1960s, parts of that landscape have merged with the amenity zone. Other locales have rejoined the production landscape as new profitable agricultural businesses have been built.

In some ways the wool industry is the contemporary equivalent of the dairy industry in the 1970s. The wool industry has had long-term difficulty in responding to its declining terms of trade and competition from cotton and artificial fibres. In a declining industry, one would expect the price of land to adjust to the capacity of the industry to pay. The better wool producers would be expected to buy the farms of the less successful, and profitable farms would re-emerge following a period of adjustment. But the land market behaves differently. First, wool producers generally remain farming until they are ready to retire, or when retirement is forced upon them by ill health or worse. When they sell their farms, they are seeking a superannuation payout. They will ask a price that reflects the historic value of land, rather than accept a price based upon what may be a temporary period of poor returns to local agriculture. This partly explains why, in Victoria, land values in the transition zone are higher than might be expected on the basis of the agricultural product generally produced off that land. Another reason for higher land prices is the arrival of new industries.

New agricultural industries rebuilding a production landscape

In the south west of Victoria one can observe the farm landscape changing as wool production is gradually replaced by other land uses. The easiest diversification for wool producers is into prime lamb production with wool becoming a by-product. The area of land sown to crops has been rising. There are skill and capital barriers to entry into cropping and few wool producers jump these hurdles. It is the existing cropping farmers who have been expanding their businesses. Thus in the longer term, those who are successful in increasing the intensity of cropping on their farms will out-compete specialist wool producers in the market for arable land. The dairy industry has been expanding in the south of the region, in part because of dairy farmers moving from the north of the state to escape low water allocations and, from New Zealand where land prices are much higher because the world has discovered the scenic beauty of that land.

The expansion of the grain and dairy industries has been viewed as a positive development by the local community as, in many ways, they are culturally compatible with the existing community of landholders and their expectations of community, land ownership and landscape. However, this has not been the case with less conventional new land uses. The south west has reliable rainfall which makes parts of this region attractive for plantation forestry. In the 1990s blue gum plantations first appeared in the region and, ten years later, there were 40,000 hectares of them.[209] These purchasers have allowed many ageing wool producers to exit their industry with lump sums that met or exceeded their expectations of the value of their land. The capacity of these plantation companies to outbid the sheep and dairy industry in the land market has been a cultural shock for the remainder of the local community. The replacement of wool farms and traditional patterns of land ownership and management with industrial forests is felt as a threat by those remaining as residents in a plantation landscape. Such was the fervour of the debate that the state government sponsored a report on the social impacts of plantation development. This concluded that once plantations reached maturity, the economic impacts may be positive. But until that maturity is reached, the impact of plantations is to reduce the economic contribution of the land to regional employment.[209]

Another novel land use is based not upon land purchase, but controversial leasing arrangements. As parts of this region are well endowed with both an accessible electricity grid and reliable wind [210] this has made it attractive for windfarming. This new form of land use is arousing passions much as has been the case with the growth of plantation forestry but the issues behind these passions are quite different. Unlike plantation forestry, windfarm leasing provides a means for wool producers losing the battle against declining terms of trade to reverse their fortunes for a twenty year period while they lease land to power companies. This allows farmers to remain on their farms into retirement. This benefit is opposed by other residents who see the gains of those hosting the windfarms being counterbalanced by the loss borne by all in the visual landscape commons. The result can be very bitter community conflict.[211]

The impact of windfarms on the sustainability of rural communities is unclear. Will the increased viability of farms deriving income from windfarms be counterbalanced by the impact of decreased visual amenity and reduced inwards migration? The requirements for windfarms to be established near major electricity transmission lines with spare capacity will ensure that future developments will have a high risk of further conflict. Major transmission lines are generally near

major population centres or in the transport corridors between them. These areas will often be in areas attractive to migrants from the city.

