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Is family farming educational? The Australian experience

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Abstract

The Australian rural landscape has been changing throughout history since the first European settlement. The progressive expansion of agriculture in the past centuries is responsible for its modification and diversification. Family farming has a relevant role in the Australian agriculture and food production, however in the last decades it has been facing a consistent decline, primarily because of economic and climatic reasons. This paper aims to retrace the historical development of agriculture in Australia and to analyse the current situation of family farming, by reporting the tendencies and the changed features, the educational and social aspects, and the interaction with the rural landscape.

According to our research it emerged that family farming has been one of the major keys of the agricultural sector development in Australia and was deeply affected through history by internal and external factors such as globalization, neoliberalism, immigration and climatic conditions. Nowadays family farming is pivotal in the interface connection between modern societies and rural environment. In fact it is also becoming an important component of national tourism, with the birth and development of agrotourisms and holiday farms which in the past years have accounted for a considerable percentage of visits both from international and national people.

Keywords: Australia, Family Farming, Geography of Agriculture, Green Tourism, Landscape, Education

1. Introduction

The visual observation of the Australian rural landscape suggests that it is highly standardized. In fact the geomorphology of the Australian territory along with soil and climatic conditions produces a rural landscape with low variability, encompassing similar common features in large extensions.

Agriculture in Australia is composed mainly of small businesses (Australian Bureau of Sta-

tistics, 2012b) of which a large number are family farms (Alston, 2004; Pritchard et al., 2007).

It is reasonable to think that family farming played a pivotal role in the composition of the Australian landscape and in the structure of the rural society and economy.

It is well known that family farms are defined as farms organized as sole proprietorship, partnership, or family-corporation where most of the production inputs, management and labor are

provided by the farming family (Hoppe et al., 2007; Gasson and Errington, 1993; Johnsen, 2004). Family farming takes place on land owned and operated by family units, unlike share-cropping or corporate agriculture, in which land may be held by landlords and/or investors, but worked by some other group or individual (Pritchard et al., 2007).

Focusing on the evolution of different types of family farming experience we will discuss the meaning of family farming in its educational aspects with particular regard to schools, leisure and tourism.

To do so we used geographical and historical sources in order to evaluate how Australian family farming has changed over time in relation to the changes that have taken place in worldwide agriculture. Other sources of information utilized in this paper were provided by statistical bureaus, extension reports, referred papers from scientific journals, field research carried out in the past three years.

It is important to underline that this work was triggered by the proposal by the United Nations to dedicate 2014 as the year of family farming. Australia has been actively involved in the last years in projects and activities aimed to improve the quality of life, health and wellbeing of the farming families, which nowadays present several points of weakness and therefore need careful social and political attention. An example of this was the “Year of the Farmer”, celebrated in Australia in 2012. The associated events aimed to establish closer links between Australia’s rural and urban communities, not only for the range and quality of Australian agricultural products, but also recognized its role in the cultural heritage of Australia.

2. The development of family farming in Australia

In July 1789, about 18 months after the arrival of the First Fleet from England, Governor Arthur Phillip assigned 12 ha of land to the ex-convict James Ruse at Rose Hill, in what is now known as Parramatta (Muir, 2001, p. 9; Lucchesi, 1988 and 1994). This was the location of Australia’s first wheat farm (Watkin, 1793). Crop development relied upon rainfall distribution and the temperate buffer between the 20 and 12 inch rainfall lines, known to separate the coastal areas from the semi-arid

zones (the latter to be known as the Goyder, drawn by South Australia’s surveyor-general, George W. Goyder in 1865) was suitable for cropping and became known as the wheat belt (Australian Government, 2013).

In 1793, John and Elizabeth Macarthur received a grant of 100 acres of land near Parramatta and, using convict labour, established Elizabeth Farm (Lawrence and Davis, 2011). Wool production started in 1796, when John Macarthur bought his first merino sheep to Australia. In 1807, the Macarthurs sent their first bale of merino wool to England, becoming later pivotal for Australia’s wool industry (Ellis, 1955). Such was the importance of agriculture, particularly wool production, to Australia’s prosperity that the country was said to “ride on the sheep’s back” (Australian Bureau of Statistics, 2012a).

