

**The Future of Rural Communities: The Impact of Farm Consolidation on Community  
Vitality and Individual Well-Being**



*This thesis is submitted in partial fulfilment of the Honours Degree of Bachelor of Psychology  
(Honours)*

School of Psychology  
University of Adelaide

October 2017

Word Count: 10,789

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### **Abstract**

While some regional areas of Australia are prospering, the decline of small rural towns has been well documented over recent decades. A major contributor has been the move from traditional single family farms towards consolidating farms in response to changing international economies and technology advancement. The environmental and economic effects of this change in farm structure have been considered extensively, however the psychosocial outcomes for rural and remote residents have been poorly researched. The current study addressed whether remote residents were concerned about the effects of farm consolidation on their community's vitality and whether this was related to their individual well-being. Residents of the Southern Mallee region in South Australia completed online questionnaires. The prevalence of high concern in the population was 65.5% (95% CI: 53.3 to 77.7) indicating that majority of residents were highly concerned about the effects of farm consolidation. A moderation analysis was conducted to explore the relationship between perceived community vitality, social support and subjective well-being. The results provided evidence for a positive relationship between perceived community vitality and subjective well-being, which was stronger for participants with low social support than those with high social support. It was concluded that for people with low social support, their well-being is dependent on their perception of the community's vitality, whereas high social support acts as a protective buffer. Given the decline of rural towns may be inevitable, future policy makers should consider the importance of maintaining social support systems to improve the well-being of rural residents.

**Declaration**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no materials previously published except where due reference is made. I give consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

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**October, 2017**

### **Acknowledgements**

I would like to sincerely thank my supervisor, Professor Deborah Turnbull, whose support and guidance made this thesis possible. I feel very fortunate to have worked with you over the course of the year and am extremely grateful for your advice and efforts in keeping me on track.

I am deeply grateful to my parents who helped me develop my research topic and recruit participants, and who supported me through difficult times. Thank you.

Finally, thank you Dieter for your continued support, and for providing me with the balance I needed throughout the year.



## **Background**

**Australian agriculture.** It has been argued that agriculture has played a defining role in Australia's economy, character and identity. From establishing Australia's thriving economy in the 1840's, to continuing to mark Australia as a producer and leading exporter of high quality foods, wine, meat and grain, the farming community has been attributed with great contributions to the nation (Wells, 2015). However, the methods of farming used by primary producers are always changing. Over Australia's brief history of European-style farming, challenges have arisen; freshwater access, clearing, over-grazing, feral animals, drought, flooding; and farmers have adapted (Wells, 2015). They have responded with ingenuity and resilience, supported by the tight-knit communities that formed to sustain their farming enterprises (Rogers & Collins, 2001, p. 9).

Over recent decades, improvements in technology and mechanisation combined with international economic factors have resulted in the operation of larger-scale farms in order for farming businesses to remain economically viable (Wells, 2015). Farm consolidation, the process of agricultural land owners increasing the size of their properties, typically by purchasing nearby or neighbouring farms, has led to new challenges including impacts on environmental management, change in operation of agricultural systems and the sustainability of rural communities (University of Sydney, 2010). While the former two factors have been the focus of many researchers, the effects of these changes in farming methods on the vitality of rural communities has been overlooked (Arbuckle & Kast, 2012).

**Farm consolidation.** Farm consolidation has been occurring over recent decades as small farmers sell to large scale corporate farming operations, reducing the number of people farming and residing in rural areas (Kunde, Kolves, Kelly, Reddy, & De Leo, 2017). In 2011

there were 19,700 (11%) fewer farmers in Australia than five years prior and 106,200 (40%) fewer than 30 years prior (Australian Bureau of Statistics, 2012). Francis, Elmore, Ikerd, and Duffy (2007) describe how average farm size in America's Midwest has not appeared to change, however this does not reflect the evident loss of family farms of average size, but rather is the result of increase in the amount of both large corporate farms and small hobby or specialty farms.

By increasing the scale of the farming operation, productivity is maximised through the maximisation of profits and growth, improved labour efficiency, and reduced production costs. This is one of the main reasons farm consolidation occurs. Francis et al. (2007) also highlighted the influence of mechanisation and availability of herbicides reducing the labour needed, increased specialisation in crops or livestock, and chemical fertilizers allowing separation of livestock from crop farms while maintaining soil fertility. The major growth in consolidated farms in Iowa is due to purchase by investors residing outside the state rather than from new or existing farmers who are less able to afford expansion (Francis et al., 2007). Consequently, ownership is separated from management and control, meaning responsibility to the environment and the sustainment of surrounding communities is unaccounted for.

**The effects of farm consolidation on the community.** The impacts of farm consolidation on rural communities has been so far addressed by social science studies. Lobao and Stofferahn (2007) conducted one of the few reviews of previous research in the field, a necessity to assess the findings regarding risks to communities to inform corporate law and policy-makers. They grouped community impacts found across 51 studies from the 1930's onwards into three categories; socio-economic well-being, social fabric and environmental effects.

Lobao and Stofferahn (2007) refer to social fabric as a community's social organisation and features that reflect its stability and quality of social life. They claim that these are the aspects of community well-being that are often missed by sociologists researching community impacts of farm consolidation, but are required to support regulation of farm industrialisation. In this category, they found that industrialised farms are related to worse outcomes in population size; social class composition; crime rates; stress and social-psychological problems; neighbourly relations and involvement in social life; local governance and community services (Lobao & Stofferahn, 2007). These findings point to declines in various psychosocial factors that are likely to influence an individual's well-being. However, each of the 51 studies contributed only a few of these outcomes with none of the studies accounting for social fabric as a whole. This study accounts for these factors in a single construct termed 'community vitality'. Furthermore, previous papers have failed to consider the impact this has on the individual well-being of the residents of these rural communities.