New settlers

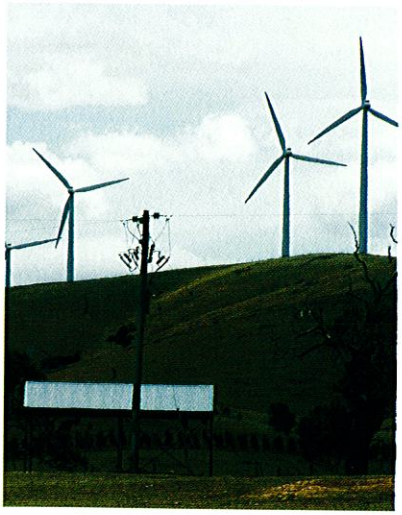
Not all retiring wool producers in this part of the transitional landscape are able to sell their land for plantations, dairy farms or cropping, or lease to windfarms. Not all farms have the soils, rainfall or wind suitable for these alternative land uses. Sometimes the purchaser is a new type of settler. Many of these new buyers have escaped from the city, sharing the same dreams of an idyllic rural lifestyle. The attraction of the transitional landscape is the greater affordability of the land and housing as compensation for its less dramatic amenity. They may be the vanguard of the conversion of this region from a production landscape into an amenity landscape.

Few of these new settlers want to grow wool commercially and beef is an unlikely option as the rainfall and availability of seasonal feed mitigate against it whilst cropping is too labour and capital intensive. Instead, the new settlers bring untraditional and diverse aspirations for their land in much the same way as the windfarmers and plantation foresters but, on a smaller scale. Amongst these migrants are small-lot farmers who might aspire to grow boutique crops or animals. Scattered amongst the pasture land are the occasional lavender farm, woodlot plantation or alpaca stud. There are new settlers who aim to renovate the original native vegetation and landscape. There are retirees from the city, sometimes retirees who have entered retirement earlier than they may have wished. The transitional landscape allows them to convert capital city real estate into superannuation.

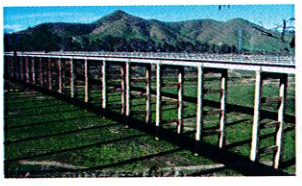
An uncertain future

The future of the transitional landscape is far more uncertain than that of the amenity or production landscape. It is the nature of the transitional landscape that the current patterns of

Cattle and timber—the old and the new (photo Frank Hirst).



Wind generators dwarfing the traditional farming structures of the Challicum Hills.



Climate change impacts—empty reservoirs and loss of amenity.

land occupancy are less socially or economically sustainable. New arrivals and new industries may change some of the transition landscape into a heterogeneous patchwork based on farming, conservation values, and cultural interests. and, in turn, this new cultural amenity may encourage further migration. Other parts of the transitional landscape will remain dominated by commercial farming. Those industries that survive will be those that are able to achieve increased productivity. These will often be the new industries. The transition zone is on the margins of the influence of amenity land use. Decreases in the cost of transport will see the amenity landscape expand into those parts of the transition landscape that have attractive natural features. Increases in the costs of transport will encourage an expansion of the transition landscape into what is now the amenity landscape. The great uncertainty here is the future cost of transport.

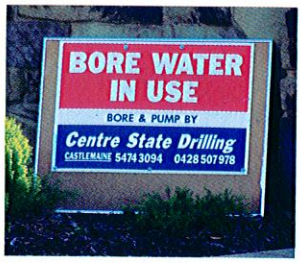
Irrigation farming communities

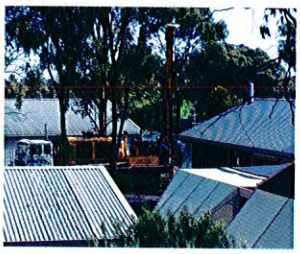
The irrigation farming communities of southern Australia face a future of rapid change but their future will be decided in the competition for water rather than land. This competition will be between the farm and urban sectors and increasing scarcity will intensify the competition primarily as a result of climate change.

