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Regional agricultural governance in peri-urban and rural South Australia: strategies to improve multifunctionality

Sustainability Science, 2015; 10(2):231-243

Regional agricultural governance in peri-urban and rural South Australia: strategies for improvement

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ABSTRACT

The current neoliberal agricultural policy model focuses on maximising productivity and efficiency. The issues that arise from this governance focus are manyfold. In this study we illustrate the regional disparity and implications for agricultural sustainability caused by this governance focus. We surveyed farmers in two South Australian case study regions, the adjoining peri-urban Barossa-Light region and the rural area of Loxton. It was found that respondents from Loxton had larger properties, saw more benefits from government support for agriculture, and were more likely to prioritise support for their local community and increases in productivity. Respondents from Barossa-Light were more concerned about risks of urban encroachment and an increasing population in the region, prioritised keeping their farms in their families, and were more concerned about aspects of government support. These results highlight the complexity involved with applying appropriate government support mechanisms across a diverse industry such as agriculture, with various regional sustainability issues driving respondent priorities. We also suggest that regional variation will require explicit planning which aims for heterogeneous goals, and that educational, cooperative and alternative pursuits may help to increase the capacity of the land managers in the case study regions. These suggestions have broader implications for other regions where agricultural diversity complicates policy to support the industry within strongly neoliberal regimes.

Keywords

South Australia, farmer perceptions, regional disparity, sustainability, agricultural policy