**Other factors contributing to declining communities.** Although farm consolidation has been posited as a major contributor to the ongoing decline of small rural towns (Forth, 2001), it is not the sole reason for their decline. For example, evidence suggests that droughts have a major impact on the number of farmers, which fell by 15% in a short period due to the drought in 2002-03 (Australian Bureau of Statistics, 2012).

Forth (2001) described the reality of rural residents and farming families bypassing the shops in their local towns for services in cities or major regional centres. This is not only due to the loss of essential basic services in their towns, but is a reflection of the desire for better quality, more sophisticated and more affordable services, and the improved accessibility of travelling to such services which is increasingly convenient and inexpensive. However, shopping

elsewhere has devastating effects for local business owners, often causing them to permanently close or relocate.

The out-migration of youth is another key issue for rural towns often referred to in the literature which has a bidirectional interaction with farm consolidation. Fewer young people are taking over the family farm as has previously been the convention (Kunde et al., 2017), which increases the likelihood of selling the family property to an expanding entity. Given the already declining circumstances of rural towns due to farm consolidation, young people are attracted to the cities for social reasons, improved services and opportunities for work and education (Forth, 2001).

An additional consequence of young people leaving is the aging of rural areas. The median age for farmers is much higher than that of other occupations in Australia, and the proportion of farmers over 55 is increasing while the proportion of those aged less than 35 is falling (Australian Bureau of Statistics, 2012). Farmers working beyond the age that others retire has been attributed to younger generations migrating to more populated areas rather than taking over the property (Australian Bureau of Statistics, 2012). Not only are community members in young adulthood lost, but by starting their families elsewhere, the next generation is also reduced.

Additionally, more educated people are likely to pursue opportunities in the city, while economically disadvantaged people are attracted to the affordable housing of rural areas. Forth (2001) described how particularly in rural Australia, it is welfare-dependent families who are more likely to move to country towns where there is a lack of employment. While this may improve the population, economic variables need to be considered as a further key indicator of

rural decline and prosperity, as an unemployed, under-serviced population that does not contribute to the community economically or otherwise is undesirable (Forth, 2001).

Rural and remote areas of Australia differ greatly in terms of geography, location, demographics, and major industries and occupations, and not all areas are experiencing decline (Kenkel, 1986). Industries range from mining or fishing to farming beef cattle, sheep, grain or a combination, dairy cattle farming or grape growing (Australian Bureau of Statistics, 2012). Some small towns are doing well and increasing in population due to overspill from nearby major urban centres, reliance on more than one industry or the attraction of coastal locations (McManus et al., 2012). Given the vast differences between Australia's rural centres, this research samples one area that is a clear example of the decline of small towns due to farm consolidation; the Southern Mallee.

**Southern Mallee area.** The Southern Mallee area, in rural South Australia, is located 200km east of Adelaide near the Victorian border. This region has a small population of 2,027 across the townships of Geranium, Lameroo, Parilla and Pinnaroo and surrounding farms, and is a single industry area with the townships largely relying on the agriculture industry, primarily wheat and barley.

The 2016 Census found that the median age in the Southern Mallee is 46 and the median weekly household income is \$1,155 (Australian Bureau of Statistics, 2017). The Census indicates that 35.1% of residents have completed primary school, 16.7% completed secondary school and 6.6% have a tertiary or other type of education indicating low education levels similar to other rural regions, although a large proportion (37.5%) did not state their education level.

There are clear indicators of decline in the Southern Mallee, including closures of businesses and services which Alan Burns and Willis (2014) described as a significant indicator

of rural well-being. The existing townships grew rapidly after World War 2 after several smaller surrounding towns folded (Southern Mallee District Council, 2009). Recently, the district has lost banks, grocery stores, general stores and butchers, and services offered by the hospital have been reduced.

This decline is partly contributed to by the increase in farm consolidation. Trends of small farmers expanding their properties or selling to large scale farming operations are steadily increasing, resulting in significant population loss. Out-migration of youth is also occurring, with detrimental effects. With the next generation less likely to take on farming, properties are more likely to be sold to existing farmers or farming corporations. Not only does this reduction in population cause businesses to decline, the loss of businesses and services makes it more difficult to keep and attract new people to the area, resulting in a downward spiral effect. With the occurrence of such negative consequences the present study is interested in the prevalence of concern for the effects of farm consolidation on the community's vitality in members of the Southern Mallee community.

### **Concern Toward Farm Consolidation**

Concern has been suggested as an affective state which, like the construct of worry, is associated with behaviours of both preparedness to act and avoidance (Stevens et al., 2012). This avoidance coping is associated with maladaptive outcomes such as high distress, inhibition of emotional processing and the suppression of somatic aspects of anxiousness, thus facilitating negative reinforcement and a cycle of worry (Borkovec, Ray, & Stober, 1998).

Concern therefore involves an interaction between thoughts and feelings and can affect behaviour in a problematic way. However some degree of concern may be helpful in motivating adaptive action. Choi et al. (2015) analysed the relationship between cancer worry and stages of

breast cancer screening in Korean women, and found that women with moderate to high levels of worry were more likely to be in the action/ maintenance stage of breast cancer screening than the pre-contemplation stage, indicating that worry plays a role in improving cancer screening behaviours.

Given that worry and concern can either facilitate or inhibit behaviours, the circumstances under which concern is adaptive need to be considered. Stevens et al. (2012) stated that the association between concern and behaviours in response to terrorism threat is dependent on self-efficacy in coping with threat elements, and the perceived likelihood and seriousness of the threat. This suggests that threat appraisal and self-efficacy are important factors in facilitating productive behaviours.