Climate models are predicting both a decline in rainfall and an increase in temperatures across southern Australia which have the potential to reduce water run-off into the dams that supply irrigation water. Small decreases in rainfall can mean much larger decreases in run-off. In the past twenty-five years Perth's rainfall declined by 14%. The run-off into Perth's water supply halved. Current climate modelling suggests water supply in south east Australia may be reduced by between 5% and 10% over the next fifteen years and double that in fifty years. Predicted climate change will have another knock-on effect. Drier forests and warmer temperatures mean an increased risk of bushfire. Forests regenerating after bushfire can reduce local run-off by up to 50% due to the rapid regrowth of some eucalypt species.

There are other threats to the security of irrigation water supplies; the most important is the proliferation of farm dams in the upper catchments. For farmers the building of new dams is a logical response to reduced rainfall. Dams are also proliferating in the amenity landscape where new houses are being built. While each dam may have little impact on downstream water supplies, the aggregate impact of many new farm and domestic dams is significant. Another predictable response to reduced rainfall will be increased pressure on groundwater resources. It is not just farmers,

but also rural residents and even townsfolk (see photo). Drawing more water from groundwater systems has the potential to reduce stream flow where there are hydrological linkages between rivers and underlying aquifers. Finally, the expansion of forestry plantations will also reduce run-off in much the same way as forests regenerating after bushfire. This latter impact is particularly ironic. One of the proposed strategies to reduce the impact of greenhouse gas emissions is to plant new forests as carbon sinks! A study for the Murray-Darling Basin Commission has considered the probable impact of all these risks on water resources. The authors of the study concluded the most likely outcome was a stream flow reduction between 10% and 23% by 2020, rising to between 19% and 38% by 2050.[212]





One response to level 4 water restrictions in the town of Bendigo has been the proliferation of urban ground water bores—in this photo a neighbour has brought in the drillers.

While there might be less water to go around, the competition for that water is sure to increase. In the previous chapter we explored the growing community support for environmental water flows to maintain river ecosystems. State and federal governments have made a joint commitment to return 500 gigalitres of water to the Murray River by 2009. The irrigation farming community is strongly opposed to governments purchasing environmental water.[213] There has been a strong political will to achieve this objective by investing in infrastructure to create water savings, rather than by buying water from irrigators. Infrastructure investment for water savings is supported in principle by the farm community, but farmers are less likely to be supportive when the investment is closer to home. As we saw in the previous chapter, the decommissioning of Victoria's Lake Mokoan to save evaporation losses met with strong local opposition.

The other problem with infrastructure investment is the limited number of opportunities to create savings at a reasonable cost. It has been estimated that to achieve the full 500 gigalitres required for the Living Murray, governments may need to invest in projects that would cost up to six times as much as a similar volume of water purchased through the water market.[214] That is very expensive water. It is not yet clear whether governments will need to enter the water market to achieve their promised environmental flow. The governments of New South Wales and South Australia may need to purchase 200 gigalitres to meet their share of the 500 gigalitre Living Murray commitment.[215]

In the longer term the question is whether the promised 500 gigalitre flow will be the end or the beginning of environmental flow commitments. The environmental reports preceding the current commitment contained arguments that between 900 and 1900 gigalitres was required to have a moderate chance of

securing the Murray River's ecosystem.[201] In recognition of this finding, the jointly released inter-governmental agreement referred to the proposed 500 gigalitre environmental flow as the 'Living Murray First Step'.[203, 216] With the difficulties of delivering on the 'First Step', it is obvious that no current government would embark on a 'Second Step'. But the tide of community opinion over the next twenty years may well eventually put a 'Second Step' on some future government's agenda. Any government considering this initiative would face the problem that the 'First Step' had exhausted all the cheap water-saving infrastructure investments. Environmental water for a 'Second Step' would probably have to be purchased from farmers.

