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Neoliberal peri-urban economies and the predicament of dairy farmers: a case study of the Illawarra region, New South Wales

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Abstract

Rural Australia has been experiencing dramatic agricultural restructuring. A major contributor to this in some areas is peri-urban and rural residential developments, and amenity/lifestyle developments, including those associated with the inflow of urban middle-class groups into rural areas. These processes are intertwined with neoliberal trends in agri-food governance, and have complex effects on farming. However, there is a lack of farm-level studies that explore how professional farmers have been interacting and co-existing with urban/suburban development while also undertaking agricultural intensification and innovation. This study aims to examine how residential and amenity/lifestyle developments have unfolded in the Illawarra region, New South Wales, and come to influence and interact with local dairy farmers who are also managing the consequences of industry restructuring particularly from 2000. Based on semi-structured interviews, this study shows that with their proximity to Sydney, Illawarra dairy farms are influenced by deregulated planning systems, large-scale residential development, amenity driven demand for rural land, and the amenity/lifestyle economy. These processes bring farmers commercial opportunities and drive farmers to form new social and economic relationships with land buyers and investors. However, it has been increasingly difficult for farmers to acquire land for farming locally. They are also subjected to the expectations and demands of new landholders, including in relation to farm externalities and animal welfare. Farmers have to transform their production systems to fit into this context. The above factors together generate a form of multifunctional rural space.

Keywords Animal welfare · Farmland loss · Multifunctional rural space · Peri-urban agriculture · Residential development · Rural amenity development

Abbreviations

AAN	Alternative agri-food network
LGA	Local government area
NSW	New South Wales
OECD	Organisation for Economic Co-operation and Development
USA	United States of America

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Introduction

In recent decades, farming in most OECD countries has been significantly transformed (Tonts et al. 2014). This is related to agricultural restructuring, which is often a choreographed and contested process that reshapes relations between economic actors to support an accumulation strategy (Vanclay 2003). One major contributor to agricultural restructuring in some areas is peri-urban and rural residential developments, and amenity/lifestyle developments, including those associated with the inflow of urban middle-class groups into rural areas. Such processes have engendered the conversion of farmland into residential and lifestyle land uses (Curran-Cournane et al. 2016), particularly around, or close to, cities. This trend has been intertwined with other political economic processes, and has complex effects on farmers. In Australia, agriculture has been facing serious adverse market conditions since the 1980s (Lockie 2015). As a response, the federal government has enacted fierce deregulation and market liberalisation (Lawrence et al. 2013). In this setting,

the number of Australia's dairy farms has declined continuously (Ashton et al. 2014); a trend mirrored in the Illawarra (Hu and Gill 2021). Previous studies often emphasised the antagonistic relationships between agricultural restructuring and peri-urban agriculture (Lawrence et al. 2013). There is a lack of in-depth inquiries on the interactions between the various trends and peri-urban farmers, which provides a prompt for this study.

This study aims to examine how residential and amenity/lifestyle developments have unfolded in the Illawarra region, New South Wales (NSW), and come to influence and interact with local dairy farmers who are also managing the consequences of industry restructuring especially from 2000 when the dairy industry was deregulated nationally—as we discuss below. NSW is a state in the southeast of Australia and is bounded by the Pacific Ocean to the east. Its capital is Sydney, the largest city in Australia and one which has witnessed rapid urbanisation in its sphere of influence. The Illawarra is a coastal region immediately south of Sydney. Dairy farming is the most significant agricultural activity in the Illawarra (Hu and Gill 2021), but has been long challenged by neoliberal policy reform and demand for rural land for residential and urban development (Klepeis and Gill 2016). To collect empirical data, we interviewed dairy farmers and relevant stakeholders from 2016 to 2017.

In rural geography, agricultural restructuring has usually been studied from political economy and socio-cultural perspectives. Political economy theory offered an analytical framework that emphasised the capitalist structures and power relations that shaped agriculture and constrained individual agents (Morris and Evans 1999). Political economists consistently focus on two contributors to agricultural restructuring (Ilbery 2014), the in-migration of urban middle-class groups into rural areas, and increasing corporate food governance (Bowler 2014). In recent years, political economy approaches have often been intertwined with socio-cultural topics, including the new rural cultures brought by in-migrants (Abrams and Bliss 2013; Curran-Cournane et al. 2016). Culture has been interpreted as the historically transmitted pattern of meaning, values and beliefs (Geertz 1973). The socio-cultural perspective for understanding agricultural restructuring indicated that culture is to "contextualise rather than undermine the economic, by locating it within the cultural, social and political relations through which it takes on meaning and direction" (Wills and Lee 1997, p. xvii).

Our review of research perspectives reveals the lack of farm-level and geographical studies that explore how professional farmers, defined as those undertaking productivist farming often in an intensive form, have interacted with urban/suburban development in various ways, and have driven agricultural changes based on location-specific knowledge (cf. Rivera et al. 2018). Wästfelt and Zhang (2016, p. 173) have argued:

> Our theoretical and empirical knowledge is still very limited regarding the processes of how these different layers of forces generated over the past decades intersect to impact the development pathways of farms which are integrated to different extents in the global agri-food system, and especially when the farms are located next to each other and close to cities.

In the present study, farming is professional farmers' key, if not sole, occupation and source of household income. In the Illawarra, professional farming is largely organised through a structure of family owned and operated farms (Hu and Gill 2021). They are in contrast to hobby farmers. Previous research that analysed peri-urban agricultural change in developed economies usually emphasised the processes by which productivist agriculture becomes relict features of peri-urban regions, set to disappear as new landowners move in. For example, research focused on planning has shown how an urban-centric approach dominates, with peri-urban areas viewed as latent spaces for housing development (Llausàs et al. 2016; Wynne et al. 2020). Other research has highlighted conflict, tension and fragmentation, as largely rural landscapes around cities have transitioned to more heterogeneous peri-urban forms (Curran-Cournane et al. 2016; Wästfelt and Zhang 2016). Research that looked at peri-urban farmers has explored their adaptation strategies to the shifting environment that encourages development (Ruoso 2020). Rarely has research specifically focused on how professional farmers have perceived, interacted and co-existed with urban/suburban development, and shaped productivist farming towards various forms (Hu and Gill 2021). Previous studies have also tended to view peri-urban agricultural change and deregulated agri-food governance as separate processes (Abrams and Bliss 2013; Ruoso 2020), and ignored their commonalities based in neoliberal policy and planning reforms in favour of institutionalised preferences for market processes. Given these research gaps, this study provides an in-depth and contextualised understanding of peri-urban agricultural change, and considers both political economic and socio-cultural factors.

Literature review

This section firstly introduces major trends in governance and planning that have been taking place in Australia's peri-urban regions. The section also encompasses agri-food restructuring and the turbulent industry restructuring experienced by Australian dairy farmers. We connect these themes through the influence of neoliberal ideology and policy-making. Finally, we introduce the framework of multifunctional rural transition.

Peri-urban agriculture

Before we discuss Australia's peri-urban environment, it is important to understand the neoliberalisation of national politics and economic systems. Despite the multiple meanings of neoliberalism, it is usually recognised as an ideological project and mode of capitalist economic governance that has ascended globally since the 1970s (Baker 2021). In Australia, with the election of the Hawke and Keating governments in 1983, fundamental economic restructuring and widespread liberalisation were enacted as a response to Australia's deteriorating terms of trade in the context of global economic downturn (Redden et al. 2020). New policies were to promote economic rationalism and market determinism (Pritchard and McManus 2000) in decision-making and the allocation of government resources. Australia has gone further in applying neoliberalism to agriculture, in contrast with the USA and European Union (Dibden et al. 2009). Neoliberal policy reform continued to be pursued by later Australian governments (Redden et al. 2020).