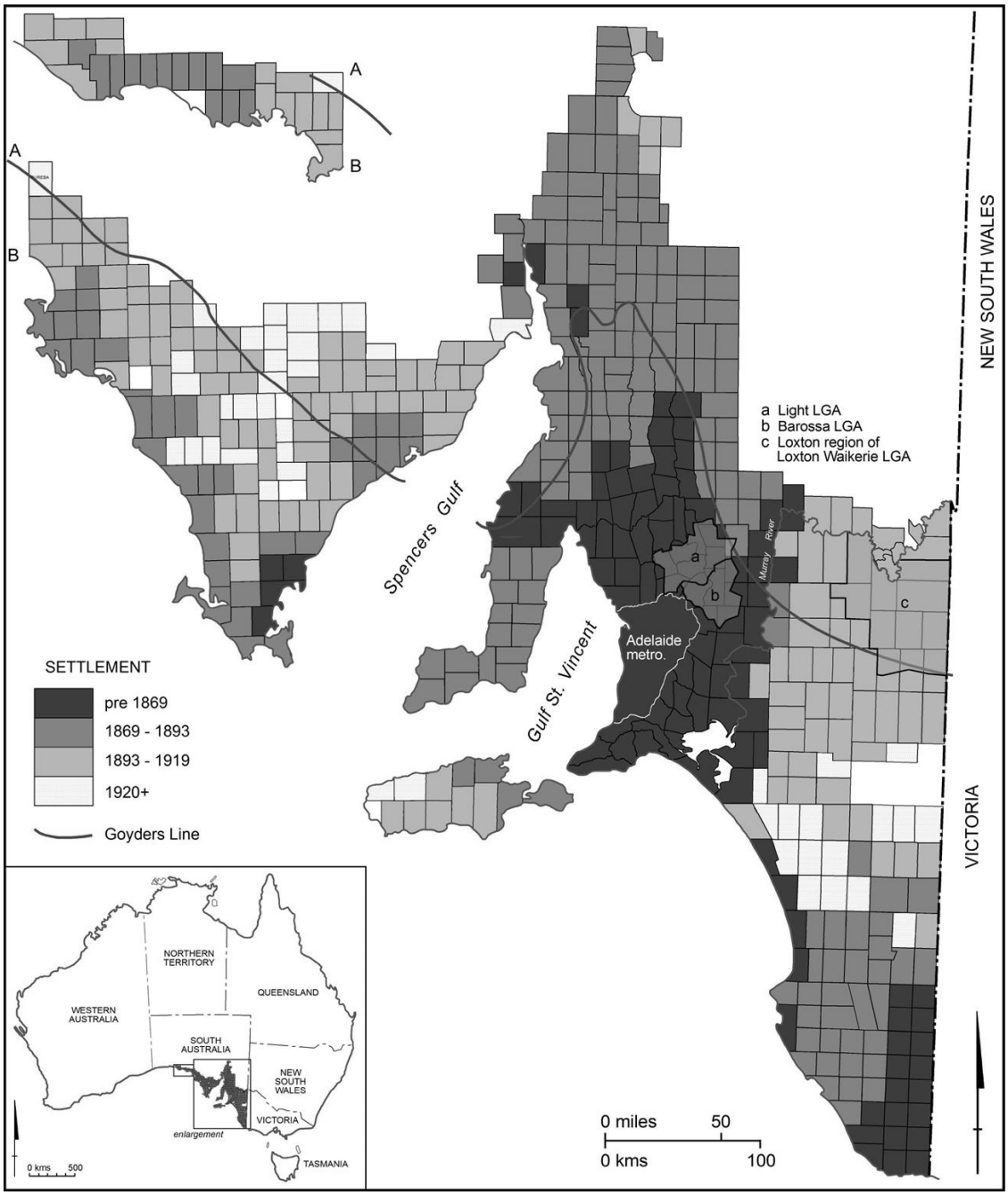
INTRODUCTION

Despite recognition of the need for socially, politically and economically sustainable agri-systems, agricultural policy has followed the neoliberal trend pervading Australian governance in general over the last 40 years (Dibden et al., 2009; Higgins et al., 2008). The consequences of the neoliberal direction of agricultural governance are evident in reductions in public spending in the agricultural sector resulting in the privatisation of traditional agricultural extension services (Coleman & Skogstad, 1995), the loss of farming families (Muenstermann, 2009; Neales, 2012a), and a reduction in South Australian farms in the last five years (Australian Bureau of Statistics, 2008a, 2012a). Policy solutions to address agricultural sustainability concerns and increase the welfare of South Australian farmers revolve around making productivity gains and finding new markets (Austin, 2012; Australian Government, 2013). This economic orientation has contributed to the social decline of rural communities, detrimental terms of trade for the agricultural industry, and the dominance of transnational corporations in regard to both agricultural inputs and wholesale (Smailes, 2006). Competition for resources such as fuel and land has also initiated conflict between other industries, such as the mining sector, while increasingly powerful corporations squeeze farmer profit margins at both ends of the supply chain (Fraser, 2011; Neales, 2012a, 2012b). Argent (2011) argues that the neoliberal governance of Australian agriculture has forced various stakeholders who share a common interest to become fierce rivals, in an effort to win more explicitly defined outcomes. For example, specific industries may have to compete for research funding whilst attempting to encourage agricultural intensification and political presence in a region to maintain economic viability.

We examined governance within two agriculturally important regions of South Australia, the rural region of Loxton and the peri-urban Barossa-Light region, to show contrasting perceptions, priorities and concerns of farmers in each area and that there are more sustainable ways of governing agriculturally based regions (Figure 1). In this paper the sustainability of agricultural systems will involve recognising social, environmental and economic tenets holistic relationships, essentially a sustainable development approach (Amekawa et al., 2010; Hettne, 2008; World Commission for Environment and Development, 1987). We propose solutions to address concerns over community restructuring and a lack of political influence in rural and peri-urban South Australia, and discuss mechanisms to encourage ecologically beneficial agricultural practice, by linking the production and maintenance of multiple 'public goods' to economic incentives (Wilson, 2001, 2007). By suggesting regional options that develop farmer education, direct marketing and building local cooperation, knowledge can be linked to real solutions to address some of the problems faced in these areas, and many other similar contexts (Miller, 2013; Miller et al., 2013). South Australian agriculture is often examined in economic and production focused census data and related publications from

government departments (ABARE, 2006, 2009, 2010; Australian Bureau of Statistics, 1998, 2008a, 2008b, 2011b, 2012a, 2012b). The social and environmental outcomes of South Australian agriculture have also been studied at various geographical scales (Bryant, 1999; Crossman & Bryan, 2009; Raymond et al., 2009; Smailes & Newman, 1993; Smailes, 1995, 2002; Smailes & Hugo, 2003).

Figure 1: Location of the two case study areas in South Australia in relation to the historical settlement of South Australia



Research in other spatial contexts has shown that barriers such as rural exclusion, or large geographical distances between producers and customers, mean that for more remote farmers there is less opportunity to engage with consumers, directly market produce, and obtain feedback (Andrée et al., 2010; Lobley et al., 2013; Wilson & Whitehead, 2012). The ability to directly market produce is helping some farmers incorporate sustainability principles into their agricultural businesses, such as increased crop diversity, participating actively in the local community, or embracing practices that reduce ecological degradation. There are restrictions, however, on farmer's abilities to integrate innovative marketing strategies depending on their properties spatial location, the agricultural industry they are involved in, and the nature of their agricultural land use, causing variations in the management of agricultural regions (Fielke & Bardsley, 2013).