In addition to the needs of the environment, town water authorities will need to enter the water market as the population of Australia's cities is estimated to increase by five million over the next twenty years (more than the current population of Sydney) and these new residents will need water. Governments will ensure that towns will not run short of water. Where there is an opportunity, new dams will be built and, where water can be purchased from irrigators, the necessary infrastructure to transport that water to towns will be built. Water will be recycled and where there are few other options, desalination plants will be built for coastal cities. Each of these sources of new water will generally be expensive but for cities such as Melbourne and Adelaide, purchase of irrigation water will be by far the cheapest option for securing urban supply.[217]

There is little doubt though that the greatest competition farmers will face for water will still be from other farmers. In Chapter 5 we touched on the growth of managed investment schemes and their establishment of enormous irrigation orchards along the Murray River. Depending upon the stability of the current tax laws, these businesses may seek to purchase up to 300 gigalitres of water from other irrigators over the next five years. If water supplies tighten as predicted in the previous section, we can expect intense competition for water between existing irrigation businesses. The extremely low water allocations of the 2006–07 season clearly indicate how the irrigated agriculture sector will react to a decline in water supply. Horticultural farms were bidding for water on the water market and, as a result, the price of water doubled over a twelve-month period. In late 2006 a permanent allocation of one megalitre was selling for $2,000—eight times the price of that same water right ten years earlier. Many farmers who could only expect to generate a small profit from each of their megalitres of water have been offered a very attractive financial package to quit farming which will change the irrigation community forever.

It is easy to deduce that irrigation districts producing lower value farm produce will shrink in scale as the volume of water available for irrigation shrinks and the demand for water rises. These will be the districts where, in the past, grass, rice, cereals and cotton have been grown. For the farmers who leave, there will be some compensation in the money they receive for the sale of their water entitlements, but there will be flow-on effects to the businesses which service the irrigation industry; the owners of these businesses will not receive compensation. Towns whose economic fortunes are tied to the lower value irrigation sector may face a difficult future. The water market provides an opportunity to create new high value irrigation industries that create jobs and population growth. The town of Robinvale in northern Victoria is experiencing such a boom, though rapid growth is not without significant social and infrastructure challenges. Towns whose industries sell water to farmers in other districts, to the environment or to urban water authorities, will gradually decline as is the fate of many smaller towns in the production landscape. If they are close to larger regional towns, apparently cheap farms may attract inexperienced landowners with potentially unrealistic expectations. For the irrigation infrastructure companies and authorities,

there is the challenge of rationalising infrastructure to match the changes in their water supply obligations, as water is purchased into or sold from their region. These authorities will need to anticipate the future if they are to be successful, yet they will need to explain their decisions to a farming constituency that will probably be unwilling or unable to fully confront the implications of their market behaviour.

The boom business in irrigation communities (photo B Hancock).

Recommended further reading

On rural social landscapes in Victoria:

Barr N, 2005, *The Changing Social Landscape of Rural Victoria*, Department of Primary Industries, Tatura.

On the competition for rural land for production, amenity and conservation in rural Australia:

Holmes J, 2006, *Impulses Towards a Multifunctional Transition in Rural Australia: Gaps in the Research Agenda,* Journal of Rural Studies, 22, 2, pp. 142–160.

Argent N, P Smailes et al., 2006, *Tracing the Density Impulse in Rural Settlement Systems: A Quantitative Analysis of the Factors Underlying Rural Population Density Across South-Eastern Australia, 1981–2001*, Population and Environment, 27, 2, p. 39.

On the transforming social landscape of Great Britain:

Lowe P, J Murdoch et al., 1993, *Regulating the New Rural Spaces: The Uneven Development of Land*, Journal of Rural Studies, 9, 3, pp. 205–222.

Marsden T, 1998, *New Rural Territories: Regulating the Differentiated Rural Spaces*, Journal of Rural Studies, 14, 1, pp. 107–117.

Marsden T, 1999, *Rural Futures: The Consumption Countryside and its Regulation*, Sociologia Ruralis, 39, 4, p. 20.

8 OUR FARMING STORIES

Signs of two very different agricultures.

Everyone with an interest in rural Australia carries with them their own story and points of view about the growth and decline of rural communities. This book is just one person's story. Recently, two stories appeared in the media encapsulating the diversity of the Australian farming narratives. Both stories shared similar views of the future of agriculture—a future of increased uncompetitiveness of small farms in the face of competition from corporate agriculture. The two stories had very different views about how our nation should respond to this probable future. The first perspective can be found in a small privately published book that mounts an argument against the trade of irrigation water. The authors of this book are opposed to the rules of water trading and taxation that allow small family dairy and sheep farms to be replaced by a small number of enormous almond, olive and grape farms run as managed investment schemes.