The current study measures the prevalence, strength and direction of rural residents' concern towards the negative impacts of farm consolidation on their community's vitality. People with high concern may experience distress as a result of avoidance, or exhibit adaptive behaviours. McAdams, De St. Aubin, and Logan (1993, p. 221) asserted that concern in establishing and guiding the next generation, known as "generativity", is expressed through generating "outcomes that aim to benefit the social system and promote its continuity". This may be extended to concern towards the community to suggest that concerned residents may take action in promoting the community's improvement and continuity through community-driven interventions. Given the relevance of threat appraisal on the difference between avoidance and preparedness to act, this study will also consider the extent to which participants perceive farm consolidation to be negatively impacting community vitality in a scale termed 'perceived impact of farm consolidation'.

## **Community Vitality**

**Defining community vitality.** Although the notion of community vitality has not been empirically defined, this study defines community vitality as a community's vibrancy and current and future liveability given outside challenges that cannot themselves be controlled. Arbuckle and Kast (2012) failed to give a distinct definition of community vitality as measured by their COMMVITA scale, however the items in the COMMVITA scale address attitudes towards the current and future liveability of the participant's community. Due to being a subjective measure, this research makes the distinction that the scale measures participants' perceived community vitality which is important for the interpretation of its relationship with social support and well-being. It measures a construct that is best understood from other areas of research and practice.

For example, local governments have endorsed the promotion of health and well-being of individuals and communities. The City of Onkaparinga (2016) suggests vital communities are "vibrant, liveable, equitable, culturally enriched, healthy, viable and prosperous" and are underpinned by good governance, active citizenship and social justice. Dale, Ling, and Newman (2010) describe communities with high vitality as those that thrive in the face of external challenge. Such communities are resilient, innovative and adaptive and remain functional "without loss to ecological, social and economic capitals in the long run, whatever occurs as a result of exogenous changes beyond [their] control" (Dale et al., 2010, p. 217). These conceptions have led to the current study's suggestion for defining community vitality.

**The relationship between community and well-being for people from rural and remote areas.** Previous research has focused on the impacts of farm restructuring on rural communities but have failed to then relate community-level conditions to individual well-being.



Arbuckle and Kast (2012) recognised that the community satisfaction and community attachment literature has documented the determinants of residents' attachment to and satisfaction with their communities, but again overlooked how level of community satisfaction may determine their quality of life. Their longitudinal research with a large, random sample of farmers from Iowa concluded that individual quality of life of farm families is largely dependent on community well-being, as measured by the COMMVITA scale. This confirmed their hypothesis which was informed by the work of Fowler and Christakis (2008, as cited in Arbuckle & Kast, 2012) which suggested that, due to social comparisons, quality of life may be determined by perceived well-being of both immediate social networks (such as friends and neighbours) and the wider community to which these networks belong (including friends of friends and others who form the greater community). The current research expects to find a similar relationship between community vitality and subjective well-being for general rural community members in the Southern Mallee region of South Australia. Given the additional relevance of more immediate social networks, the effect of social support on this relationship will also be examined.

### **Subjective Well-being**

**Defining well-being.** Subjective well-being is a term often used interchangeably with happiness and is concerned with how and why people experience their lives in positive ways (Diener, 1984). This includes three components; positive affect, negative affect and life satisfaction. Positive and negative affect are the emotions involved in well-being, while life satisfaction refers to cognitive and judgmental processes such as comparing one's circumstances with an appropriate standard. Well-being requires satisfaction with life as a whole.

The measurement and conceptualization of subjective well-being has been extensively debated in the psychology literature. Much of the contention in defining terms like happiness

comes from their frequent use in everyday language (Diener, 1984). While some accounts of well-being and happiness viewed them as theories of what ultimately benefits a person (Haybron, 2008), it is now most commonly defined in terms of more subjective variables such as satisfaction with life and positive and negative affect (Lyubomirsky, Sheldon, & Schkade, 2005). There has also been conflicting evidence over whether positive and negative affect are independent, that is whether the absence of negative affect is different to the presence of positive affect, as well as whether happiness should be considered a trait or a state (Diener, 1984). Measures of subjective well-being are usually self-report and cross sectional scales, leaving them open to bias and the failure to capture causal direction (Diener, 2012). Additionally, there is evidence suggesting that responses to subjective well-being scales are influenced by the participant's momentary mood at the time of completing the scale (Diener, 1984). This is problematic because researchers usually intend to measure well-being over a period of time rather than current affect.

Despite the difficulties in empirically defining a term as commonly debated as well-being, authors such as Ed Diener have dedicated decades of research to resolving some of these issues. There is evidence from multiple studies for high correlation between the three components of life satisfaction, positive affect and negative affect which typically yield a single factor (Lyubomirsky et al., 2005). Lyubomirsky et al. (2005) assert that the subjective nature of well-being measures is necessary given happiness is defined from the perspective of the person, however factors that influence the individual's judgment such as current or recent emotions can still be empirically studied. Lastly, research has shown that subjective well-being measures are related to peer or spousal reports of well-being and physiological responses (Lyubomirsky et al., 2005), and show interesting theoretical relationships with other variables (Diener, 1984).

Happiness has historically been considered the highest good and the ultimate motivation of human endeavor (Diener, 1984). Not only is well-being desirable in and of itself, it contributes to health and longevity in healthy populations, as evident from an extensive review by Diener and Chan (2011). Well-being is also associated with beneficial societal outcomes, as individuals with higher levels of well-being have a greater tendency to engage in pro-social activities and contribute to maintaining and generating social support systems (Diener and Ryan, 2009 as cited in Arbuckle & Kast, 2012). The well-being of rural residents is therefore of interest given they are not only expected to be affected by declining community vitality, but their well-being may play a role in sustaining the community and its social support systems.

**Well-being of rural and remote Australians.** Residents of rural and remote Australia face unique stressors, coping strategies and support systems that have direct and interactive contributions to well-being and mental health (Kenkel, 1986). Such stressors include higher unemployment rates, poverty, and occupation-related stress such as those associated with farming, mining, fishing and forestry. An individual's well-being is also affected by different circumstances depending on the type of rural community to which they belong and whether it is one that is growing or declining. Communities undergoing rapid expansion face issues of increasing cost of living, traffic and congestion, inadequate medical services, tension between "newcomers" and "oldtimers", and loss of the familiar and predictable (Kenkel, 1986). Members of single-industry towns undergo stress from reliance on one major industry, isolation from other communities, poor economy and large distances to health, education, business and entertainment resources.