In urban planning and development, proponents of neoliberal policy generally resist government intervention in the housing market, and challenge the legitimacy of government involvement in development, especially in the planning system regulating private development firms (Gurran and Ruming 2016). Under Australia's federal government system, planning responsibility rests with those states and territories, with local governments undertaking detailed land allocation and assessment. The influence of neoliberalism has been evident in Australian planning agendas and reforms for over two decades. Back to the 1990s, Australia maintained an urban consolidation approach to development, controlling greenfield housing development and intensifying density around urban centres. Such planning aspiration was dominant in NSW state planning system covering Sydney (Wynne et al. 2020). In the 2000s, driven by issues of housing supply and affordability, the Australian states and territories enacted a series of major planning system reforms seeking to remove planning regulation and increase land release (Ruming 2014). Since around 2005, NSW has witnessed a process of allowing state involvement to approve private sector projects (Gurran and Ruming 2016) in support of a pro-growth agenda. In 2012, the state government released a Green Paper introducing potential planning system changes, and invited public submissions. Gurran and Ruming (2016) found that government responses to the submissions largely reflected narratives of the development industry. In 2015, the NSW state government formulated the Illawarra–Shoalhaven Regional Plan (NSW Department of Planning and Environment, NSWDPE 2015), with 35,400 new homes to be built in the Illawarra between 2016 and 2036. In recent years, planning system changes within individual states were framed by a broader national agenda set by government and industry groups, stressing the deregulation of development controls (Wynne et al. 2020). With an ongoing reform agenda consistent with neoliberalism, residential development has been framed as key to economic growth, with some other considerations, such as farmland protection, side-lined (Llausàs et al. 2016). While the process of deregulation has not been always smooth, for example being resisted by local residents (von der Dunk et al. 2011; James 2014), the policy framework of NSW governments has largely been to reduce barriers to urban development.

From 2006 to 2016, population in Australia's capital cities increased by 21.7%, while the rest of Australia increased by 12.2% (Australian Bureau of Statistics, ABS 2017a). Much of the growth occurred in peri-urban regions. Agriculture generally has not been an obstacle to urbanisation and peri-urban development (Wynne et al. 2020). In Australia, various forms of urbanism have emerged, for example suburbanisation, ex-urbanisation, and urban to rural migration, especially amenity migration. Suburbanisation usually refers to the development of rural localities in low-density suburban forms (Amirinejad et al. 2018). Ex-urbanisation refers to urbanites migrating to areas peripheral to metropolitan regions, but remaining tied to urban centres through, for example, commuting. Amenity migration is driven by a desire for rural lifestyles usually involving hobby/lifestyle farming and natural amenities (Klepeis and Gill 2016). In multiple OECD countries, since the 1970s, with improvements in transport and communication, there has been a continuous flow of middle-class groups to non-metropolitan regions close to urban or regional centres (Gill et al. 2010). From 1996 to 2006, the rural local government areas (LGAs) around Sydney, including the Illawarra, witnessed a population increase over 20% (Race et al. 2010). This phenomenon has been described as "sea change" or "tree change" (Dufty-Jones and Connell 2016).

With these trends, there have been land use shifts towards housing, lifestyle blocks, tourist facilities, and small-scale sub-commercial farms in many of Australia's peri-urban regions (Buxton and Butt 2020). However, small farms/blocks for lifestyle and conservation purposes contribute little to agricultural production (Pritchard et al. 2012). Due to the interactions between the in-moving urban population and existing social groups, researchers often view peri-urban regions in Australia as being dynamic and contested (Argent 2011). The in-moving middle-class groups tend to dominate the real estate market, gain influence over local development, and promote what they perceive to be their rural idyll (Ilbery 2014). They often have unrealistic expectations about rural amenities and facilities, and place strong demands on local councils and agencies (Race et al. 2010; Kondo et al. 2012). Researchers have recognised the constant debates over rural landscapes: who defines what a landscape should look like, and which practices are considered legitimate (Ruoso and

Plant 2018, p. 58). Under the neoliberal policy environment, major development processes are more likely related to extra-local networks of actors, and biased towards development interests, the affluent, and those who are influential in policymaking (Curran-Cournane et al. 2016).

In Australia, peri-urban farmers have been influenced from multiple angles. Firstly, with the expectation of urbanisation, many farmers enjoy land asset appreciation (James and O'Neill 2016). However, with more competition for land, it becomes difficult for farmers to expand their farming business locally (Argent 2011), and they face increasing regulation costs and land costs (Sinclair 1967; Amirinejad et al. 2018). With urban in-migrants introducing different societal values, local farmers' ways of valuing and managing land are threatened (Lockie 2015). A common issue is that with the encroachment of residential dwellings around intensive agriculture, new residents often find the noises and odours of their neighbouring farms intrusive, and make amenity-related complaints (Henderson 2005; Sinclair and Bunker 2012). This and related conflicts can be exacerbated by the decline in knowledge of agriculture among the increasingly urbanised population (Singh-Peterson and Lawrence 2017). As peri-urban communities depend less on agriculture economically, local governments usually respond to complaints by imposing restrictions on farmers (Taylor et al. 2017). However, as reported in some studies, many Australian farmers position themselves as "stewards" of the rural landscape, and consider the urban in-migrants' use of the land as inappropriate, for example, wasteful land use (Gill 2014; Ruoso and Plant 2018). Dadashpoor and Ahani (2019) indicated that land tenure-related conflicts in peri-urban areas are mostly related to landholders' different interests.

Clearly, in Australia, professional farmers' experiences of the peri-urban economic changes are complex. They may experience a wide range of changes in terms of cultural value and operations modified to suit the in-migrants, for example, reducing noise. In general, peri-urban development and intensive agriculture have been competing for space, with intensive agriculture usually in retreat. Previous research highlights the contested nature of peri-urban regions (Ruoso and Plant 2018) but does not systemically analyse local farmers' attitudes towards peri-urban development. Many farmers certainly hold negative attitudes, but it is still unclear whether it is economically less beneficial for farmers as landholders or rural entrepreneurs to stay in a peri-urban environment compared with relocating the farm to an alternative agricultural region. This points to another largely unanswered question: why those peri-urban regions as a mix of drastically different functional establishments (e.g., intensive agriculture and hobby farms) actually maintain this spatial pattern. Holmes (2006) discussed the driving forces behind those mixed or multifunctional rural regions but did not explain why some functional elements in those regions choose to stay in a mixed form, rather than more quickly form clearly separate functional areas, for example agricultural areas and residential areas. If the peri-urban regions are contested, why different players choose to maintain this contested state instead of staying further away from those that may negatively influence their lifestyle or business. Farmers' cultural attachment to their home farm or reluctance to relocate cannot solely explain this phenomenon, as Hu and Gill (2021) showed that many Illawarra farmers have already relocated their farm, and Woods (2014) showed that many family farmers do move to harness new opportunities. To understand the forces binding different functional elements together in peri-urban regions, deep inquiries into farmers' experiences and commercial strategies are necessary. This provides a prompt for this study.

Overall, urban/suburban development has contributed to persistent farmland loss in Australia, which is also a worldwide phenomenon (Pritchard 2005; Curran-Cournane et al. 2016). For example, regions around Sydney have witnessed relatively unconstrained farmland subdivision (Ruoso and Plant 2018). Since the late 1990s, "lifestyle living" has become a more common land use of acreage blocks than farming in Sydney (Mason and Knowd 2010). The peri-urban Sydney has experienced an "invasion-succession" model of urban development (Burgess 2008), where a land-use, for example residential areas, expands outwards and gradually replaces existing land-use, for example farmland (Ruoso 2020). Numerous farmers choose to sell up because of financial difficulties or as they approach retirement (Lockie 2015). Farmland subdivision has threatened good quality agricultural soils especially on the fertile east coast of Australia, including in the Illawarra (Buxton and Butt 2020).

The farmland loss reflects a lack of strategic planning for securing peri-urban agriculture in regions around Sydney (James and O'Neill 2016). On those limited occasions when rural land protections and planning measures were implemented, Australia's policies for peri-urban farmland protection largely adopted the green-belt model from England (Buxton and Butt 2020). Such green belts, one of various farmland protection strategies, aim to limit land sales for development (Wilkinson 2011). Since 1960, green belts have historically intensified conflicts over needs for farmland protection and peri-urban development (James 2014; Buxton and Butt 2020). Many protection measures were abolished not just due to neoliberalism and lobbying of the housing industry, but as a result of population growth and protests from landholders (Merson et al. 2010; Gurran and Ruming 2016).