> *Recent data on the state of farmers reveals their precarious existence. The Australian Bureau of Agricultural and Resource Economics recently published trend data showing farm returns have been declining over the long term and, since 1990, returns have been below costs most years. The trend line anticipates a further decline in farm incomes. At the same time the Reserve Bank has revealed that rural debt has almost doubled. Farmers are left asking the question: does Australia want to maintain a large agricultural sector, which along with the agricultural dependent input and output industries constitute 12.2 per cent of the Australian economy and a significant proportion of our export dollars. … Australian irrigated agriculture was purpose built to make Australia self-sufficient in food production, to provide low cost food to Australian households, and to create an export market.*[150]

Behind these arguments is a narrative one often hears from the farm community and I'll try and summarise it in a few sentences; 'Australia depends upon the farm sector for its economic development. We need to keep Australia's farmers on the land for exports, for the jobs that are provided to the rest of the community and for the food that urban Australia consumes. If our farmers are unprofitable they will quit farming and Australia will suffer.' When I am discussing these issues with rural community groups, there is normally someone who asks: 'If we have fewer farmers, where will Australians get their food?' The same sentiment is captured by the bumper sticker that declares 'No farmers, no food!'

Contrast this viewpoint with the arguments of David McKinna in a series of newspaper articles published about the same time:

> *Our agricultural philosophy dwells on four platforms of folklore: Australian farmers are the most efficient in the world; Australia is the "food bowl" of Asia; Australia's "clean and greenness" is a point of sustainable competitive advantage; and the family farm model must be protected at any cost. In the global village these beliefs are challenged daily and are increasingly exposed as myths. Australian farmers are losing markets to efficient, globally focussed competitors... (that) have large-scale operations, invest in the latest technology and employ best-practice production systems. They also have the volume and marketing power to lock in closed-loop global supply contracts, which are becoming mandatory with the emergence of multinational, aligned supermarkets. Conversely, Australia's agrifood industry is overwhelmingly dominated by small and medium enterprises that lack the critical mass, expertise and capital to be serious players.*[218]

David's narrative of agriculture is a story of global production and marketing systems, increasing efficiency and fierce competition. In this story, there is little place for small and inefficient irrigation farms if they stand in the way of the development of the massive almond, olive and grape farms that are dominating the irrigation water market. In David's story, Australian agriculture is not changing fast enough to keep up with our competitors and there are too many small farms that are not relevant to the modern market. He believes Australia's small farm sector is irrelevant to horticultural competitiveness and those who argue that it deserves to be protected are deluding themselves with a comfortable but unsupportable myth. This is a perspective that is not often heard in farmer meetings, though quite a few of the owners and managers of Australia's largest farm businesses would probably agree. One is more likely to hear this argument if one sits around a table with agricultural economists.

These two quotes bookend the polarities in the debate over the future of agriculture. To some Australians the declining numbers of family farmers is a social concern. To others the pressure for larger and fewer farms is an economic imperative. Is either story 'right'?

Let's begin with the indispensability of farmers for our nation's food supply. In the second chapter we saw that shrinking numbers of farmers is a result of continued increases in farm productivity. Some farmers keep producing more with less. If the resulting increases in food production are not matched by increased demand for products by consumers within the available market, then price declines are inevitable. Over time the farm sector experiences this pressure as a long term decline in its terms of trade. Globalisation enhances this pressure. Improved transport and freer trade enlarges the market sector available to the farmer, but it also increases the pool of competitors, most of whom are also chasing improvements in productivity.