From 1813 onwards a vast expanse of bush and grasslands had begun to be populated by new settlers, bringing their livestock to graze on the open plains (Flannery, 2010). In 1824, the Australian Agricultural Company was established through an Act of the British Parliament, with the right to select over 400,000 ha, from Port Stephens to the Manning River (New South Wales) for agricultural development (Australian Government, 2013). Cheap labour was sourced through convicts, Aboriginal workers and indentured labourers on seven-year contracts (Moore, 2000; Gammage, 2011).

The extensive grasslands, open woodlands and abundant wildlife claimed by the Europeans for their pastoral opportunities has been described as The Biggest Estate on Earth by Bill Gammage (2011).

Furthermore, huge areas of forest and scrub (land covered with low trees or shrubs) were cleared for pasture and crop farming along Australia’s coast and inland. By 1860, after 70 years of European farming settlement, there were 480,000 ha under crop and livestock numbers had increased to 25 million head (Hockman, 2012, p. 3).

At the end of the 19th century Australia was emerging from the impact of two major depressions (in the 1880s and 1890s), and was in the grip of a severe drought. Despite this, Australian agriculture continued to develop and become characterised by great diversity, such as meat cattle, dairying, sugar cane and a wide range of horticultural crops. Science, inventions in machinery and experimentation in seed added millions of hectares to wheat farming in the low rainfall areas, reduced labour harvesting costs and

made it possible to farm large land areas (Wells, 2013).

From 1850 on Chinese people developed several market gardens across Australia to provide fresh vegetables to supply the diggers in the gold rush period. Between 1900 and 1920 the majority of vegetables grown in Western Australia were grown by Chinese market gardeners who relied on farming techniques practiced in China.

Market gardens employed approximately half the total Chinese population in Western Australia. In 1901 there were 1,521 Chinese males and 18 Chinese females living in Western Australia. The 54% majority lived in the rural areas whilst 46% lived in the Perth metropolitan area (Atkinson, 1985).

By the late 1920s the number of Chinese involved in the industry had declined due to Australia's racist immigration restrictions. At the same time the arrival of Italian and Slav families in Spearwood, Osborne Park and Wanneroo saw a new migrant group active in the industry (Western Perspectives on a Nation, 2001).

Costal agricultural areas with rich alluvial soils and an average rainfall of more than 20 inches developed smaller agricultural practices, such as timber, dairy, sugar, fruits and vegetables (Australian Government Bureau of Meteorology, 2014). These areas have a long history of settlement farmer occupation, and have contributed greatly to a variety of food regions and a wine industry.

By 1900, greater diversity in agriculture had developed with beef and dairy cattle, and a wide range of grain, fruit and vegetable crops. Dairying and horticulture became the main industries of the coastal agricultural areas (Hobbs and McIntyre, 2005).

The sugar cane industry in Queensland was established in the 1860s using Pacific Island labourers, known as Kanakas. Tens of thousands of Kanakas, some of whom were kidnapped from their island homes, worked under indentured labour schemes on the sugar plantations. By 1906, most of the 10,000 Pacific Islanders living in Queensland were repatriated under the Pacific Island Labourers Act 1901. The plantations then became family farms (Moore, 2000). Government protection and subsidies were then provided to cover the costs of white labour. Following the deportation of the Pacific Island families newly arrived Italian and other European workers took

up the opportunities to work on the sugar farms cutting cane, and worked hard to buy their own small farms.

Australian agriculture continued to grow throughout the first half of the 1900s despite huge impacts from the Great Depression, and the First and Second World Wars. Following the First World War (1914-1918), there were numerous government marketing schemes for agricultural products which maintained high prices. These protection programs continued until the 1980s when the National Farmers' Federation challenged the protective tariff policy. This eventuated in prices for agricultural products being directly related to the cycles of the international markets (National Farmers' Federation, 2014). In 2012, Australia exported 60% of its agricultural products. Australia's farm exports earned the country \$32.5 billion in 2010-11, up from \$32.1 billion in 2008-09, while the wider agriculture, fisheries and forestry sectors earned the country \$36.2 billion in exports (National Farmers' Federation, 2012).