As a result of these unique stressors, people living in declining rural areas are less happy (Fraser et al., 2005). There are inconsistent findings as to whether rural and remote people are

more at risk of developing psychiatric disorders than those in urban areas, and the evidence to make a definitive conclusion on the topic is lacking (Kenkel, 1986). However, it has been concluded that rural and remote populations experience poorer mental health outcomes including higher levels of distress and higher rates of suicide (Saurman et al., 2015), which may be attributed to lower utilization of professional services. Although services are under-used by rural and remote residents, social support has been suggested to buffer stress and enhance well-being for rural populations (Kutek, 2009).

### **Social Support**

Social support has been widely studied as a coping resource which is both directly helpful across circumstances and acts as a buffer during times of stress (Cohen & Wills, 1985). Although there has been contention in how to best define social support, it is generally thought to involve a relationship that facilitates the exchange of resources between individuals, intended to enhance the well-being of the recipient (Zimet, Dahlem, Zimet, & Farley, 1988)

Social support has been theorised as a determinant of morbidity, mortality, and functioning dating back to the late 19<sup>th</sup> century, when sociologist Emile Durkheim related suicide and mortality to social integration. There is now a vast body of research strongly linking increased social support to beneficial health outcomes, including well-being (Cohen & Wills, 1985). Theorists have provided varying explanations for this relationship.

Cohen and Wills (1985) described two processes through which social support benefits well-being. The first is termed the buffering model and proposes that social support protects or “buffers” people from the potentially deleterious effects of stressful events. This model holds that support is related to well-being primarily for people under stress. The second model, termed the main-effect model, proposes that social support has beneficial effects regardless of whether

the individual is under stress. Evidence for the buffering model is found through significant moderation analyses, whereas the presence of the main-effect model is determined through mediation analysis (Frazier, Tix, & Barron, 2004). While evidence has been found in support of each model, Zimet et al. (1988) suggested that both models may have validity and they are not mutually exclusive. It would then follow that social support can be helpful in all circumstances, but is particularly effective as a buffer during times of stress (Zimet et al., 1988).

The current research considers social support as a moderator between the effects of perceived poor community vitality on the subjective well-being of rural residents. That is, it is expected that social support will buffer the effects of perceived community vitality. The main-effect model is not considered because this process would require a mediation analysis that assumes social support causes a change in perceived community vitality, when this relationship could work either way.

Irrespective of which model is used, social support can function in different ways. Social support can be emotional (providing love, caring, sympathy or esteem); instrumental (assistance with tangible needs such as cooking, getting to appointments, or paying bills); appraisal (help with decision making and providing feedback); or informational (providing advice in relation to particular needs) (House, 1981 as cited in Berkman & Glass, 2000).

Berkman and Glass (2000) drew on social network theory to identify how these mechanisms influence health through their effect on “downstream” biological and psychological factors which are most proximate to health outcomes, as depicted in Figure 1. Psychological factors include the promotion of self-efficacy and adaptive coping styles as well as positive influence on emotion, mood and perceived well-being. Additionally, research suggests that connectedness as a result of social networks is inversely related to risk behaviours such as