Respondent perceptions in rural Loxton and peri-urban Barossa-Light are analysed against issues that have arisen from a neoliberal productivist policy focus to deduce areas in which both innovative policy and markets may be able to increase the socio-environmental, as well as the economic sustainability of agriculture in South Australia. More importantly, however, a comparison between these two regions addresses the primary research question asking; what are appropriate mechanisms of government support for agriculture in the context of rural and peri-urban regions? While the State Government actively recognises the importance of the social, environmental and economic outcomes of agriculture, currently farmers do not receive State support for beneficial socio-environmental land management (Bryan et al., 2010; Government of South Australia, 2007, 2010). More appropriate government support mechanisms will help to increase the ability of varying regions to improve their adaptive capacity, increase their resilience, plan for the future, and develop more sustainable agricultural landscapes under unique circumstances (Bardsley & Pech, 2012; Bardsley & Bardsley, 2014; Greenhill et al., 2009; Walker, 2008). Ultimately, these suggestions will also contribute to increasing the sustainability of agriculture in other rural and peri-urban contexts.

METHODS

1.1 *Case study background*

Loxton is situated west of the Victorian border, south of the River Murray, and for the most part north of Goyder's line which was drawn in 1865 to indicate the area was suitable to cropping to the south (History Trust of South Australia, 2003) (see Figure 1). The majority of this area consists of marginal dryland farms and irrigation technology has also seen horticultural industries expand near the River Murray. Most of this land was settled after 1893, when the agricultural frontier was expanded into the less fertile land north of Goyder's line after two waves of post-World War soldier resettlement schemes (see Figure 1). Land to the south was thought to be suitable for cropping due to existing vegetation signalling appropriate

average annual rainfall, although early demand for wheat meant cropping settlements were thrust up to 240km north of Goyder's line in some places (Kelly, 1962).

The Barossa-Light region is located to the north east of Adelaide, the capital city of South Australia, and as such is part of the peri-urban fringe. This area is south of Goyder's line and was settled before 1869, relatively soon after European settlement began in the State in 1836 (see Figure 1). The geographical location of Barossa-Light results in a higher annual rainfall than the Loxton region, and Barossa-Light is currently home to more productive cropping and livestock dryland operations, and premium viticultural enterprises (Government of South Australia, 2011).

These two case study regions, Loxton and Barossa-Light, were chosen as the distinctive agri-'cultural' regimes have led to differing perceptions and priorities for the future amongst farmers in the respective regions (Government of South Australia, 2011; Johnson, 1988). A survey was conducted to determine the opinions of farmers in regard to a number of sustainability priorities to see whether or not the results were consistent with issues present in literature on neoliberal productivist agricultural policy and conventional practice (Dibden et al., 2009; Higgins et al., 2008; Lockie & Higgins, 2007).

1.2 *Survey methodology*

The farms falling within four postcodes in three council districts, the Loxton Waikerie Council, the Barossa Council and Light Regional Council, were sent hardcopy questionnaires through *Australia Post*, with reply-paid envelopes attached. The postcodes were: Loxton 5333 (470 agricultural producers); Tanunda 5352 (150 agricultural producers); Nuriootpa 5355 (80 agricultural producers); and, Angaston 5353 (20 agricultural producers). A total of 720 questionnaires were sent to the farmers in these regions. The questionnaire structure, format and length were all considered in conjunction with both the *Total Design Method* and *Tailored Design Method* (Dillman et al., 2009; Dillman, 1991, 2006; Dillman et al., 1996; Hoddinott & Bass, 1986). A modified two stage *Tailored Design Method* was utilised in an attempt to maximise the response rate. A timed follow-up postcard was sent four weeks after the survey to thank those that had already completed the survey and remind those that had not to do so as soon as possible.