Since the 1950s, international economic factors and changes in farming methods have led to a return of the larger farms of the mid 1800s, as more economically viable than small ones. From 1961 to 2001 the number of "commercial" farms in Australia almost halved, from around 200,000 to just over 100,000. Over the same period the average area of land operated by these farms increased by almost half from 2,800 hectares in 1961 to around 4,100 hectares in 2001 (Hopper et al., 2002, p. 495).



Figure 1. Fence for cows in a cattle farm, New South Wales.

While the average size of farms has increased, the number of farming families in Australia has steadily decreased (Australian Bureau of Sta-

tistics, 2012b; Australian Bureau of Statistics 2003; Pritchard et. al, 2007; Alston, 2004). In real terms, farm incomes rose more slowly than wages, and the movement away from the land continued, resulting in the proportion of the total employed males and females working on farms dropping from 19% in 1933 to 14% in 1954. As for previous years, these values do not include the contribution made to the industry by full blooded Aboriginal people, who contributed significantly to the cattle industry in Queensland and the Northern Territory (Gammage, 2011). While fewer people remained on the land, production increased, largely due to technological progress (Sheng, Zhao and Nossal, 2011). The growth of mechanisation in agriculture expanded at a considerable rate following the war, thanks both to improvements in technology and supplies. The number of tractors on rural holdings rose from around 42,000 in 1939 to 202,000 in 1956, almost fourfold, whereas between 1938-39 and 1955-56 the number of rural holdings fell slightly, from 254,000 to 253,000 (Year Book Australia, 2000, n. 82).

The other notable feature of Australian agriculture at the end of the 20th century is the declining importance of small farm operators. Roughly half the farm establishments contribute less than 20% of commodity output. In many of the major broad acre crops (wheat, barley, grain sorghum, lupines, etc.), the contribution of half the establishments is well under 10%, as it is for the dairy industry (PricewaterhouseCoopers Industry, 2011). At the start of the century the State Governments were attempting, through closer settlement schemes, to get more population onto the land and to create a small farmer class. At the end of the century, farm economics result in the opposite. The small farms are giving way to larger and more viable economic farm units. In 1996-97, about one-tenth of farm businesses were responsible for almost half of farm business turnover and cash operating surplus (Year Book Australia, 2000, n. 82, p. 449).

Many modern individual family farmers find that they struggle to make a profit and some are forced to find extra work off the farm to supplement the farm income (Australian Bureau of Statistics, 2012b). Succession is now a priority business issue for farmers. Approximately one third of all farmers are women (Australian Government, 2013).



Figure 2. Retrieving cows from grazing, New South Wales.

While Australian farmers have enjoyed periods of economic boom and prosperity, they have also experienced times of extreme hardship, brought about by an unreliable climate and volatile market forces. Currently, with Australia's high exposure to international markets (Kimura and Antón, 2011), and a domestic environment in which farmers are expected to operate without government assistance, many farmers are experiencing financial pressure to restructure their operations. This will require, in many cases, a change in the mix of activities on farms, and even an expansion into new agricultural industries. While innovation, planning and hard work will improve the circumstances of many individual farmers, agriculture is unlikely to again reach the prominent place it held in the Australian economy up to forty years ago (Wells, 2013).

3. Tendencies and impacts of Australian family farming

Relevant agricultural producing areas worldwide are strongly related to family-oriented activities. This paragraph aims to analyse the current tendencies and impacts of the family farming activities in Australia in comparison with other important agricultural areas in the world, pointing out the evolution trends throughout the past decade, the types of productions and the distribution within the territory.

The rural landscape is undeniably a characterizing element of the Australian territory and is regulated by different aspects, notably the crop distribution, the cultural production techniques, the degree of specialization, the farm

dimension, and furthermore the type of farming business. Given that the landscape can be understood and read as a document attesting the manipulation of the territory operated by groups of people, who consider it more of a pure social product (Betti, 2014, p. 69), we will compare the Australian family farming with other three agricultural realities of impact in the world (European Union, United States, and Brazil).