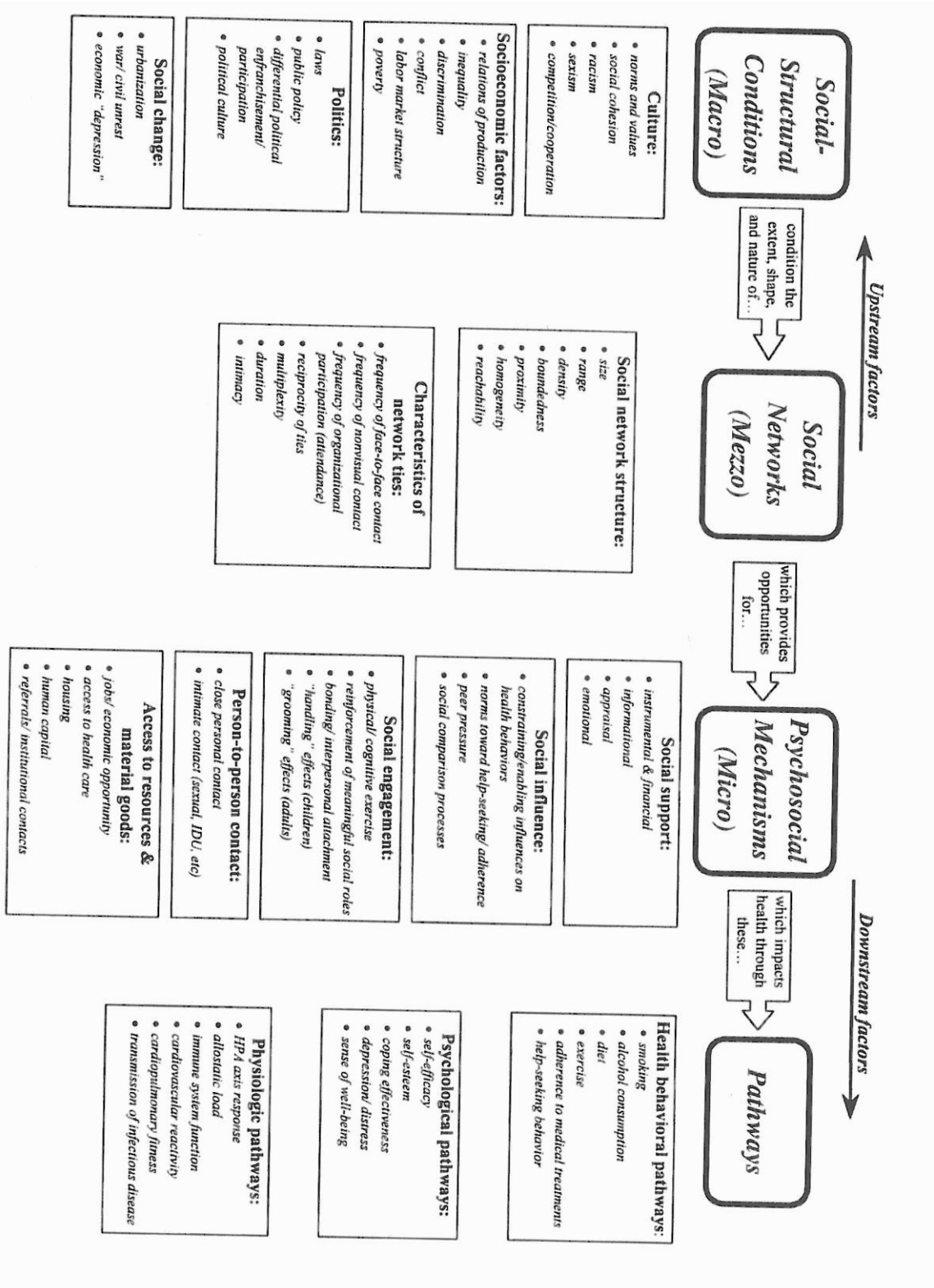


Figure 1. Conceptual models of how social networks impact health (Berkman & Glass, 2000).

alcohol consumption, smoking and inactivity. Social support has also been proposed to work through several physiological pathways including having an influence on rate of aging, cardiovascular reactivity, and stability of hypothalamus-pituitary-adrenal axis responses.

Figure 1 also shows that social networks are embedded in “upstream” macrosocial forces including how network structures are affected by markets, economic pressures, organisational relations, culture, social change, industrialisation, and urbanisation (Berkman & Glass, 2000). This conceptualisation has led to discussions on whether “community” is dead or dying in post industrialised societies. The current research is interested in whether the relationship between perceived community vitality and subjective well-being is moderated by social support for rural residents in the context of whether participants are concerned about the effects of farm consolidation at the macro-level.

**Social support for rural residents.** The effects of social support on well-being is believed to be particularly pertinent for Australian rural and farming communities. Judd (2005 as cited in McManus et al., 2012) asserted that it is critical for farmers to engage in informal socialisation to prevent mental health problems and suicide in both farmers and rural communities generally. Informal support may be particularly important given rural residents face specific barriers to accessing professional services. These include limited accessibility to health services, attitudinal barriers to seeking formal help, and increased stigma towards mental illness (Judd et al., 2006).

However rural communities do not always provide beneficial social support and can sometimes have opposing effects. Although nearby towns are viewed as the primary source of connection, support and feelings of belonging for farmers (McManus et al., 2012), the tight-knit nature of such communities have also determined them as a stressor (Judd et al., 2006). After

conducting 32 interviews with small family farmers, Judd et al. (2006) found that they often view rural communities as demanding in expectations, judgmental towards farming practices, and exclusive to those viewed as “outsiders”. Nevertheless, talking about problems was viewed as an important coping strategy and seeking help from friends and family was preferred over the use of formal services.

### **The Current Study**

Many rural and remote communities are experiencing decline as a result of the effects of farm consolidation. The current study will use measures of concern and perceived impact of farm consolidation on the community to determine which community members are likely to partake in community interventions, which is highly relevant given rural communities have been conceptualised as active, dynamic social arrangements with some influence over the community’s future (McManus et al., 2012), and local community action has been viewed as having the ability to reverse decline (Collits, 2001, p. 36).

The effects of perceived community vitality on well-being of rural residents is yet to be explored in Australia. This is a crucial area of research as “if high quality of life is the key to retaining rural populations, attracting new residents, and sparking rural economic development, continual improvement of our understanding of the determinants of rural quality of life is imperative” (Arbuckle & Kast, 2012, p. 87). Furthermore, the increasing trend in farm consolidation is expected to detrimentally impact perceived community vitality in rural towns, which in turn is expected to reduce residents’ well-being. Given previous findings towards the positive impact of social support for the well-being of rural residents (Kutek, 2009), it is expected that social support will moderate the effects of perceived community vitality on subjective well-being.



**Research Aims**

The current study can be divided into two main aims which address six research questions.

The first aim is to explore rural community members' concern towards the effects of farm consolidation on their community through the following research questions:

1. What is the prevalence of concern toward farm consolidation in a remote population?
2. What is the nature of rural people's concern toward farm consolidation?
3. How are age, time lived in the region, employment, gender and community involvement related to concern?

The second aim is to explore the impact of farm consolidation on community vitality and individual well-being via the following research questions:

4. To what extent do people from remote communities perceive farm consolidation to have a negative impact on the community's vitality?
5. What measures can be taken to reduce the impact of these negative effects?
6. What is the relationship between perceived community vitality and subjective well-being? Is this moderated by social support?

## Method

### Participants

The sample consisted of 58 participants (Female  $N = 40$ ) with age ranging from 18-78 years ( $M = 50.76$  years,  $SD = 12.13$ ). Participants had lived in the Southern Mallee area an average of 32.81 years ( $SD = 18.74$ ) and 48.1% worked as a farmer, including partners of farmers (see Table 1). Inclusion criteria stipulated that participants needed to be 18 or older, be able to complete the survey in English, and were residents of the Southern Mallee region, or had been sometime in the last 3 years and still had close ties to the community through, for example, sport, employment or close friends and family. As mentioned previously, the Southern Mallee is a small rural area which relies on the agriculture industry. This area was chosen as the focus of this research because there are clear signs of decline which is largely due to farm consolidation increasing in the area, as well as the issue of out-migration of young people. The researcher also had ties to the community, which improved opportunities for advertising the study and may have increased participation.