There were a total of 159 responses to the mail-out survey (22% response rate) which is approximately average in regard to mail-out response rates (Cobanoglu et al., 2001; Kaplowitz et al., 2004). It is important to note, however, that the inability of the researcher to personally contact potential respondents, as per *Tailored Design Method* recommendations, due to contact detail restrictions and the manner in which the mail-out was administered via *Australia Post*, could have had a detrimental effect on the response rate (Dillman et al., 2009). While there is

bias involved with the survey collection method used, a probability sample of the owners/managers of farms in the Loxton and Barossa-Light regions was not possible due to restrictions under the *Privacy Act* (Australian Government, 2010). Importantly, this problem highlights issues of agricultural producer transparency, accountability and contact-ability in South Australia by anyone other than highly-resourced organisations, an issue which has also been recognised by others in different contexts (Burton & Wilson, 1999; Dillman, 2006). The researcher instead decided to utilise a method that would reach the greatest percentage of farm owners/managers in these regions with the resources available and a comparison to *all* agricultural employees in the region can be found in Table 1.

Table 1: Comparison of 2011 census data for all agricultural employee numbers and mail-out survey response numbers for Loxton and Barossa-Light case study regions

	Postcodes	**Loxton 5333**	**Barossa-Light 5352,5353,5355**	**Total**
Census data	Horticulture-viticulture	315	417	732
	Cropping-livestock	120	274	394
	Other/missing	42	58	100
	Agricultural employees	**477**	**749**	**1226**
Mail-out survey data	Surveys sent	470	250	720
	Responses (including other survey forms)	103	56	159
	Horticulture-viticulture	62	43	105
	Cropping-livestock	41	11	52
	Other/missing	0	2	2
	Survey response %	**21.9**	**22.4**	**22.1**
Survey as % of census data	Cropping-livestock	34.2	4.0	13.2
	Horticulture-viticulture	19.7	10.3	14.3
	Total	**21.6**	**7.5**	**13.0**

Source: Census data obtained from Australian Bureau of Statistics (2011a)

Because the surveys yielded both nominal and scalar data where parameters were not known, two nonparametric techniques were utilised to test for statistical difference in the responses so that trends could be acknowledged (Table 2). As 5 point Likert-scaled questions were asked the Mann-Whitney U test was used to test for significance between groups. The Mann-Whitney U test is considered appropriate in human geography when data is strongly scaled, and where parameters are not known, hence non-parametric statistics are required (Flowerdew & Martin, 2005; Robinson, 1998). Pearson Chi-square tests were undertaken to determine variation between nominal variables. Findings of significance are noted in the text, with the test that was performed highlighted (either Pearson Chi-square or Mann-Whitney U test) and *p* representing the asymptotic significance value. A *p* value of under 0.05 is considered to show significant variation in the respondent groups. Qualitative data was also collated from short answer questions, which allowed respondents to expand on associated numerical responses.

Qualitative responses are used to reinforce certain issues in the results and discussion, according to the respondent number and particular case study region.

Table 2: Nonparametric tests used in survey analysis to determine significant difference

Level of measurement	Purpose of test	Nonparametric statistic
Nominal (i.e. responses in categories with no implied order)	Test for differences among independent groups	Pearson Chi-square test
Scalar (i.e. responses on Likert scale)	Test for differences among two independent groups	Mann-Whitney U test

REGIONAL VARIATION: IMPLICATIONS FOR SUSTAINABILITY

The 103 Loxton respondents (65%) and the 56 Barossa-Light respondents (35%) were grouped and analysed for variation. Property sizes between the two regions were dramatically different (Pearson Chi-square, X^2=10.136, p=0.001). Respondents from the Loxton region had a relatively even combination of properties '100 ha or less' (57) and '101 ha or more' (45) suggesting that the area has a mix of both smaller and larger properties. The Barossa-Light region, however, had a much higher proportion of respondent properties in the smaller '100 ha or less' category (44), than in the larger '101 ha or more' category (10). These results explain the nature of property ownership in the two regions, with land in the Barossa-Light region more expensive and sought after due to a number of factors including its more fertile soils, climate, and proximity to the metropolitan capital of South Australia, Adelaide (see Figure 1). The geographical, biophysical, historical and cultural variation between regions will mean different strategies are required to manage differing agricultural sustainability priorities.