Agri-food governance

Some other processes, including adverse market conditions and neoliberal policy reform, have also significantly influenced peri-urban agriculture, and have intertwined with the impact of urban/suburban development. By the 1980s, global agri-food markets were oversupplied, including markets for dairy products (Adams et al. 2013; NSW Department of Primary Industries, NSWDPI 2015). At that time, the discipline of agricultural economics in Australia had become increasingly centred on the views of the Chicago School paradigm, emphasising the social welfare brought by free markets, and had influenced key policy arenas within the federal government (Pritchard 2005; Tonts et al. 2014). The neoliberal perspectives subsequently gained centrality as a guiding framework for agricultural policies. The federal government conducted significant policy reforms to progressively dismantle protectionist measures for farmers in order to build a competitive agriculture in the global market (Lawrence et al. 2013). Gathering pace in the 1990s, Australian governments retreated from forms of market intervention, agricultural support and service provision (Ashton 2014).

As a result, Australian dairy farmers' terms of trade declined continuously. To build an efficient industry, in 2000, and not without conflict (Cocklin and Dibden 2002), the dairy industry was deregulated nationally, and the national liquid milk market was liberalised. The deregulation was strongly pushed by the Victorian state government, as Victoria produced the largest share of Australia's milk output. After deregulation, NSW dairy farmers gradually lost their share of national milk market to Victorian farmers, and numerous farmers were driven out of the industry (Sinclair et al. 2015). This phenomenon was in line with dominant policy discourses justifying the exit of farmers seen as less efficient and capable to withstand challenges on their own, and advocating a business-minded, market-focused orientation (O'Keeffe 2021).

Government retreat from key areas of agricultural governance created a political vacuum, facilitating the rise of corporate food governance. Four decades of neoliberal freedom in capitalist countries has witnessed concentrations of corporate power in major economic sectors including agriculture, and rising social inequality (Redden et al. 2020). Some corporate players (e.g., major supermarkets) tended to formulate private product standards and shift their operating costs on to farmers (Burch et al. 2013). Baker (2021) indicated that the impacts of neoliberal policies on Australian agriculture relate not only to farmers developing survival and adjustment strategies, but also to the penetration of new market processes and actors into the sphere of farming that bring farmers new burdens. Since the 1980s, most Australian farmers have experienced a significant decline in their share of retail prices (Vanclay 2003; Andree et al. 2010). With the domination of major supermarkets, Australian dairy farmers have little direct influence over milk pricing. From 1998 to 2003, while the retail price for packaged milk remained similar, the farmgate price declined by around 40% (Dibden and Cocklin 2010).

With reduced protection and support, Australian dairy farmers have also faced fierce international competition. In 2014–2016, the European Union and USA boosted their milk production, driving down global milk prices (NSWDPI 2015; Lockhart et al. 2016). NSW dairy farmers' average farm business profit significantly declined in this period (Australian Bureau of Agricultural and Resource Economics and Sciences, ABARES 2017).

The challenges for farmers from industry restructuring and market forces are compounded by the transformation of peri-urban farms into residential and amenity/lifestyle land uses where the agriculture cannot match the returns from such transformation. Both issues are related to changing policy frameworks, for example, deregulation, and reform of regional planning frameworks, but are usually discussed separately in rural research. This paper summarises their common logics to better understand how neoliberalism influences agriculture. Due to the abovementioned pressures, the number of dairy farms in the Illawarra declined from around 1080 in 1978 to 110 in 2016/2017 (Dayal 1980; ABS 2017b). This represents fundamental economic restructuring, and echoes the view that farming businesses are in a state of nearly constant change (Baker 2021).

Multifunctional transition

Farmers in Western countries usually have strong emotional links to farming and their farm (Woods 2014). To maintain viability, farmers have tried diverse strategies. For example, to adapt to peri-urban development, productivist farmers with a land-based place identity may consider non-food producing activities (e.g., horse farming) (Ruoso 2020). Besides commercial farmers' changing strategies, the increasing sub-commercial/hobby farmers have also shaped agriculture. The changing rurality has been conceptualised as multifunctional transition. Holmes (2006) developed this concept based on the Australian context and described this transition as a reordering in the three functions of rural space: agricultural production, consumption mainly by urban residents for residence and amenity, and protection of biodiversity or indigenous land rights. Holmes (2006) linked the three functions to the three driving forces of this transition: agricultural overcapacity or retreat, the increasing amenity uses, and the changing social values especially towards environmental protection. The first two forces are related to the neoliberalisation of agricultural policies and land-use planning in Australia (Pritchard 2005; Pritchard et al. 2012). Wilson (2009, p. 379) indicated that multifunctionality was

"bounded by the two extreme agricultural transition pathways of productivism and non-productivism", and encapsulated "the temporal non-linearity, spatial heterogeneity, global complexity, and structure-agency inconsistency that characterises agricultural and rural decision making". There has been a growing consensus among researchers to recognise rural multifunctionality (Marsden and Morley 2014). Compared with the European context, rural multifunctionality in Australia is arguably more market-driven, considering the broadly neoliberal policy background (Wilson 2009; Lockie 2015).

From a productivist perspective, commercial farmers in Australia generally have to continuously expand and intensify their operation to improve efficiencies and remain viable in a market-oriented policy environment (Baker 2021). In NSW dairying, from 1999/2000 to 2013/2014, the average number of cows in milk per farm increased from 155 to 268 (NSWDPI 2014). From 1978 to 2016/2017, Illawarra dairy farmers' average herd size (cows and heifers) increased from 62 to 244 (Dayal 1980; ABS 2017b). Intensified use of capital is also a trend. From 1979/1980 to 2009/2010 in Australia's dairy farm sector, total material inputs doubled, while total land, capital and labour were all halved (Ashton et al. 2014). Although researchers often linked the changing trends to agricultural restructuring (Baker 2021), how the confluence of agricultural and urban planning policy reforms has shaped farming in the peri-urban context has not been clearly documented.

From a non-productivist perspective, Australia's rural space has been increasingly characterised by residential and amenity/lifestyle developments, which have brought opportunities for farmers to develop alternative agri-food networks (AANs; Woods 2012). Besides producing conventional products, farmers can pursue a better return through changing farming approaches (e.g. to organic farming), investing in processing, or running on-farm tourism (Andree et al. 2010; Marsden and Morley 2014). The willingness of some urban consumers to pay premium prices for local food and services has created niche markets for alternative farmers (Woods 2012). Researchers have recognised the creation and evolution of localised food supply chains as a key dimension in the new rural development (Robinson 2017; Schoolman et al. 2021).

The framework of multifunctional transition contributes to the understanding of regional economic changes. However, it does not fully clarify the interactions among different economic components in peri-urban regions, as discussed in "Peri-urban agriculture" section. A point underemphasised by previous studies (Baker 2021) is that changes in agriculture are not just changes in agriculture itself. Agriculture must find a place in the changing economic system, and be embedded in it. Especially in the heterogeneous peri-urban environments, it can be useful to understand agriculture as functional elements of the broader regional economic system, which are in symbiotic relationships with other industries or social groups. Through exploring such topic, this study contributes to the extension of the framework of multifunctional transition.

Materials and methods

Study area

The Illawarra region is in the south-eastern coast of NSW, adjacent to, and increasingly part of, the Greater Sydney region to the North. In this paper, the Illawarra refers to the Illawarra Statistical Division, a Statistical Division being one unit of the Australian Standard Geographical Classification. The Illawarra mainly consists of the LGAs of Wollongong, Shellharbour, Kiama, Shoalhaven and Wingecarribee. In 2016/2017, the value of milk production contributed to around 53.4% of total value of agricultural production in the Illawarra (ABS 2017b, c). High production volumes ensure the professional nature of many Illawarra dairy farmers. Milk production is dominated by family farming operations which generally contract with multinational milk processors, with final products, mostly fresh milk, being supplied to major supermarkets. The dairying system is shaped by the geography of the Illawarra. Dairying is based on a coastal grazing system, relies on natural rainfall supplemented by irrigation in dry periods, and is oriented towards the Sydney mass-market (NSWDPI 2015).

Since the 1980s, the Illawarra has experienced rapid urban/suburban development. Notably, we should not view such development as the sole factor limiting agriculture, and it was not such development that terminated farmers' relative importance in local politics and economy. Agricultural retreat is a historical trend. Since the 1960s, agricultural area has been shrinking continuously in the Illawarra (Dayal 1980; ABS 2017b). In recent decades, agriculture has always been a minor economic force in terms of output and employment, especially compared with services (ABS 2017b). The impact of rural residential and urban development on agriculture is complex, as shown in the results section.