Farmers cannot ignore the compression in their terms of trade. The traditional response of successful farmers has been to make sure they capture their share of the possible gains in business efficiency. Often these efficiencies can only be achieved by increasing the size of the business and farming more land; a larger header can be used to make a cropping farm more efficient if the same number of workers can use the header to harvest a larger area of grain crop. Those who choose not to, or who are unable to pursue increased productivity, will find that their farm becomes increasingly smaller in financial terms as the years progress. These smaller businesses will eventually be absorbed by larger businesses or, if there are no larger farms seeking to expand, they will become one of the large number of small semi-commercial farms if they are located in

the more attractive parts of the rural landscape. In the long run this process will fuel a continuing decrease in farm numbers. Fewer farms will produce more and more of the agricultural production of the country. Declining numbers of farmers does not lead to a reduction in the amount of food produced. The farm sector problems are quite the opposite—a long term tendency to 'overproduce' encourages farmers to quit farming. As food consumers we should all be grateful.

Another argument mounted in defence of the small farm culture is the importance of agriculture and farms to the Australian economy. The relative size of the farm sector in the Australian economy has been falling gradually as a result of falling farm-gate prices and growth in the rest of the economy. Today the agricultural sector comprises a little over 3% of Australia's economy. However, a recent report has calculated that the upstream and downstream industries that make up the agricultural supply chain account for 12% of the economy.[219] On this basis, the agricultural supply chain is a significant portion of the national economy. But just because farming is important to the economy, we should not then assume that every farm is similarly important. How many farmers are necessary for this contribution to Australia's economy? The financially smallest half of Australia's farms produce only 10% of the value of farm production. Even taking account of the supply chain jobs these farms generate, the smaller half of Australia's farms may only stimulate activity equivalent to 1.5% of the national economy. Whilst agriculture may be important for Australia's economy, this is not an argument for the maintenance of a large number of smaller farms. Most small farms are not needed for this contribution.

Let's turn the question around and ask whether we have too many small farms. In the 1960s, 1970s and 1980s agricultural economists and others involved in agricultural policy debate were much concerned with the 'small farm problem'.[206, 207, 220] A large number of small farms were seen as a problem for two reasons: economic efficiency and social welfare. Small farms could not compete and their owners lived a precarious existence on a low and unstable income. These same concerns are echoed in the words of David McKinna today. For Australia to compete internationally, he argues that we need large efficient farms that provide economies of scale for production and marketing. Should we be as concerned about this situation as economists and policy makers were in the 1970s and 1980s? I believe there are a number of reasons to be less concerned.

First, compared with thirty years ago, Australia's small farms are less likely to be associated with low farm family incomes. Major social changes have occurred on farms. Off-farm work by farmers is now commonplace. Female participation in the workforce is the norm, and many farm women work outside the farm. Comparison of ABS farm family income data and farm size data within Victoria shows there is no clear relationship between the median farm size and median farm family income.[221, 222]

Second, the large number of small farms in Australia occupies a relatively small area of the landscape. The financially largest 50% of Australian farms take up 75% of the farm area. More importantly, the small farms are not spread homogenously across the farming landscape. Many are concentrated in areas along the Great Dividing Range, or near the coast. There is no real prospect of farms in these areas ever being aggregated into larger, viable businesses due to the high land prices that reflect the amenity of living in these areas. Land that is close to major urban centres, has good views, is close to water or has a benign climate attracts migrants from

town. High land prices limit the capacity of farm businesses to expand by purchasing land. Most farmers live with this constraint and continue farming in their current location. Other paths to productivity that do not require land purchase may be explored: improved grazing management or irrigation development are commonly considered. Younger farmers will take off-farm work. Older farmers with high equity in their business can absorb the declining terms of trade; their easiest course of action is to remain in farming for as long as they are healthy and able to enjoy it. These choices inexorably drive the path of farm adjustment towards an ageing farm population and a non-commercial agricultural future. The transformation of production landscapes into amenity landscapes has been underway since the 1950s. At times governments have attempted to slow this transformation by using planning laws to 'protect high-value agricultural land', but these efforts have rarely succeeded. Sometimes these planning laws manage only to define the smallest available house or hobby farm lot and, in the meantime, the volume of Australian agricultural production has nearly tripled. If the amenity transformation had not occurred, the agricultural tendency to long term oversupply would have been exacerbated. The small farms of Australia are not getting in the way of agricultural development. They do not need to disappear. We just need to have realistic expectations of the place of these small farms in future agricultural commodity markets. Those young people considering taking on one of these farms as a career need to understand the limited options available for small farms in a world of globalising supply chains. Unrealistic expectations will lead to pain.