When the two case study groups were tested across the generations of property ownership groupings the variation was found to be significant (Pearson Chi-square, X^2=11.474, p=0.009). While both case study regions had the greatest number of first generation property owners, Loxton respondents were much less likely to be in the fourth (or more) generation to own their properties, while in the Barossa-Light case study region the 'four or more' category had the second highest number of responses. Again, this is due in part to the increased cost and lower obtainability of properties in the Barossa-Light region encouraging landowners to keep the farm in the family. Keeping the farm in the family may be less of a priority in the Loxton region as it is a more marginal farming area north of Goyder's line, meaning there is a greater likelihood farmers struggle in terms of economic viability and dealing with climatic variability

(see Figure 1). These results indicate that economic sustainability is of integral consideration for Loxton farmers and there are higher rates of agricultural land turnover.

Variation was also found between the two case study regions and government support groupings (Pearson Chi-square, X^2=30.05, p=0.000). The bulk of respondents from Loxton had received some form of government support, whereas the majority of respondents from the Barossa-Light region had not received any government support. Of most importance to this finding is the fact that the Loxton region was declared under 'Exceptional Circumstances' (EC) during drought in the past ten years, allowing primary producers in the area to claim benefits from the government in the form of welfare payments and interest rate subsidies (Australian Government, 2012). Again, this reiterates concerns of the economic sustainability of agriculture in the Loxton region.

REGIONAL LAND USE PRIORITIES AND RISK PERCEPTIONS

A number of significant findings were made when farmers' priorities and perceptions were analysed across the two case study regions. Firstly, farmers were asked how important certain priorities were for their agricultural land use. The mean rank for the priority of 'keeping the farm in your family' (Mann-Whitney U test, p=0.007) was significantly higher for the Barossa-Light case study region, as were the mean ranks for the likelihood that the 'population of your local community' would increase (Mann-Whitney U test, p=0.000) and the level of concern for the risk of 'urban development pressure' (Mann-Whitney U test, p=0.006) (see Table 3). These results seem appropriate considering the peri-urban spatial location of the Barossa-Light region (see Figure 1), making farmers in this area more at risk of urban development, more confident the population of their region will continue to increase and more eager to keep their farm in their family in the face of potentially conflicting land use (see Table 3 for numerical results). The greater prioritisation of family farming also has positive impacts for social sustainability within the region as there continues to be farmers in the landscape with an interest in maintaining their properties for generations.

Table 3: Significant results of Mann-Whitney U tests when comparing priorities, future outcomes and risks across the two case study regions, Loxton and Barossa-Light

	Loxton		**Barossa-Light**	
	Mean	**n**	**Mean**	**n**
Priorities				
Increasing productivity**	**4.18**	99	3.49	50
Supporting your community*	**3.74**	97	3.37	52
Keeping the farm in your family**	3	93	**3.66**	53
Future outcome				
The population of your local community**	2.21	98	**3.98**	52
Risk				
Urban development pressure**	1.95	47	**2.63**	50

***p<0.01, *p<0.05*

It is interesting to note that the mean rank of the priorities of 'supporting your community' (Mann-Whitney U test, p=0.024) and 'increasing productivity' (Mann-Whitney U test, p=0.000) are significantly greater in the Loxton case study region (see Table 3). Respondents from this region may realise that their marginal agricultural region is struggling more than others, that the population is likely to decrease in the future, and as such manifest a sense of obligation to support their community and increase productivity to maintain the viability of their farms and subsequently the region (hypothesised from figures in Table 3). One qualitative response highlights an innovate approach to sustaining an agri-business in the Loxton region, with social collaboration, economic and technological priorities important to the maintenance of this particular farm:

> In 2009 we joined our farm together with another farming family in a collaborative farming venture to gain efficiencies and economies of scale. We also adopt the latest technology such as no-till farming and precision agriculture. We use a private agronomist and manage with a systems approach. All of these mechanisms combined are helping to achieve our objectives (Respondent 132, Loxton).

Farmers were asked if they had received any government support in the last ten years, what kind of support they received, what kind of government support they would like to see more of, and what concerned them about government support. It should be noted that, while there was no variation across the case study grouping data in terms of the primary support mechanisms received, a greater number of respondents from the Loxton case study region had received EC payments, which may affect perceptions of government support more generally. Variation was found in the mean rank of the effect of government support on three outcomes:

'your economic returns' (Mann-Whitney U test, p=0.004); 'your personal/household's wellbeing' (Mann-Whitney U test, p=0.026); and, 'your community' (Mann-Whitney U test, p=0.033), with the Loxton case study region having significantly higher mean ranks for these variables (see Table 4). These results indicate respondents who had received government support in the Loxton-Waikerie region were significantly happier with the economic, personal and social outcomes of that support. One qualitative response from the Loxton region highlights the benefits of EC support:

> We were very thankful for what we received; it was a big help to get us through the worst drought period on record (Respondent 131, Loxton).