An increasing number of people choose to live in the Illawarra partly due to relatively low costs of housing and access to job opportunities in Sydney. This trend supports the local real estate market, and has transformed this region into a service and lifestyle-oriented centre (Warren 2019). Rural residential and tourism facilities have squeezed the space of agriculture, and have become an important portion of local land uses (Sinclair 2006). The northern part of the Illawarra (Wollongong, Shellharbour and Kiama) has been especially influenced by new development, and the southern part retains a larger agricultural sector in terms of output

(ABS 2017b, c). In recent years, land has become extremely expensive in favoured areas. For example, in May, 2021, 24 ha of land with a large house in the high amenity Jamberoo Valley, long a centre of Illawarra dairying, was sold for $AUS7.65 million (Domain 2021). The COVID-19 pandemic has further accentuated these rural land price trends, partly due to urban buyers seeking rural land and prices remain high, including in the Illawarra. In 2021, Australian farmland prices increased by 20%, the highest growth since 1995 (Rural Bank 2022). In certain places of the Illawarra, such as Gerroa, the median sales price of houses more than doubled in a year since December, 2020, due to the amenity value and relatively short house supply in the Illawarra (Crabb 2022).

In 2016, the population of the Illawarra was around 454,377; its major economic sectors included health care and social assistance (employing about 26,684 people), retail trade (employing 18,992), education and training (employing 18,659), and construction (employing 18,128), with agriculture only employing 2059 (ABS 2016). As set out in the 2013 Illawarra Regional Food Strategy, three local councils (Wollongong, Shellharbour and Kiama) aim to achieve a food system "that is resilient, prosperous, fair and secure" (John 2013, p. 15). This strategy has been incubating a process of cultural change towards local food networks and has been encouraging diversification of farming businesses into local niche markets. This reflects the demand of an increasing number of urban consumers for local food (Klepeis and Gill 2016).

Qualitative research

Rural research is involved in a process of the performance of rurality and rural identities by diverse actors, for example, farmers, amenity migrants, and even researchers. Rural researchers enact multiple roles in interacting with research subjects, and can benefit from immersion in the social and physical environment of rural communities, enabling the inclusion of various sources into the research (Woods 2010). Thus we adopted a qualitative approach based on semi-structured interviews, participant observation, and a survey of news articles. We employed a case study approach, defined as "an intensive study of a single unit with an aim to generalize across a larger set of units" (Gerring 2004, p. 341). A unit refers to a spatially bounded phenomenon observed within a certain period of time. The case in this study is the Illawarra, and we focus on local dairy farmers' experiences of the residential and amenity/lifestyle developments in the past two decades. This study can provide a valuable reference for other studies on peri-urban agricultural change.

In 2016/2017, the number of dairy farms in the Illawarra was about 110 (ABS 2017b). We employed purposeful and snowball sampling techniques (Biernacki and Waldorf 1981) to recruit participants. We conducted 28 interviews from 13 May 2016 to 23 February 2017, involving 19 interviewees. They included six small-scale farmers with 110–170 milking cows, five medium-scale farmers with 220–300 milking cows, one large-scale farmer with around 1150 milking cows, one former dairy farmer who belonged to a farming family with around 400 milking cows, one local farm machinery dealer, and officers from an industry body (Dairy Australia), local government organisations, and a non-profit community network (Food Fairness Illawarra). Each dairy farmer belonged to a different farming business. Every farmer is assigned a specific number in results and discussion. Except for one small farming business, all other farming businesses involved more than one generation of the farming family. The farmer interviewees are all male, reflecting the gender structure of the dairy community. Efforts to recruit female farmers were not successful. This absence serves to highlight the need for further research into experience of restructuring in peri-urban areas among female members of farming families.

Each participant was interviewed one or two times. Each interview lasted one to two hours, and was audio recorded and transcribed. We asked interviewees about their experiences of the encroachment of urban/suburban development into agricultural regions, and how they have responded. Besides interviewing, we undertook participant observation through observing, experiencing, analysing people and their interactions, and inquiring more deeply into farmers' world (Bryman 2004). One author (Ren Hu) worked on some interviewees' farms for several days and attended farmer gatherings (e.g. local cow shows and the opening of a local milk factory) to experience how urban/suburban development influenced and was perceived by farmers.

Additionally, we surveyed local news articles on Illawarra agriculture, especially, but not only, regarding the dairy industry. In total, 281 articles since 2000 when the national dairy deregulation commenced were reviewed. Around 80% of these articles are from Illawarra Mercury, a major local newspaper. Local news articles have been frequently used in social science research due to local journalists' close connections with local community (O'Keeffe 2021). Analysis and use of these articles is not a key element of this paper, however, we do draw on our media analysis to provide a background to change in the Illawarra and to the empirical material from farmers. We also draw on it to provide sources and examples. Although local news may provide partial information on local events, we carefully evaluated the sampled articles. We not only analysed news articles based on the same framework for analysing interview data, but employed critical discourse analysis (Bryman 2004) aiming to understand what structures of discourses assist in the reproduction of social inequality.

We analysed the qualitative data mainly in four stages (Merriam 1998): exploring data based on narrative or sequential approaches, organising data and uncovering recurring themes, making sense of the coded materials, and enhancing the validity and reliability of the research. The coding process involves noting patterns and themes, applying codes to textual data, organising meanings from the data into themes, and creating a conceptual framework (Bryman 2004). Our key themes reflect the general trends of peri-urban development, participants' overall experience, and the variability or recurrence of different manifestations of the experience, for example the various elements of residential and amenity/lifestyle developments. We also identified variables influencing the researched community, checked relations between variables, and examined participants' reflections on those factors (Gerring 2004). Finally, we checked for rival explanations and conducted member checks through inviting some participants and other researchers to examine our conclusions.

Results and discussion

Urbanisation and economic transition based on lifestyle/amenity factors in the Illawarra have been ensured by ongoing state government planning processes. This section firstly discusses how residential and amenity/lifestyle developments have unfolded in the Illawarra. The second part of this section analyses how local farmers perceived, interacted with, and were influenced by such processes. A core phenomenon is that intensive farming and some other social and economic activities exist in a mixed and interdependent form.

Residential and amenity/lifestyle developments

Development plans

The Illawarra has undergone persistent development. One reason is its proximity to Sydney which has been experiencing a long-term loss of farmland (James and O'Neill 2016) under conditions of neoliberal urbanism in and around Sydney, a factor generally less prominent in previous studies (for example, Ruoso and Plant 2018 have not checked these specially). In the past two decades, development in the Illawarra was framed around development plans and implemented through land rezoning and introducing external investment. To a large extent, development was promoted by external forces (e.g., the housing industry) and the state government, but was often criticised locally.

In 2009, a 5000-lot subdivision in Calderwood Valley, Shellharbour, was proposed by Lend Lease Corporation, a multinational construction company. Calderwood contained 700 ha of land ideal for dairy farming. The Shellharbour City Council of the Illawarra sued the state government over the approval of this proposal (Munro 2011), partly because of the threat to agricultural land.

In 2014, the state government released the Draft Illawarra Regional Growth and Infrastructure Plan. It included plans for housing and infrastructure to supply 45,000 new dwellings by 2031 (NSWDPE 2014). Like the 2009 proposal, the 2014 plan also raised concerns locally, especially among those supporting farmland preservation. One Wollongong City Council officer commented in an interview: "Kiama council in particular is very concerned to retain agricultural zoning and minimum lot sizes… to protect the future of agricultural industries."

At the time of this study, development in the Illawarra is guided by the Illawarra–Shoalhaven Regional Plan formulated by the state government. This plan contends that the LGAs of Wollongong, Kiama, Shellharbour and Shoalhaven will need at least 35,400 new homes between 2016 and 2036 (NSWDPE 2015). One Local Land Services (a state government organisation) officer commented in an interview: "They [the governments] are zoning differently so the landholders can sell off and develop." Crucially, rather than a focus on consolidation and medium density housing, the approach taken in the Illawarra has leaned towards new development in greenfield sites.