Table 1

*Characteristics of Participants (N = 58 participants)*

Characteristic	n	Percent
Gender		
Female	40	68.97
Male	18	31.03
Employment		
Farmer (including partner of)	28	48.28
Government sector including local government	9	15.52
Healthcare	9	15.52
Retail/hospitality employee	7	12.07
Carer/ stay-at-home parent	6	10.34
Business owner	6	10.34
Education	5	8.62

Characteristic	n	Percent
Retired	4	6.90
Unemployed	1	1.72
Student	1	1.72
Farm employee	1	1.72
Other employment	7	12.07
Community Involvement		
Sports player	45	77.59
Sports committee	37	63.79
Town committee	27	46.55
Church committee/ attendance	23	39.66
Volunteer (CFS, ambulance, meals on wheels)	18	31.03
Social club	16	27.59
Lions club/ Apex/ Rotary	12	20.69
Scouts	8	13.79
Other (please specify)	14	24.14
Number of 'Community Involvement' Categories		
0	5	8.62
1	4	6.90
2	4	6.90
3	15	25.86
4	15	25.86
5	12	20.69
6	3	5.17
7	0	0
8	0	0
9	0	0

*Note:* Participants could select more than one option for employment and community involvement.

### Measures

The online questionnaire consisted of questions related to demographic variables, degree of concern towards the effects of farm consolidation, the nature of this concern, perceived community vitality, subjective well-being and social support. There were 34 questions in total.

**Demographic variables.** Demographic information collected included age, gender and years lived in the Southern Mallee region. Employment and past and present involvement in the community were also measured by selecting as many answers as applied to the provided list with the option of selecting ‘other’ and providing detail.

**Concern.** Concern was measured using a single scale in which participants rated their level of concern towards the effects of farm consolidation on the future vibrancy of the community. Responses were rated from *Not at all concerned* (1) to *Very concerned* (4). These responses were based off previous scale responses used by Crawford, Timperio, Telford, and Salmon (2007). The single scale was necessary so that participants could then be directed to the appropriate pathway in regards to the nature of their concern.

**Nature of concern.** Participants who indicated they were not at all concerned or only a little concerned were directed to a question regarding the reasons for why they felt that the effects of farm consolidation were of low concern. Those who responded that they were quite concerned or very concerned were asked their reasons for this. In both cases, participants were presented with a range of forced options for which they could select as many as apply and supply their own ‘other’ options if they wanted. The options were developed after discussion with 2 long-standing residents of the area. Participants who indicated high concern were then asked to describe what measures they thought could be taken to mediate these effects in an open-ended question.

**Perceived impact of farm consolidation.** A 6-item scale was developed with consultation from 2 Southern Mallee residents to measure the extent to which participants perceived farm consolidation to be having negative impacts on the community (e.g. “our community will no longer be sustainable in the future due to farm consolidation”). Possible

responses ranged from *Strongly Disagree* (1) to *Strongly Agree* (7) with the option of a neutral response of *Uncertain* (4). Scores for each item were added to give a total possible score ranging from 6 to 42. This scale was developed for the purpose of the study and had high internal consistency and stability (Cronbach's alpha = .87).

**Perceived community vitality.** The COMMVITA scale developed by Arbuckle and Kast (2012) was used to measure perceived community vitality. The scale consisted of 4 questions (e.g. "this community would be a good place for future generations to raise their families") which were rated from *Strongly Disagree* (1) to *Strongly Agree* (5). The scale has previously been reported to have an internal consistency coefficient ranging from Cronbach's alpha = .70 - .81 after its use for a population of farming families in Iowa over a longitudinal period (Arbuckle & Kast, 2012), making it an appropriate measure for the current sample. For this study, Cronbach's alpha was .66, which is just below the generally acceptable value of .70 (Tavakol & Dennick, 2011).

**Subjective well-being.** The Satisfaction with Life Scale was used to measure subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985). Participants were required to answer 5 items (e.g. "in most ways my life is close to my ideal") on a scale from *Strongly Disagree* (1) to *Strongly Agree* (7). This scale has had desirable psychometric properties when used with undergraduates (Cronbach's alpha = .87, test-retest correlation = .82) (Diener et al., 1985) and with rural populations (Cronbach's alpha = .90) (Kutek, 2009). The scale also had high internal reliability for the current study (Cronbach's alpha = .92).

**Social support.** The Multidimensional Scale of Perceived Social Support was used to measure participants' level of social support (Zimet et al., 1988). 12 items (e.g. "there is a special person who is around when I am in need") were rated from *Very Strongly Disagree* (1) to *Very*

*Strongly Agree* (7). Zimet et al. (1988) found the scale to have a Cronbach's alpha of .88 and test-retest reliability of .88 as well as strong factorial validity and moderate construct validity.

The Cronbach's alpha for the current study was .94.

### **Procedure**

Participants were recruited through advertisements for the study displayed around the townships and local Facebook pages and a letter of introduction delivered to households via a letter-box drop. This was in accordance with the ethics approval received from the Human Research Ethics Subcommittee at the University of Adelaide (approval number: H-2017-43).

Data were collected via an online self-report questionnaire (see Appendix D). Participants accessed the questionnaire via *Survey Monkey* and were presented with an information sheet and then a consent form requiring that they consent to participate and meet the inclusion criteria before beginning the survey. The questions were not randomised because it was important that participants were asked to rate their level of concern and give their reasons before evaluating the community's vitality and the perceived impact of farm consolidation, because the content of these questions may have had priming effects and influenced their level of concern. The survey typically took 11 minutes to complete following which participants were presented with a link to a second questionnaire if they wished to provide their email address to receive a summary of the survey results, without the email address being attached to their survey responses. The questionnaire was available between the 1<sup>st</sup> of May and the 30<sup>th</sup> of June, 2017.