Table 4: Significant results of Mann-Whitney U tests when comparing priorities, future outcomes and risks across the case study regions

	Loxton		**Barossa-Light**	
	Mean	**n**	**Mean**	**n**
Effects of Government support				
Your personal/household's wellbeing*	**3.97**	68^	3	9^
Your community*	**3.78**	64^	3	7^
Your economic returns**	**3.47**	65^	3	10^
Government support mechanisms				
Financial support for positive environmental outcomes of agricultural land use*	3.63	84	**4**	48
Financial support for environmental management schemes**	3.59	84	**4**	43
Direct payments to farmers**	**3.28**	81	3	45
Government support concerns				
Don't trust the Government*	3.88	75	**5**	49
It wastes tax payer money that could be spent on more productive things*	3.81	77	**4.5**	48
There is no evidence of economic benefits due to previous support**	2.91	69	**3.5**	43
There is no evidence of environmental benefits due to previous support**	2.91	64	**3.5**	38

^These variables only could only be answered by those who had received some form of government support
***p<0.01, *p<0.05*

To contrast the mean ranks of the government support concerns: 'don't trust the government' (Mann-Whitney U test, p=0.026); 'it wastes tax payers money that could be spent on more productive things' (Mann-Whitney U test, p=0.022); 'there is no evidence of economic benefits

due to previous support' (Mann-Whitney U test, p=0.000); and, 'there is no evidence of environmental benefits due to previous support' (Mann-Whitney U test, p=0.002), were all significantly higher for the Barossa-Light case study region (see Table 4). These results suggest that respondents from the Barossa-Light region are much more concerned about wasting taxpayers' money for no economic or environmental gains and have 'trust' issues with current governments and governmental organisations. These results could imply that the two regions see sustainability in different ways, with Loxton respondents happy for drought support to tie them over, while Barossa-Light respondents feel less inclined to trust any economic support from government. One qualitative response from the region further explores these issues:

> Our politicians are not concerned for the ongoing sustainability of our country. Money is being wasted and our country's resources are being sold off to foreign entities with no thought given to employment of our own people or sustainably managed water and agricultural production (Respondent 21, Barossa-Light).

Another qualitative response from the Barossa-Light case study area is also critical of government in general:

> [There is a] lack of foresight by governments at all levels. This also applies to farmers' organisations which appear to be run by elitist egomaniacs hell bent on self-promotion. The wool industry has always been full of them (Respondent 24, Barossa-Light).

These concerns may also reflect individual and regional political orientation and will be examined further in the discussion and conclusions section that follows. At the macro-level, some specific results are relevant to the research question, in regard to future sustainability and policy in rural and peri-urban regions. While not explicitly mentioned in the quantitative component of the questionnaire, a number of qualitative responses recognised issues instigated by a neoliberal governance focus, in the domination of corporations and a focus on international competition:

> [There is] domination of global marketing by too few foreign countries/multinational corporations thereby holding us to ransom on price of produce and costs of inputs is a very real worry (Respondent 84, Loxton).

> Farmers are undervalued and are at the mercy of the supermarket duopoly, this is forcing farmers off the land (Respondent 20, Barossa-Light).

> [I want to see] truth in labelling, fairness along market chain, the breaking up of monopolies/duopolies, and allowing collective bargaining for small business. Unfortunately democracy has been high jacked by capitalism (Respondent 50, Loxton).

> The playing field is not level on the international trading front, and our agricultural industries are badly affected by imports of subsidised products from countries with very cheap labour and inputs (Respondent 66, Loxton).

> Agriculture will struggle. It will become a lot more corporate as family farms will struggle to keep up with the documentation and legalisation required to be in farming. Whilst we are in a global marketplace, the playing field is not level and the Federal Government needs to give up on their free trade idealism. This may help take financial pressure off struggling agricultural businesses, and give them the space to survive financially and ecologically (Respondent 28, Loxton).