The exogenous origin of development concurs with Ilbery's (2014) view that major land development processes are more likely related to extra-local networks of actors, and the broader narratives of neoliberalism. The above-mentioned plans are wholly or partly irresistible, showing the coercive nature of neoliberal projects. The occurrence of large-scale development plans reflects the commodification and market determinism in land use (James and O'Neill 2016; Buxton and Butt 2020), and the erosion or absence of planning policies to protect agricultural lands around Sydney.

Those plans imply that a large amount of investment and financial capital will be introduced to fund the development and house purchase. Because of the inflow of external wealth and capital, many local residents can benefit economically. From this perspective, those plans will definitely attract some local support, as reflected in the following paragraph. It is also not surprising to see local resistance. It has been widely reported (von der Dunk et al. 2011; James 2014) that peri-urban regions are characterised by contestations from different interests, because of the drastic change of existing land use and social structure, for example, damage to rural scenery, and farmland loss.

Although the Kiama council seemingly opposed the aforementioned 2014 plan, it raised a much smaller development proposal—for 52 dwellings in the town of Jamberoo, Kiama—in 2014, seemingly as a compromise position. Even

so, among the 65 community submissions on the development, 54 objected (Arnold 2014). However, one news article (Arnold 2014, n.p.) highlighted supporting arguments. As one Kiama councillor said: "Jamberoo, like many country towns, is dying because it lacks population… there are businesses looking for a lifeline and this project could save them." Clearly, changes to the planning system to promote development were not just supported by neoliberal and industry groups in national and state politics (Pritchard et al. 2012), and not just a result of population growth in major cities, but had locally grounded rationale in terms of the need for economic growth in rural regions. The co-existence of objections and sympathetic attitudes towards development reveals local people's ambivalence, and peri-urban development is not simply a process involving one social group (e.g., urban developers) against another (e.g., local farmers). Despite that, urbanisation has proceeded.

From another point of view, even if Illawarra farmers decided to resist those plans resolutely, the results would not be much different, not only because they are a small fraction of local population, but because they are not highly organised through any industry group, as revealed by many interviewees. Illawarra dairy farmers' individualism is determined by the 2000 dairy deregulation that has set farmers to freely compete with each other (Hu and Gill 2021), and weakened collective actions. How neoliberalism has undermined the political position of agriculture and farmers has been conceptualised by researchers as post-exceptionalism which denotes a shift in the post-war ideas of agricultural exceptionalism (Daugbjerg and Feindt 2017). Future research can reflect on this exceptionalism/post-exceptionalism trajectory as one potential influencing factor, alongside changes to planning systems, in the emergence of multifunctional landscapes.

A lifestyle region

With continuous development in the past two decades, the Illawarra's rural landscapes have been increasingly populated by people with urban backgrounds, especially previous Sydney residents (Klepeis and Gill 2016). Many developed nations have experienced the inflow of affluent, sometimes greatly so, middle-class groups into certain rural areas (Ilbery 2014). Interview participants reflected this trend. One medium-scale farmer (over 50 years, No. 10) said:

> All our neighbours [come from Sydney]. One guy's a merchant banker… another guy is… an investor… in the wind energy power… another guy sort of retired, he was a big importer into Australia… these guys come spend millions of dollars [purchasing rural properties].

According to Walford et al. (1999), the middle-class lifestyle space was underlain by the rural idyll related to hedonism. Other studies reflected amenity migrants' desire for escape and scenery (Race et al. 2010; Kondo et al. 2012). This value tendency exists in the Illawarra. One news article (Hoctor 2008, n.p.) indicated a trend of amenity-based migration through quoting a photographer:

> The city is just like a giant vacuum cleaner… city people go on holidays to places like Gerroa [in Kiama] and they see that it's a paradise and they buy up the land.

Another article showed that some tree changers hoped that the rural region could be transformed into "a sought-after retreat for cashed-up Sydneysiders" (Tydd 2013, n.p.). As elsewhere (Kondo et al. 2012), because of this demand for land, landscape aesthetics, and services by in-migrants, consumption-focused development has become a prominent feature of the rural Illawarra.

Sub-commercial/hobby farming is an important element of the rural idyll sought by urban middle-class groups. In regional media, the Illawarra was portrayed as catering to the interests of this group. News articles presented the attractions of various forms of sub-commercial/hobby farming, such as raising beef cattle (Verity 2011) and growing raspberries (Cunningham 2008). One hobby farmer was quoted in a media story: "There's a great satisfaction in growing things and harvesting. I love seeing people's pleasure in tasting fresh vegetables (Verity 2011, n.p.)." As elsewhere in Australia (Butt 2013), in the Illawarra, the subdivision of dairy farms has created opportunities for small-scale farming. One small-scale farmer interviewee (around 40 years, No. 6) indicated: "Lifestylers come in, big farms [dairy farms] are split up into the small lifestyle blocks." News articles reported that some dairy farms were transformed into other types of farms (e.g., vineyards), usually smaller-scale and less intensive (Ellis 2001; Illawarra Mercury 2014). Our field observation revealed a dairy farm, close to the town of Berry in the Shoalhaven LGA, that was divided due to succession planning; the smaller land lots were sold for residential development, leased to other farmers, or kept by the former farmer's heirs for sub-commercial mixed farming.

Sub-commercial/hobby farming is often part of AANs (Marsden and Morley 2014). Local media showed that AANs in the Illawarra involved small-scale organic farming, community gardens/farms, farmers' markets, direct sale avenues, etc. Many sub-commercial/hobby farmers supply such local niche markets. One medium-scale farmer interviewee (over 50 years, No. 8) indicated:

> There're lots of issues with organic… it's like the farmers' market thing… all of the area has farmers' market, they are great venues, but for the smaller-scale farmers, for the lifestyle farmers.

The inflow of urban migrants into rural areas creates demand for local food (Woods 2012), and creates space for AANs. AANs which reconnect consumers and producers have often been encouraged by local councils around Sydney. One news article (Allely 2008, n.p.) explained: "Wollongong's successful farmers' markets were the best symbol of local food production, as growers and buyers could cut the supermarkets out of the price equation." Noticeably, the contribution of AANs to agricultural production in the Illawarra is marginal (ABS 2017b, c). To support AANs, to some extent, is to support the middle-class lifestyle represented by sub-commercial/hobby farming. Local councils in the Illawarra (John 2013) appear to be cooperative in providing the needed facilities for those who patronise such networks.

Overall, urban residents come to the rural Illawarra to spend vacations, settle, or perform sub-commercial/hobby farming. To facilitate this process, local economies have altered to develop construction capacity (e.g., to build houses), community services (e.g., health care), tourism projects, and niche supply chains for sub-commercial/hobby farmers (ABS 2016). According to previous studies (Gibson et al. 2005), local councils in Australia were often active in driving projects to realise those needs. The significant influence of urban land buyers/investors on the local economy corresponds with the view that the economic arrangement of peri-urban areas is oriented towards the affluent, land and urban development investors, and those influential in policy-making (Curran-Cournane et al. 2016).

Notably, this economic transition results from the deregulated and market-driven development processes in the state planning system discussed earlier, and is driven by the need for economic growth from local communities. When neoliberalism as a mode of capitalist economic governance unfolded in the Illawarra, it was not just as a political economic project, but dramatically transformed social structures, enhanced and traded on non-productivist dimensions of land and agriculture, and redefined rural landscapes.

To summarise, residential and amenity/lifestyle developments in the Illawarra create commercial opportunities partly through the re-commodification of rural land and lifestyle. Superficially, this process does not contradict with farmers' interests. Some dairy farmers fully embraced the economic trend and turned their farm into a vineyard, a hobby farm, a residential area etc. More details are presented in the following.

Influence on dairy farmers

Opportunities

Illawarra residents' ambivalence about urban/suburban developments in the past two decades is reflected in farmer interviewees, as those processes bring challenges and opportunities. As for opportunities, firstly, the expectation of urbanisation usually inflates the value of farmers' land assets. Farmers can also invest in local real estate markets. Secondly, as the urban in-migrants have invigorated local tourism market and niche food markets, farmers can transform their business to harness these opportunities. Finally, the new landholders offer land for farmers to lease. As discussed in the following, farmer interviewees actively sought to harness potential opportunities. Clearly, farmers are not passive forces that only resist the neoliberal development processes, but shape the local form of actually existing neoliberalism.