This leads us to a final concern often raised in discussions about the future of agriculture. The decreasing numbers of younger farmers is a concern that often vexes the farming community. Should the rest of the nation be concerned about this? More than one laconic humourist in the Australian farm sector has described the traditional intergenerational transfer of the farm as a form of child abuse. Perhaps there is more than an element of truth in this quip if the farm passed on is one of the numerous small farms in Australia, and is accompanied by an unrealistic expectation that it will be possible to build a future career based on that farm.

Rather than lament the declining number of young farmers, we should first ask whether the number of young people entering the occupation of farming is sufficient to maintain our farming industries. Maybe there are too many entering to allow young farmers a reasonable chance of a satisfying and reasonably remunerated career? How many young farmers is enough? I have tried to answer this question with some simple 'back of the envelope' calculations.[68] My conclusion is that even the current low rate of entry of younger people to agriculture is probably greater than desirable if it is hoped that young new entrants would have a reasonable chance of an economically sustainable career in farming. Perhaps it is not even realistic to expect that younger people could aspire to be a farm operator in their twenties, or even early thirties. Most viable farm businesses that could offer a secure and sustainable future for a new entrant are much larger than was the case a generation ago. In any other industry the expectation that a young person would own and operate a multi-million dollar business would be seen as highly ambitious, and in most cases unrealistic. Why should farming be different? The choices of the young to leave agriculture have long been the engine room of our society's efforts to deal with the terms of trade pressures in a way that minimises social dislocation. Those farmers who remain should be thankful for those young men and women who walked away from the farming lifestyle. Those who seek the challenge of managing a large, modern farm but are not lucky enough to inherit such an operation might do worse than to consider a career as a skilled manager of a corporately owned operation.

Perhaps the most appropriate finish to this book is to return to the ethical questions I struggled with as a young social researcher in the midst of the dairy industry crisis in the 1970s. I was employed in a government department committed to increasing the productivity of the farm sector through investments in research and education. Yet the pressures of productivity were at the root of the social upheaval being experienced in dairy farm communities across the country. Was the promotion of productivity an ethically justifiable practice? Some thirty years on I feel I can answer this question to my own satisfaction. With 70% of our nation's agricultural production exported, there is little alternative to the productivity treadmill. We cannot control the production or innovation of our competitors in the markets of the world. We cannot reverse the social changes in our community and across the world that have transformed the market for agricultural products. It is not possible to pass a law requiring each household to peel potatoes each evening.

To try and step off the productivity treadmill is to accept an even more rapid exclusion from those world markets based upon increasing price uncompetitiveness. We have no power to stabilise the terms of trade decline. Instead, our national strategy has become advocacy of agricultural trade reform. In essence, we are negotiating for the pain of agricultural restructuring to be shared. Any success in achieving our trade objectives will ensure that farmers and farm communities elsewhere in the world will experience painful social adjustment. This realisation should blunt any approach to trade reform based on our moral righteousness.

There will remain an agriculture in Australia inhabiting a different space from the competitive world of international markets. It will be the world of the small farm on expensive land. It will fill niches and market to those interested in food with values that cannot be captured by the world market. Kenneth Boulding once described evolution as the survival of the fitting. Those who choose a farming path beyond the global supply chain are creating an agriculture which fits in the spaces left for it. It is important that those seeking to make a life on our smaller farms understand the nature of the spaces that are available for them outside the integrated food supply chains. The choice to farm based upon an understanding of farming as it was in the past will run the risk of disappointment.

Looking back on my first journey to the family farm there was always the chance that I might have tried to become the next generation in a family whose farming roots reached back many generations. That I didn't was a choice that I realise in retrospect was right for the situation and the time. That I made that choice had little to do with a strong understanding of the farming world I would have faced. Looking back, it was the right choice. At least now I understand why.

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