In the European Union (EU), for example, sole-holder family farms accounted for 85% of all farms, covering 68% of total utilized agricultural area and representing 71% of total standard output in 2010 (Davidova and Thomson, 2014). Moreover, in 2010, 78% of the total agricultural labour force came from farm holders or members of their families (EUROSTAT, 2014).

Agriculture in the United States is mainly represented by family farms as well, accounting for 98% of the total farms in 2004, ranging from small retirement and residential farms to large enterprises (Hoppe et al., 2007).

In Australia, according to the 2010-11 Agricultural Census there were 135,000 farm businesses, mainly engaged in beef cattle farming (Figures 1 and 2), dairy cattle farming, sheep farming, grain growing, or a mixture of two or more of these activities (Australian Bureau of Statistics, 2012a).

The agricultural commodities with the highest value of production by Australian farmers have been meat from cattle and calf, followed by wheat, milk, vegetables, fruit and nuts, sheep and lamb meat, and wool (Australian Bureau of Statistics, 2012a).

As a main feature, farms in Australia have traditionally been family businesses, representing around 69% of the total farms (Australian Bureau of Statistics, 2012b) mainly focused in the sector of broad acre and dairy production (Garnaut and Lim-Applegate, 1998; Australian Bureau of Statistics, 2003), whilst more specific agricultural industries such as cotton, viticulture, poultry and hogs are generally corporate-owned (Tonts et al., 2003).

The majority of family-owned properties are in New South Wales (31% of all family-owned farms), Queensland (28%) and Victoria (26%), whereas the corporate properties are mainly in Queensland (40% of all corporate properties) and the Northern Territory (32%) (Suttie et al., 2005). Farms are mainly located in regional and remote areas, with only a small percentage of

farmers living in metropolitan areas (Ollenburg, 2006), as depicted in Figure 3.



Figure 3. Cattle farm in the remote countryside of New South Wales.

The Australian agricultural territory is divided into pastoral zone, wheat and sheep zone, high rainfall zone according to the agricultural system adopted and differ in the manner in which land and resources are used and the commodities produced (McIvor, 2005).

These areas have different climate and growing conditions, soil type, topography, markets, distance to markets, labour availability (Suttie et al., 2005).

According to Suttie et al. (2005) the different agricultural zones are distributed and characterized as following: the pastoral zone includes the arid and semi-arid regions and most of the northern tropical areas where agricultural land use is characterized by extensive grazing of native vegetation and some cultivated crops, but it is impractical on most properties because of scarce rainfall. Corporate property ownership is more important than in the other two zones. The wheat and sheep zone has climate and topography that generally allows regular cropping of grains in addition to the grazing of sheep and cattle on a more intensive basis than in the pastoral zone. Lastly the high rainfall zone forms the greater part of the coastal belt and adjacent tablelands of the three eastern mainland states, small areas in south-eastern South Australia and south-western Western Australia, and the whole of Tasmania (Figure 4). Production of fine wool, prime lambs and beef are important in these wetter areas (Figure 5). Farm sizes range from small, often part-time operations, to large enterprises of more than 5000 ha.



Figure 4. Rural landscape on the south-eastern coast of Tasmania.

Moreover, it is significant to point out that peri-urban regions play an important role in Australian agriculture. Peri-urban regions are those superficially rural districts within the sphere of influence of adjacent urban centres, also referred to as “exurban” regions, the “rural-urban fringe” or “the fringe” (McKenzie, 1996).

A study carried out by Houston (2005) suggested that peri-urban regions comprise a little less than 3% of the total land base used for agriculture in the five mainland States, but generate almost 25% of the total Gross Value of Agricultural Production.

In Australia, for many decades, the total agricultural production has constantly risen (Gray and Lawrence, 2001), but the country faced a decline in the number of farmers of 40% in the last 30 years up to 2011 (average rate of 294 fewer farmers per month), and fewer young people take over family farms (Australian Bureau of Statistics, 2012b).

An opposite situation in which family farms have increased over the last few years is represented by Brazil. According to the 2006 census, there were 5.2 million agricultural holdings, which had increased about 7.1% from 1996, and the percentage of family labor in all agricultural holdings also increased by about 2.1% (Schneider and Niederle, 2010).