Farmer interviewees have generally gained high returns from asset appreciation. Wästfelt and Zhang (2016) indicated that with continued urbanisation, rising land values including expectation of appreciation have become a determining factor of agricultural land use patterns. One small-scale farmer interviewee (over 50 years, No. 4) said: "It's probably about every ten years, the [land] price [in Berry, a rural town within Shoalhaven] doubles. Even though the land values are high, they're still gonna keep growing." According to the CoreLogic property data (CoreLogic 2021), from 2014 to the end of 2018, median house prices in Kiama and Berry where many interviewees farmed respectively increased by 52% and 77%. The former dairy farmer indicated in an interview: "They [dairy farmers] should be grateful. They got two businesses. They got their real estate business, which is the value of their land, and they got their milk business." Land asset appreciation has become a significant part of many interviewees' business. We should also note that rising land values also restrict farmers from acquiring land for farming locally (discussed later in the "Influence on dairy farmers" section), and lead to higher costs of using land.

Farmers are also incentivised to seek opportunities for new real estate markets. One Local Land Services officer interviewed in this study mentioned a dairy farming family that had "bought a house property every three years as an investment in the region". While farmer interviewees were able to buy land in or around residential areas, the high prices for rural land in the Illawarra meant that such real estate investment by them was generally not for farming, but for housing. Consequently, farmers' two businesses, farming and real estate, could compete for their investment. For example, instead of adopting farming technologies, one small-scale farmer (around 40 years, No. 6) would invest his money on "either lowering debt, or acquiring more land". It was not just that external land buyers/investors competed for land with agriculture, but that the opportunities they brought mitigated against farmer interviewees investing in other aspects of their farming business, such as new technologies. Real estate was not only an opportunity, and one that they understood, but one that they perceived as relatively low risk and high

return in this environment of rising real estate values. This has implications for the long-term viability of Illawarra dairying.

Another potential opportunity for farmers is the tourism. One news article reported that farmers were encouraged by local councils to run tourism businesses (e.g., farm-stays) or produce agri-food products for boutique markets (Iliffe 2000). In this study, no farmer interviewees had ventured into on-farm tourism; only two interviewees (Nos. 5 and 6) specifically targeted local niche markets. These two small-scale farmers changed to organic operation, processed their milk and supplied local markets, such as boutique markets and coffee shops. One of them (around 40 years) explained: "We needed to get more for our product, so we converted and we get a premium on our organic milk." Because of this economic logic, their operations were still intensive in terms of stocking rate. Most farmer interviewees were committed to conventional operations, partly a result of the orientation of industry (O'Keeffe 2021) which they felt provided little room and support for alternative approaches. Recent studies suggest that in developed countries most farmers remain committed to conventional productivist farming (Robinson 2017).

Illawarra dairy farmers who decided to embrace tourism opportunities usually fundamentally transformed their farm. For example, local media reported that some dairy farmers turned their farms into tourism-oriented wineries or vineyards (Ellis 2001). One medium-scale farmer interviewee (over 50 years, No. 10) recognised the economic trend towards tourism:

> If you ask me what do I see the future of this farm, I see a golf course down the front, and a big reception centre something up here, because that's what it all about. It's all about tourism and people.

Just like investing in a real estate business as aforementioned, investing in a tourism business could be an opportunity for farmers/landholders but could direct investment out of farming.

One more opportunity is that farmers can lease land from the new landholders. Ruoso (2020) has called for more research to explore peri-urban farmers' willingness to lease land. In the present study, one medium-scale farmer interviewee (over 50 years, No. 8) indicated:

> The people who bought that farmland as hobby farmers have found out they can't make money out of it, and it costs them money to fix up fences, fix up water troughs. So what they've done is said to dairy farmers would you like to look after my farm for me and run your cows on it.

Another medium-scale farmer (over 50 years, No. 9) added:

> There used to be lots of small farms in Gerringong... now there are five farms. Generally, it's bought by people from Sydney with money. They don't wanna farm them, but they leased them to farmers.

Although leasing land generates rent costs and precarity, farmer interviewees generally welcomed such land and viewed it as an important opportunity for farm expansion. However, leasing may negatively influence farmers' emotional attachment to the land they farm, as farmers do not have security over using their land. For example, to mitigate the potential issue of losing a lease, one small-scale farmer interviewee (around 35 years, No. 3) leased numerous relatively small land blocks. Land ownership has traditionally been viewed by researchers (Silvasti 2003) as crucial in maintaining the emotional ties between the farming family and the land.

In summary, the same peri-urban development that has been pressuring farming also provides investment opportunities for farmers. These opportunities can equally discourage productivist farming through directing farmers' investment out of their farming business. Farmer interviewees usually shaped their business in certain ways. Firstly, many farmers diversified their investment into multiple avenues, for example the farming business and the real estate business. Secondly, farmer interviewees' investment reflects a market-driven economic process seeking what they perceive as relatively high-return and low-risk investments relative to agriculture. Finally, the ownership and use of farm capital became diverse, as shown by the increasing phenomenon of land leasing among farmers. Overall, farmer interviewees to a certain extent deviated from the traditional family farming model (Lockie 2015) which has a higher level of devotion to farming, and family ownership of farm capital.

A core logic behind the new farming business models is to serve, advertently or inadvertently, the urban in-migrants and investors. For example, when farmers invest in the real estate market, they help drive up the land values for those external investors; when farmers produce for local boutique markets, they are like chefs serving the customers; when farmers lease land from those new landholders, they are like employed land managers keeping the land in good condition. In the peri-urban Illawarra, even intensive agriculture has become more or less like a service sector. As local capital (e.g. land) has been increasingly taken by urban land buyers/investors, many local farmers have inevitably formed relationships with them. Some other factors that render it more costly and less attractive to maintain productivist farming operations in Illawarra's peri-urban environment can also strengthen farmers' dependence on the wealth and capital brought by urban land buyers/investors. Such factors include farmers' investment being directed out of their farming business, high costs of using land, competition for local

resources from other social groups, and low and/or variable farmgate milk prices (Australian Bureau of Agricultural and Resource Economics and Sciences, ABARES 2017) partly due to industry restructuring. Our analysis shows that building a market-oriented agriculture, an objective advocated by dominant policy discourses (O'Keeffe 2021), does not necessarily mean that farmers have to generate tangible products or services that better suit the market. It can also mean farmers become involved in certain social and economic relations that better suit or serve those with strong purchasing power. In such process, farmers inevitably lose some autonomy in production, which they used to enjoy.

It can also be said that those urban land buyers/investors have been reliant on the services provided by local farmers. This is a process of mutual adaptation, or co-creation of the outcomes of neoliberalism. Contradictions and tensions are inevitable, and the relatively weak social group accommodated themselves to those empowered under the policy environment relatively, as shown in the remainder of the "Influence on dairy farmers" section. The above discussion highlights the complex impacts of the twin process of urban and peri-urban development, and dairy industry restructuring. Such impacts are beyond the dichotomy between favouring or hindering investment in agriculture, but involve broader transformation of social and cultural relations within productivist farming.

Conflicts

Despite opportunities, Illawarra dairy farmers have also experienced conflicts. In the past two decades, Illawarra farmers increasingly had neighbours with urban backgrounds. Farmers and newcomers may not get along. As the farm machinery dealer indicated in an interview, urban in-migrants "come in and want [to] change the use of land in that area, and they put pressure on those [dairy] farmers, don't like what they [farmers] do". This embodies the issue in such peri-urban landscapes as to who has the power to define the rural landscape and what aesthetics and activities belong there. Specifically, the in-migrants show different views of farm externalities and animal welfare.

Some urban in-migrants made amenity complaints about dairying. One medium-scale farmer interviewee (over 50 years, No. 9) said:

> People don't like living next door to dairies… too noisy, too early starts… if the cow gets out through the fence treads on their gardens. They complain to the council.

A small-scale farmer (around 35 years, No. 3) added:

> We had complaints before about with spraying organic fertiliser, that's chook manure, and the chook manure smells until… it rains… there was one certain person [complaining] about it one time. I told him to go back to Sydney where he came from.