### **Data Screening**

Two responses out of 60 were excluded as they did not provide responses for any questions after giving consent, resulting in 58 participants. Six participants did not provide answers for two scales (social support and subjective well-being) and five of these also failed to

complete the scales for community vitality and perceived impact of farm consolidation.

Therefore, the analyses for hypotheses 4 and 6 had  $N = 53$  and  $N = 52$ , respectively. There were no missing data for the scales that were completed. This is because the design of the survey did not allow for participants to continue without completing an answer for every item of a scale.

Inspection of histograms and results of the Shapiro-Wilk test indicated that nearly all variables violated normality with the exception of age and perceived impact of farm consolidation. Given the small sample size, the data were manipulated by bootstrap resampling when appropriate which created a normal sample and overcame issues of skewness and small sample size.

### **Power Analysis**

An a-priori power analysis was conducted in G\*Power 3.1.9.2 to determine the sample size necessary for power levels of .8 and medium effect sizes given the significance criterion of  $\alpha = .05$ . The sample size required for the moderation analysis, which examined the additional variance of one interaction term after accounting for the two main effect terms, was calculated to be 55.

### **Data Analysis**

Analyses were performed using the statistical package R (v3.2.3) with R Studio for Windows, with the exception of the moderation analysis which was conducted in SPSS.

**Prevalence and nature of concern.** The prevalence of concern was analysed by finding the percentage of responses for each of the four concern levels, and the 95% confidence intervals around these values. Similarly, determining the nature of concern involved analysing the frequency and prevalence of which each provided response was selected.

**Predictors of concern.** The relationship between concern and the five demographic predictors were analysed with a Chi-squared test for the categorical variables and using the bias-corrected and accelerated (BCa) bootstrapping method for the difference of means *t*-test for continuous variables (Efron, 1987). When the categorical variables formed a 2x2 contingency table, Fisher's exact test was used which is valid for all sample sizes (Kim, 2017).

**Content analysis.** Open-ended responses regarding measures that can be taken to reduce the negative effects of farm consolidation were analysed using content analysis. The responses were first read in full and then coded in terms of recurring themes. The number of times each theme was discussed was then counted for analysis.

**Moderation analysis.** Pearson correlation coefficients were used to examine the strength and direction of associations between perceived community vitality, subjective well-being and social support. A moderation analysis was then performed to test whether social support moderated the effect of perceived community vitality on subjective well-being. Variables were entered into a hierarchical multiple regression equation in a series of specified steps, as described by Frazier et al. (2004). In step 1, community vitality and social support were entered into the regression with subjective well-being as the outcome variable. Community vitality was multiplied by social support to form the interaction term, community vitality\*social support, which was then entered into the multiple regression in step 2. A moderator effect exists if the *F* test for the change in variance explained from step 1 to step 2 is significant. An interaction plot was then created to examine the form of the moderator effect.



## Results

### Part 1 - Concern

**Prevalence of concern.** The first aim was to determine the prevalence of concern toward farm consolidation in Southern Mallee residents. Table 2 shows the frequency of responses for the four levels of concern as well as the 95% confidence intervals for the prevalence of each level. The responses for ‘quite concerned’ and ‘very concerned’ were combined to show the prevalence of high concern in the population which was 65.5% (95% CI: 53.3 to 77.7) indicating that majority of residents were highly concerned.

Table 2

*Prevalence of concern (N=58 participants)*

Level of Concern	n	Prevalence	95% Confidence Interval
Not at all concerned	7	12.1%	3.69-20.5%
A little concerned	13	22.4%	11.7-33.1%
Quite concerned	31	53.4%	40.6-66.3%
Very concerned	7	12.1%	3.69-20.5%
High concern	38	65.5%	53.3-77.7%

*Note:* High concern is the combination of responses for quite concerned and very concerned.

**Nature of concern.** The second research question was regarding the source of rural people’s concern toward farm consolidation. Those who indicated they were quite or very concerned were asked to select their reasons for being highly concerned. Table 3 shows the frequency in which each response was selected. Participants could also provide a description of their own reasons for concern. Six people provided other reasons, however most were a further description of reasons they had already selected. Inflation of land prices and loss of ‘community spirit’ were two unique responses that were included in the results.

Table 3

*Reasons for high concern (N = 37 responses)*

Response	n	Percent
Lack of numbers to maintain sporting clubs and other volunteer or social organisations	36	97.3
Loss of shops and businesses	36	97.3
Reduced schooling and healthcare services due to a smaller population	35	94.6
Loss of employment	24	64.9
Seasonal/ contract workers are not contributing to maintaining the town and its services	21	56.8
Loss of longstanding members of the community	21	56.8
People in cities have less ties to the country and therefore a poor understanding of where their food comes from	19	51.4
People in cities have less ties to the country and less contact with rural people and properties	14	37.8
Loss of family property	13	35.1
Concerns about sustainable farming/ food safety practices	12	32.4
Inflation of land prices	1	2.70
Loss of 'community spirit' and social networks	1	2.70

*Note:* Participants could select more than one option.

Participants who indicated that they were a little concerned or not at all concerned were directed to a different set of reasons for why they felt the effects of farm consolidation were of

low concern. The frequency of responses is shown in Table 4. After analysing the ‘other’ responses, one unique reason was identified which was that farmers can generally sell property and equipment and stay employed by the new land owner.

Table 4

*Reasons for low concern (N = 19 responses)*

Response	n	Percent
Running larger scale farms is necessary to keep up with the industry	15	78.9
Buying more land will bring in more profit for the farms/ businesses which are expanding	12	63.2
Larger scale farming is good for the Australian economy	7	36.8
Farm consolidation does not have a very negative impact on rural communities	4	21.1
I do not think about the effects farm consolidation might have	4	21.1
There are more important issues of concern	3	15.8
Farmers can generally sell property and equipment and stay employed by new owner	1	5.26

*Note:* Participants could select more than one option.