As Alston (2004) points out, this decline in Australian farming is consequent to the reluctance of corporations to make large investment in the sector, due to the frequent adverse climatic conditions.

In fact Australia has a highly variable climate, which is considered one of the major sources of risks for agriculture (Kingwell et al., 2013; Loch, 2012; Kimura and Antón, 2011) due to frequent extreme phenomena including

droughts, floods, tropical cyclones, severe storms and bushfires (Australian Bureau of Statistics, 2012a).

Periods of droughts have a big impact on Australian farming, notably the decline of 15% in farming workforce in just 12 months in the 2002-03 drought (Australian Bureau of Statistics, 2012b).

In order to facilitate family farming and the market relation with the rural economy, past governments enforced several actions including low priced water, investments in roads and dams, subsidies in telecommunications and free access to advisory services by the Department of Agriculture (Pritchard et al., 2007). The paring back of these arrangements in the 1980s and 1990s (Pritchard et al., 2007), globalization and neoliberalism together with the changing commitments of Australians toward traditional agriculture (Alston, 2004) contributed to such family farming decline.



Figure 5. Pastures for cattle grazing, Victoria.

The average agricultural production no longer represented a secure way of profit and farmers had to adapt, by expanding their farm, moving to specialized crops and livestock, selling land, machinery and stock, seeking employment off-farm or through on-farm diversification (Ollenburg, 2006).

Agro-tourism and food tourism represented a positive on-farm diversification (Ecker et al., 2010) in order to supplement the farm income (Connors, 1997).

4. Educational and social aspects of Australian farming

Additionally to the role played by family farming on the structuring of the Australian landscape we consider it particularly relevant to

analyse the social and educational aspects of this and other agricultural practices.

Among the social aspects, we focused mainly in the composition of the farming family, the roles of the family components, the education and wellbeing of the family often affected by the difficulties between rural areas and cities.

As previously mentioned, family farming relies upon the agricultural labour mainly done by the family and its components. In Australia men made up the majority (72%) of farmers in 2011, while women accounted for a sizable minority (28%) of the nation's farming workforce (Australian Bureau of Statistics, 2012b).

The proportion of female farmers has fallen slightly in recent decades, but in other occupations it has increased. In fact in 2011, around 35,100 women had a job outside the farm, helping supplement farm income while also supporting the operation of the farm through other means including unpaid domestic work (Australian Bureau of Statistics, 2012b).

Another family characterizing aspect is that young would-be farmers have difficulties in entering farming (Barr et al., 2005) because it is often seen as an activity based on poor returns (Stayner, 1997) where monotony characterizes the country life (Monticone, 1913) and greater opportunities are perceived in the modern economy as well as an improved quality of social life in metropolis (Barr et al., 2005).

The health and wellbeing of the farming family is another important social aspect related to the distribution of the farms in the territory and the availability of services. A study carried out by Brumby et al. (2009) revealed that the farming sectors have significant health issues related to access to services and information that place their health, wellbeing and safety at risk. Men and women are reluctant to report issues (such as body pain) that affect their work, and they are often content to continue with an ailment for long periods. Brumby et al. (2009) also reports that rural populations experience above average rates of premature mortality through heart disease, cancer and suicide. Suicide rates for men are higher in rural and remote centres across most age groups whilst for women this is true for the 30-44 year-old age group (Caldwell et al., 2004). Due to these considerations, farming families should be recognised as a population in need of social and political attention (Brumby et al., 2009)

Taking into account farm education, the Australian Bureau of Statistics (2012b) reports that the level of education of Australian farmers has remarkably increased in the last decades. For example in the period from 1981 to 2011 the proportion of Australian farmers with no school qualifications more than doubled, (from 15% to 38%), those with a certificate-level qualification doubled and the proportion with a bachelor degree or above increased six-fold (Australian Bureau of Statistics, 2012b). Nevertheless, personnel with specific skills in agriculture is still needed. In recent times the agricultural industry has been subject to setbacks by the difficulties in finding suitably qualified personnel for employment opportunities such as agronomists but the demand is widespread across agricultural disciplines (Pratley and Leigh, 2008). Around twelve universities are offering agricultural study courses in Australia but the number of graduated students is not filling the agricultural sector requirements (Pratley and Leigh, 2008).