Amenity complaints about intensive agriculture in peri-urban areas have been reported elsewhere in Australia (Taylor et al. 2017). Conflicts occur partly due to the in-migrants' different lifestyle expectation. Amenity migrants come to rural areas with an imagined rural idyll in mind (Henderson 2005; Lockie 2015), and tend to promote, or at least indirectly encourage, regulatory actions to make the image a reality.

Another source of tension is that as urban residents live closer to farms, "community are becoming increasingly aware of animal health and welfare issues" (farmer 4, small-scale, over 50 years). Other interviewees concurred, a medium-scale farmer noting that "this pressure starts to build". Another farmer interviewee (small-scale) highlighted that community concerns were reflected in consumer choices. Australian consumers are increasingly resistant towards agricultural products perceived as being based on cruel practices (Lockie 2015). Correspondingly, milk processors now require their suppliers to follow certain practices (farmer 8, medium-scale, over 50 years). The development processes that bring in urban residents have thus been directly and indirectly shaping farming practices.

Among interviewees, problems had occurred with new residents who had observed certain practices and complained. Interviewees considered such complaints to be poorly informed about dairying practices. For example, one medium-scale farmer (No. 10) recalled:

> We also have lots of people saying well those cows are tied on chains down there - that's really cruel. But we tie them on chains to keep them contained, so they'll go in their little hatches, and be warm… at that young age they are so susceptible to disease.

The perceived ignorance of such newcomers has been reflected in other studies. Dufty-Jones and Connell (2016, p. 83) observed that some tree change migrants in Australia "have no concept of what a farm is". The contradiction between farmers and the newcomers can be exacerbated by the trend of the devaluation of food and farmers among Australian consumers, occasionally leading to outsiders not trusting farmers (Singh-Peterson and Lawrence 2017). The medium-scale farmer interviewee further indicated that conflicts could occur when the outsiders tried to dictate on-farm practices:

> A lot of people come in telling us what to do, and these are the same people that shop at Woolies, at Coles, at ALDI [major supermarkets], and buy the a-dollar-a-litre milk. That's really cheap, but they

> expect us to have the best farming system, and cows all living inside the house with you.

Some urban in-migrants seemingly tended to promote their version of ideal farming practices without considering the rationale for certain practices and the extra burdens their expectations can place on farmers.

One small-scale farmer interviewee and the former dairy farmer highlighted the importance of getting connected with the public. The contradiction was that "it's very hard to get the dairy farmer off his farm to go and talk to someone", because most Illawarra dairy farmers were time-poor (farmer 8, medium-scale, over 50 years)—potentially a factor limiting Australian dairy farmers' public and political influence (Dibden and Cocklin 2010). Many farmers who do not have the capacity to defend themselves can easily become the scapegoat of real or imagined social ills, including animal cruelty.

To summarise, with increasing urban in-migrants, farmer interviewees have made some compromises in farming practices. Farms were not necessarily being pushed away from residential areas, but increasingly faced certain restrictions. Firstly, farmers faced increasing economic rents, a phenomenon indicated by early research (Sinclair 1967), including regulation costs related to legal restrictions on farming practices. Secondly, they had limited resources to persuade the public to support them, or legitimise their practices. Illawarra dairy farmers usually bear the consequences of the social expectations of those who have gained influence over their industry and landscapes. This view echoes other analyses (Ilbery 2014) on the power structure over farming. Those social requirements are similar to the private product standards imposed by corporate food governance (e.g., major supermarkets) (Burch et al. 2013) on farmers after the 2000 dairy deregulation. This study suggests that urban/suburban development, like other neoliberal projects, is also a form of governance to discipline those hampering the development processes for the sake of capital accumulation.

Even so, farmer interviewees did not relocate and still stayed in the peri-urban environment. From this perspective, this environment was still economically attractive or acceptable for them, and the commercial opportunities brought by urban in-migrants could more or less offset the increased costs of production. We can understand this phenomenon in this way: when farmers follow the in-migrants' expectations, the farmers are like providing a kind of services demanded by the in-migrants, and farmers will be repaid indirectly through the commercial opportunities brought by them. This once again highlights that peri-urban agriculture in the Illawarra has become like a service sector.

Competition for land

Another challenge for Illawarra dairy farmers is competition for land. Farmland loss has been recognised as a common result of peri-urban development (James 2014). In the Illawarra, farmland is lost through several ways. Firstly, some farmland had been compulsorily acquired for infrastructure construction, such as roads, including the land from three dairy farms acquired for a bypass at the town of Berry in Shoalhaven (Langford 2012). Secondly, the encroachment of residential areas often pressures or drives farmers to relocate due to, for example, amenity complaints from neighbours, and social pressures. As one news article indicated, urbanisation "puts enormous pressure on dairy farmers (Duffy 2008, n.p.)". Therefore, for farmers, the decision whether to retain land is not simply a matter of personal choice, but is subject to collective pressure from an urban-oriented society. Thirdly, while farmers can readily sell some land to meet demands arising from issues such as financial difficulty or succession planning, it is hard to purchase land back; many interviewees mentioned this point. For example, one small-scale farmer (No. 3) said: "We only own 125 acres, all the other [of our] land is leased, because prices so high for land, it's hard to be able to buy the land." Although farmers can invest in local real estate markets largely through buying houses, it is generally financially prohibitive to purchase a piece of peri-urban land large enough to support professional farming. Finally, as land has become increasingly expensive, farmer interviewees had been tempted to sell land, a trend reported generally in the Sydney region (Mason and Knowd 2010). Some Illawarra farmers had been approached directly by developers to sell their land (Ellis 2011). The above analysis concurs with some classical views (Sinclair 1967) on the spatial distribution of different land uses, showing that agriculture cannot be easily embedded into urban areas, and is driven to relocate with urban sprawl. Peri-urban regions where agriculture can fit in are actually mobile.

Given the continuous farmland loss, interviewees generally viewed urban/suburban development as "a waste of good land". This resonates with other studies that indicated the high agricultural value of peri-urban land around Sydney (Wilkinson 2011; Butt 2013). One small-scale farmer (around 40 years, No. 6) said:

> This is some of the best country [for farming] in Australia, but all up the east coast there is a pressure… from non-farming... building houses on some of the best country… that's ridiculous.

One medium-scale farmer (over 50 years, No. 10) highlighted the wasteful use of land: "They [some urban in-migrants] will buy a hundred acres for their kids to ride motorbikes on." Some interviewees also viewed the land management of new landholders as problematic. The

large-scale farmer (over 50 years, No. 12) said: "They [hobby farmers] don't have enough care for land and don't have enough knowledge of managing land." Another study on peri-urban agriculture around Sydney (Ruoso and Plant 2018) also reflected that local farmers viewed the urban in-migrants' use of land as inappropriate, for example leaving their properties vacant for months, and considered themselves as good carers of the land. With the inflow of different social groups into rural regions, different practices and ways of valuing rural landscapes have been introduced.

To cope with the increased costs of using land, and other costs derived from the peri-urban environment, farmers not only rely on the emerging commercial opportunities, but have changed their production systems. Over the past decades, dairy area in the Illawarra kept shrinking, but the value of milk production increased continuously (Dayal 1980; ABS 2017b). In one news article (Ellis 2011, n.p.), one Illawarra farmer indicated the intensive nature of local dairying: "There is probably more milk coming out of the valley now than there was in the 1970s because of higher stocking rates and better production per cow." Industry reports show that, from 1991/1992 to 2012/2013 in Australia, the quantity of concentrates, grains and by-products fed per cow annually increased from 0.7 to 1.7 tonnes; a similar trend exists for fertiliser use, with fertilisers representing 6.8% of average farm costs for dairying in 2012/2013 (Ashton et al. 2014; NSWDPI 2014). One small-scale farmer interviewee (over 50 years, No. 4) linked dairy intensification to the economic transition in the rural Illawarra:

> There's more competition for our agriculture in the area… increasing lifestyle industries that steal agriculture. That can be wineries, or could be alpacas, could be beef, could be horses... they compete with the land we need for dairy. Dairying is certainly seen as being one of the most intensive agriculture land use areas.

Previous studies usually highlighted the economic rationales behind agricultural and dairy intensification (for example see Clay et al. 2020). The present study shows that intensification also results from the structure of peri-urban economies.