These comments suggest that the cultural liberalism pervading Australian governance is cause for concern, and the freedom of large agri-businesses to do whatever they like will reduce the control individual farmers have over outcomes of their land use as they struggle to survive (Richards et al., 2013). One respondent also expressed their anger at 'greenie idiots' highlighting the two groups have become polarised by the nature of previous communication:

> If the greenie idiots and urban environmentalists can be kept at bay [there will be a] good future. If not, the urban greenie will kill it off (Respondent 17, Barossa-Light).

These comments support literature explaining that the neoliberal governance of Australian agricultural communities is leading to conflict between groups of citizens that could be engaging with each other to have more political influence (Argent, 2011; Sterman, 2012). Another respondent highlights some of the issues that contribute to the detachment of agricultural communities from the rest of society, in peri-urban areas as well as spatially remote rural regions:

> With the amount of money being earned by the agricultural industry government should be putting something back instead of cutting back. Farming communities are shrinking therefore everybody in country areas suffers – services e.g. doctors, hospitals, aged care. People become disconnected from their communities and quality of life disappears or does only money count? (Respondent 18, Barossa-Light).

In other contexts, this 'disconnection' has manifest through feelings of isolation, economic stress, and political frustration (Brown & Fraser, 2011; Garnett, 2014; Stuart et al., 2014) leading to issues regarding mental health, suicide and apathy toward an urban society that is not thought to value primary production (Macias, 2008; Weaver & Munro, 2009).

The complexity involved with the governance of South Australian agricultural communities is

complicated further by ambivalent farmers, the opposing groups that form within the agricultural community that want different forms of governance, further splintering farming groups and reducing their collective power. Complications arise because on one hand there needs to be recognition of agricultural diversity, in terms of individual farmers, farming types, locations and practices, whilst simultaneously these diverse groups would ideally gather together to lobby for positive agricultural and regional policies. If farmers in the same area have opposing opinions on how to more effectively support the agricultural sector, as the two following quotations highlight, it seems that 'government isn't concerned enough about country problems – agricultural and social' (Respondent 89, Loxton) because there is not a united political front demanding that they need to be:

> Reduce the amount of funding to PIRSA [Primary Industries and Regions South Australia – State Department of Agriculture] and re-allocate funds to private enterprise so that outcomes are achieved and delivered. Too many bureaucrats are not up to it/commercially impotent (Respondent 46, Barossa-Light).

> Support for PIRSA [needs to] grow and continue; people here and overseas need to eat and keep warm – they can't eat minerals! (Respondent 16, Barossa-Light).

In terms of political alignment Australia's conservative (Liberal/National coalition) party strictly follows market rationalisation and *laissez-faire* policies (Loughnane, 2013). Yet, it seems that farmers' share the perception that economic conservatism is integral to governance, as one Respondent from Loxton explains:

> Under a Labor Government I have no confidence at all, under a Liberal Government I am confident but believe it will take many years to reverse the financial debt Labor have created (Respondent 132, Loxton).

This type of response indicates farmers have individual priorities for political regimes that are not focussed solely around their industry or region. Rather, South Australian farmer's tend to support economically and socially conservative policy, as opposed to organising to vie for political competition and more thoroughly pursue agricultural or rural development agendas (Australian Electoral Commission, 2013). A respondent from Loxton explains well that there is:

> Too much concentration on marginal seats in cities [which] is a problem with both sides of politics. Conservatives get a free ride in the country electorates whilst not deserving the support they receive. Country people to a degree have themselves to blame for this in a lot of cases (Respondent 112, Loxton).

DISCUSSION AND CONCLUSIONS

The results found that respondents from the Loxton region had a significantly higher proportion of larger properties (101ha or more), were more likely to have received government support, were more positive about the consequences of the government support they received, and were more likely to prioritise increasing their productivity and supporting their community. Respondents from the Barossa-Light region were more worried about the increasing population of the region and urban development, prioritised keeping their farms in their families, and were generally more concerned about the various mechanisms of government support and who received them (see Table 3 and Table 4). These findings highlight some of the differences between farmer perceptions in these regions and imply that individual regions face region-specific pressures.

Population growth and the amenity value of the peri-urban case study region meant that some respondents were worried about threats to their way of life, and were particularly concerned about the efficacy of government support mechanisms in relation to maintaining agricultural land use. In the more rural case study region properties were larger, growth in productivity and the community were important priorities, and positive experiences with previous government support (such as EC payments) were more obvious. Future policy will need to recognise the various heterogeneous challenges faced, and subsequent priorities of, specific agricultural regions and industries within these regions (Lobley et al., 2013; Morris & Kirwan, 2011).