The last social aspect considered in this article is rural tourism (Figure 6), which is believed to be pivotal in making Australians aware of agriculture and farming.



Figure 6. Vineyard in the Yarra Valley (Victoria). The Yarra Valley is a famous area for wine tasting, vineyards and tours of wineries.

As previously mentioned, agro-tourism offered the farming family opportunities for on-farm diversification, thus offering the visitors a chance for education and training (Figure 7).

Examples of farm activities offered by the farms to visitors are: milking cows, collecting eggs, hand feeding a wide range of animals, hand-led pony rides, targeting mainly families with small children (Ollenburg, 2006).

Such visits to working farms included the familiarization with a homestead, a shearing shed, the machinery sheds and other areas of interest (Connors, 1997).

Federal government and state governments have actively promoted rural tourism in the past years, including the giving of support to local authorities to promote rural tourism (Connors, 1997).

In 2010, for example, there were 569,000 international visitors (10% of international visitor arrivals) who visited Australian farms, mainly for holiday purposes (60%) or for educational purposes: 15% of all international visitors who visited Australia for educational purposes (Australian Bureau of Statistics 2012c).

International visitors comprise also travellers who are in Australia for working and holiday purposes utilizing the Working holiday visa. In the last years this visa has represented an important opportunity for international tourists (aged between 18 and 30) to visit and experience Australia. The visa gives travellers from 19 countries the right to work and travel in Australia for up to 12 months. It is important to point out that an extension of a second 12 month visa is available for those who have worked in specified industries such as agriculture, horticulture, mining, construction and fishing, in regional Australia for a specific time.

According to Tan et al. (2009) "Agriculture, forestry and fishing" was the second industry that employed working holiday travellers.



Figure 7. Agro-tourism in the Canungra Valley. Vineyards and homestead of the O'Reilly family. Source: <http://www.discovertambovine.com.au>.

5. Conclusions

In this paper we have analysed the close links between family farming and the Australian landscape composition with the related educational and social aspects.

What emerged is that family farming in Australia has been strongly affected over the years by political and economic changes in the world, and hence in constant evolution. These changes, combined with the Australian geographical features and climate conditions, were responsible for structuring the Australian rural scene and society.

Nowadays, as far as the situation of family farming is concerned, consistent intellectual effort has been focusing on its future development and on how new rural economies, populations, social institutions, cultures, and land use will interact with family farming.

A new season for Australian family farms is possible. "Rural" should not be synonymous with isolation, segregation, and social disadvantage anymore. In order to do that, "rural" must become a social, economic, and territorial system, wherein inter-territorial integration with urban areas and the complementarity of roles should be the basis of its development. Respecting its specificity, Australian agriculture should also be integrated with the Australian public and private services industry, tourism, and education system.

Undoubtedly, rural tourism, represented by agrotourisms, didactic farms or similar activities aiming to achieve a more multi-functional agriculture, should be supported and improved. Besides this in-farm diversification is also a potential way to economically sustain farmers against droughts and other severe climatic events.

Since Australian farm families are increasingly relying on off-farm employment, the economic success of these rural communities will depend on the development of new economic engines. A place-based approach to rural policies, according to the "new rural" paradigm, is required.

A shift from a sectorial to a territorial policy approach is desirable, including attempts to integrate sector-based policies at regional and local levels and to improve co-ordination of sectorial policies at the central government level.

To do so, among the many ways of educating people to use and to look after the territory, a pivotal role should be given to its knowledge. Therefore, every educational activity is an opportunity to develop an agreement for appraising the

human and environmental resources of the territory, and its cultural heritage.

In such a scenario Australian family farming will have to play a main role. A much more complex function than the one of the specialized, basically intensive production, intended for the world market. It must become multipurpose and multifunctional, increasing its awareness of being a natural, social, human and artificial capital, a wealth in terms of defining the development of a territory or a country. A master of landscapes.

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