Lack of land simultaneously drives Illawarra dairy farmers to consider expanding into other areas or regions. One farm machinery dealer said in one interview: "We've seen lots of farmers actually also send their heifers out west to be grown up… more of their home farm is used for just milk production." One small-scale farmer interviewee (around 40 years, No. 6) concurred: "[Dairy] farmers are getting forced further west… you can grow good feed out west." The change in how dairy farming is organised highlights that the pressure from other land uses not just occupies agricultural land, but reshapes agriculture.

Overall, due to the competition from urban land buyers/investors, many Illawarra farmers are deprived of the opportunity to acquire quality assets (e.g., farmland) for farming locally, or face high costs of using land. Farming establishments are not necessarily diminishing, but being shaped in certain ways, including intensification and expansion into other areas or regions. Although peri-urban agriculture has social and environmental benefits, for example reducing food miles (Merson et al. 2010), these individual dairy farmers struggle to capture these benefits in a neoliberal policy environment and an urbanising setting (James and O'Neill 2016). Agricultural land has been increasingly used for non-productive or less productive activities, and for attracting capital brought by urban in-migrants.

To summarise this whole subsection, farmer interviewees overall remained ambivalent about residential and amenity/lifestyle developments. They did not present a consistent view of whether the free-market philosophy should be resisted or embraced. Although agricultural operations face many limitations in peri-urban regions, not all professional farmers can simply leave such places. One medium-scale farmer (over 50 years, No. 8) explained: "We actually farmed the capital asset here… when we sell this and move to a natural and normal farming area, that asset growth is not gonna be in that land." One fundamental problem is that agricultural production alone cannot provide many farmers with a satisfactory income. Farmer interviewees generally reflected that milk prices were too low. Although residential and amenity/lifestyle developments are superficially squeezing agriculture, they actually preserve some part of agriculture and provide many farmers a lifeline. To protect agriculture, simply protecting farmland is not enough, it is also necessary to enhance the terms on which agriculture persists and to make it a competitive peri-urban land-use.

Conclusion

Residential and amenity/lifestyle developments in peri-urban regions in the context of neoliberalism reflect several elements: commodification, financialisation and market determinism. Previous studies often have not emphasised the neoliberal nature of peri-urban agricultural change, but have instead focused on the spontaneity of several processes (e.g. amenity migration), or how they have emerged from the bottom up (for example see Abrams and Bliss 2013). The state development plans influencing the Illawarra effectively

commodify rural landscapes and lifestyles. Although those plans have been resisted by many Illawarra residents, development has proceeded, in no small part driven by demands for continued opportunities for capital accumulation and economic growth by external investors, government agencies, and local communities. The continued introduction of external capital has led to the financialisation of rural landscapes with land being traded for financial returns and expectations of rural lifestyles among affluent groups.

With some resistance from local governments, state governments have generally chosen to meet the demands of land buyers and investors, and urban middle-class groups seeking rural lifestyles, catering to, and prioritising, market demand. The in-migrants have created new space for economic growth, and opportunities for farmers. They have also redefined rural landscapes and have driven the transformation of existing economic activities. To cater to the new values, dairy farmers have often adjusted their practices in terms of environmental externalities and animal welfare, and have borne related costs. The external land buyers/investors also compete with local farmers for land and other resources, and have significantly influenced how productivist farming operates.

To remain viable, farmer interviewees have formed new social and economic relationships with those urban land buyers/investors. Farmers must somehow meet or adjust to those newcomers' needs or lifestyle expectations, in exchange for the opportunity to stay in the peri-urban regions and maintain an acceptable lifestyle. To some extent, farmers and those newcomers are inter-dependent. This viscidity partly determines the co-existence of various social groups in Illawarra's peri-urban regions, and the contested nature of such regions. This contributes to the multifunctionality of rural space, for example consisting of both intensive agriculture and residential areas. Clearly, different functional elements within the multifunctional space are not simply adjacent to each other, but are mutually intertwined and constituted. This explains why some peri-urban regions exist in a mixed form, or why different functional elements are not clearly separate. The above mechanism has been overlooked by previous frameworks of rural multifunctionality (Holmes 2006; Marsden and Morley 2014). The ability of intensive agriculture to adjust itself and fit in the peri-urban regions determines that Illawarra's peri-urban regions are not completely non-productivist.

In the context of neoliberalism, the peri-urban economic transition especially driven by residential and amenity/lifestyle developments, and dairy industry restructuring after the 2000 deregulation, as two independent trends in Australia, follow similar logics (Table 1). They have simultaneous impacts on Illawarra dairying.

The two forces have shaped Illawarra dairying in certain ways. Firstly, commercial opportunities beyond farming drive farmers to transfer their investment into fields other than farming such as real estate markets. Secondly, with reduced land availability and high land costs, leased land becomes an important foundation for farmers' business expansion. Farmers have also expanded into regions further from urban centres. Finally, increased regulations and costs of using land locally drive farmers to adjust their operation, for example attending to animal welfare and intensification.

This paper contributes to existing research by examining how different forces over the past two decades have intersected to influence farmers and erode the place of productivist agriculture in peri-urban areas. The conceptual frameworks of the urban-to-rural shift in people and non-agricultural services (Ilbery 2014), and multifunctional rural space (Holmes 2006) are useful in understanding peri-urban agricultural change. Future research can help clarify several points. Firstly, existing theoretical frameworks highlight the role of affluent groups in driving rural development (Ilbery 2014), but do not sufficiently clarify the functions of corporate players, for example in financing and undertaking land development. Secondly, existing frameworks highlight the bottom-up nature of some processes such as alternative agri-food programs (Marsden and Morley 2014), but do not sufficiently recognise the systemic or holistic nature of the peri-urban economy. Such an economy is now largely governed by private interests, and is promoted with and through planning processes. Thirdly, despite its broad application, the conceptualisation of the multifunctional rural transition has a weakness: it does not fully consider how the interactions and relationships among different social groups in such multifunctional rural space may contribute to the transition in certain ways, for example by influencing the ways in which agriculture remains part of peri-urban landscapes (Holmes 2006; Argent 2011). This weakness contributes to some misleading or ambiguous views, for example, peri-urban farmers being seen as only a passive force rather than an active contributor to rural economic transition (Baker 2021). Future research can better incorporate existing research of peri-urban agricultural change into the conceptualisation of the multifunctional rural transition.

Table 1 Logics of peri-urban economic transition and dairy industry restructuring

	Peri-urban economic transition	Dairy industry restructuring
Origins (both reflecting economic needs)	The population growth of nearby urban centres, demand for returns to capital by external investors, local need for external investment, and support for urbanisation from the state government	Adverse market conditions, insufficient resources to maintain protectionism, and advocacy from powerful industry groups (Cocklin and Dibden 2002)
Direct results (both involving freer competition)	Land rezoning and expansion of Sydney metropolitan planning strategies, external land buyers/investors free to purchase rural land for residential or suburban development, which can involve farm breakup or elimination	Farmers free to expand production, processors can now source milk nationwide, and retailers exert strong influences on milk prices (NSWDPI 2015)
Opportunities for farmers (both involving freer investment)	Farmers can invest in parts of real estate markets, exploit the commercial opportunities brought by in-migrants/tourists, and lease land from the new landholders	Farmers can purchase (theoretically at least) or lease neighbouring land, or expand into other regions
Market competition (both reflecting the domination of certain groups)	External land buyers/investors increase demand for local land and thus prices. Many farmers become dependent on the capital brought by outsiders	Formation of an oligopoly in the processing and retail sectors (NSWDPI 2015). Many farmers become dependent on dominant supply chain players
Politics (both reflecting powerful players/groups exerting pressure on others)	Affluent and investor groups deprive many Illawarra farmers of the opportunity to acquire quality assets locally, and impose new social requirements on farming practices. Land buyers/investors, who may compete with each other but have a common interest in land market deregulation, exert pressure on governments and agencies to create landscapes that embody their values, interests, and ideology	Milk prices and standards set by a few powerful industry players who tend to shift their operational costs on to farmers (Burch et al. 2013)
Economic challenges for farmers	Increased operational costs and land costs	Unstable and often low milk prices that can render dairying itself marginal (Ashton 2014)

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