One mechanism that is being introduced to protect the agricultural heritage of the Barossa Valley, the *Character Preservation Act*, sees the Government of South Australia explicitly recognising the urban development and population pressures facing the Barossa-Light case study area (Government of South Australia, 2011). This is one innovative policy that correlates with farmers in the region prioritising keeping agricultural properties in their families. While this is a positive step, as it recognises the historical importance of agri-'cultural' heritage, there are also issues with the technicalities of the politicking involved with such a scheme, where boundaries are drawn on maps, and there are associated benefits or impositions of such boundaries. Similar to the concept of *terroir* in European agriculture, aspects of agricultural production in this region lend themselves to value adding through spatially explicit recognition. Perhaps the proximity of the region to metropolitan Adelaide might also allow for further encouragement of direct marketing, which may form part of a future regional strategy to improve sustainability.

In terms of the rural Loxton region, farmers could be supported to form collaborative farming ventures, or new cooperatives, to maximise economies of scale and minimise drought risk, as opposed to being required to initiate these coalitions of themselves, such as some respondents

have had to do (Clark, 2012). Farmers in this region may also have to embrace business and marketing-related education, as previous research has highlighted the importance of education in increasing holistic sustainability priorities and reducing risks (Fielke & Bardsley, In press). The sustainability of individual farms, and the community as a whole, could be improved by searching for more direct links to markets (Barth & Michelsen, 2013), through avenues such as social media and online marketing, in order to increase the sustainability of this marginal location (Adams, 2010). These strategies could be facilitated by regionally-explicit policy to address the economic and social sustainability concerns facing farmers in this region.

The results of this project have highlighted the complexity involved with governing different agricultural communities, in this case Loxton and Barossa-Light, and it seems there is no simple policy solution that will work for all regions. What is more important, however, was the recognition of concerns associated with the neoliberal governance of the agricultural sector, the implications for conflict within the farming community and groups who ostensibly share similar aims, and outcomes which leave agriculturally based communities undermining the already diminished political power that they have. These issues, with region-specific relevance depending on farmer priorities and perceptions, create challenges to the sustainability of agricultural regions in South Australia.

The results suggest that farmers, the farming community, and relevant organisations need to engage more cooperatively. If these groups can lobby more effectively for change they agree on, it will lead to more sustainable landscapes that are the outcome of the interactions of people and the land they use and manage over time (Bohnet & Smith, 2007; Bohnet, 2010). By using the framework of constructive controversy (Johnson et al., 2000; Tichy et al., 2010) farmers and agricultural stakeholders can organise to meet opponents in the middle in regard to conflict. If open to compromise on certain issues, regional stakeholders can create a shared vision for a sustainable future, and individual agri-businesses, farming communities and the agricultural sector as a whole will be better placed to collectively argue for greater political support and recognition.

The appropriate balance of the economic, environmental, social and political components of sustainability is envisaged differently by varying individuals and groups. The future prosperity of the two case study regions fluctuates depending on which elements of sustainability are prioritised. In terms of the Loxton area, farmers prioritise economic sustainability, productivity increases and community, while in the Barossa-Light region there is more of a focus on the economic productivity of family farming and greater concern about the potential for government support to waste economic resources. These variations in what a 'sustainable landscape' is suggest that each region requires its own plan for a sustainable future (Wiek & Iwaniec, 2013). Politically, agricultural support was found to be lacking, although there were

some respondents who wanted government to ‘get out’ of agriculture all together, again highlighting the complexity involved in managing farmer expectations.

To increase the benefit of any government support it must be regionally flexible, whilst also considering many farmers have a political aversion to government interference. By increasing support for farmer education, cooperation and more direct agricultural markets, in various regionally-explicit combinations, land managers will increasingly be able to learn about and influence the aspects of sustainability important to them. These mechanisms, farmer education and cooperative marketing support, can also be utilised within the current South Australian political economy and will help position the agricultural industry for the coming decades, during which Australia has significant agricultural opportunities (Pritchard, 1999). By innovating to manage ecological, social, economic, and political challenges through farmer education, cooperation and more direct marketing, the future sustainability of South Australian agricultural landscapes can be maximised (McKenzie, 2013).

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