**Predictors of concern.** The third research question considered how age, time lived in the region, employment, gender and community involvement are related to concern. Logistic regression would be one way of testing this, however first the association between concern and each predictor variable was determined. Concern was split into low concern (‘not at all concerned’ or ‘a little concerned’) and high concern (‘quite concerned’ or ‘very concerned’) to overcome issues of the minimum expected frequency assumption (MEF) which requires that no

more than 20% of expected frequency cells for Chi-squared contingency tables have a value of less than 5 (Kim, 2017).

Employment was split into farmer (including partners of farmers) or non-farmer because previous research suggests that farmers are likely to have different attitudes towards community issues than other community members. Age was split into age groups because it was hypothesised that there may be differences in concern between age groups, rather than a linear increase in concern as age increases. For example, mid-life adults have been theorised to be more concerned about the next generation than older adults and young adults (McAdams et al., 1993), and therefore a similar trend towards concern towards the community's vitality may be found. Age was initially split into 4 age groups, however the MEF assumption was violated. Thus, age was split into 18 to 45 years ( $N = 16$ ) and 45 to 78 years ( $N = 42$ ). The results for each Fisher's exact test were non-significant (see Table 5) indicating concern was not associated with employment, gender or age.

Table 5

*Estimates and p-values for associations between concern and predictor variables*

Predictor variable	Odds ratio	<i>p</i>
Employment	1.22	.79
Gender	0.76	.77
Age	1.20	.77

Community involvement was split into number of 'Community Involvement' categories selected. Possible scores ranged from 0 to 9 although no participants selected more than 6 categories (see Table 1 for break-down of groups). This was further split into 0-2, 3-4 or 5-6

categories selected to overcome small expected frequencies. The Chi-squared analysis was not significant,  $\chi^2 (2) = 4.16, p = .13$ , indicating that concern is not contingent on community involvement.

The relationship between residency length and concern was analysed with a *t*-test of the difference between mean residency length of the high concern and low concern groups. The high concern group had a mean residency length of 34.7 years and the low concern group had a mean residency length of 29.2 years. The 95%  $CI_{BCa}$  for the difference between means was [-1.47 to 12.7]. As this interval contains 0, there is not enough evidence to suggest there is a difference in residency length for those who indicated high concern compared to those with low concern. As none of the five predictors were associated with concern, a logistic regression was not conducted.

## **Part 2 – The Impact of Farm Consolidation on Community Vitality and Individual Well-being**

**Impact of farm consolidation.** Participants rated their agreement on the perceived impact of farm consolidation scale to determine the extent to which they perceived farm consolidation to have a negative impact on the community's vitality. The mean score was 26.7 ( $SD= 7.20$ ) and the frequency of scores is shown in Table 6 below.

Table 6

*Frequency of scores on the perceived impact of farm consolidation scale (N = 53 participants)*

Score	n
6-11	2
12-17	5
18-23	9
24-29	16
30-35	17
36-42	4

*Note:* ‘Score’ refers to extent to which farm consolidation is perceived to impact the community’s vitality. A higher score indicates a greater negative impact.

As shown in Table 6, a majority of participants scored between 24 and 35. This range of scores suggests that participants perceived farm consolidation to have a negative impact on the community. Given there were a similar number of responses in the 24-29 range as in the 30-35 range, it could be concluded that some residents perceived the impact of farm consolidation to be stronger than others. The lack of scores between 36 and 42 suggests that participants did not perceive the impact to be extremely strong. This may be because there are some positive aspects of farm consolidation, or that decline in community vitality is partly attributable to other factors such as the out-migration of youth for example.

**Measures to reduce impacts of farm consolidation.** The fifth research question was interested in what measures can be taken to reduce the impact of these negative effects. Content analysis was utilised to examine 37 open-ended responses. Table 7 displays 10 recurring ideas or themes that were identified and the frequency of which they were mentioned.

Table 7

*Measures to reduce negative impacts (N = 37 responses)*

Theme	n
Introduce new industries/ businesses	12
Financial support	10
Maintain health and education services	8
‘Think local first’ when shopping and employing	7
There’s nothing or very little that can be done	4
Farm consolidation is necessary	4
Focus on attracting and keeping young people	3
Government policy/ regulation	3
Provide specialised training	3

Not sure

6

---

A small number of participants were not sure what measures could be taken or thought there was very little or nothing that could be done, often suggesting that farm consolidation is inevitable or necessary.

Introducing new industries to facilitate new businesses was the most commonly suggested solution, as it was expressed that it would attract new people and people of different demographics (such as young people) into the community, keep current residents from leaving, and bring in more employment opportunities.

Financial support was the next most commonly mentioned suggestion. This was often referring to support for farmers to prevent them from having to sell their property, or to be able to buy more land. One participant described the expense for young people to purchase and operate a new farm, and suggested that this is contributing to the decline in sons taking over the family farm. Another participant suggested that the unaffordability of land and the low profitability of agriculture are making the push for greater efficiency (through consolidating farms) drastic. Financial support was also talked about in reference to assisting businesses in the area through, for example, tax rebates.

Not surprisingly, maintaining health and education services and ‘think[ing] local first’ in terms of shopping and employing were also frequently mentioned as necessary to keep people in the area.

**Community vitality and subjective well-being.** Research question 6 aimed to explore the relationship between perceived community vitality and subjective well-being, and whether it

was moderated by social support. The sample size was 52 which was considered reasonable as the power analysis indicated an estimate of 55 participants.

First the Pearson correlation coefficients between subjective well-being, community vitality and social support were calculated (Table 8). Both social support and community vitality were significantly correlated with subjective well-being and had moderate to strong, positive relationships. Social support was moderately associated with community vitality, giving preliminary support for the hypothesis that it will have moderating effects.

Table 8

*Pearson's correlation coefficients between variables in the moderation analysis (N = 52 participants)*

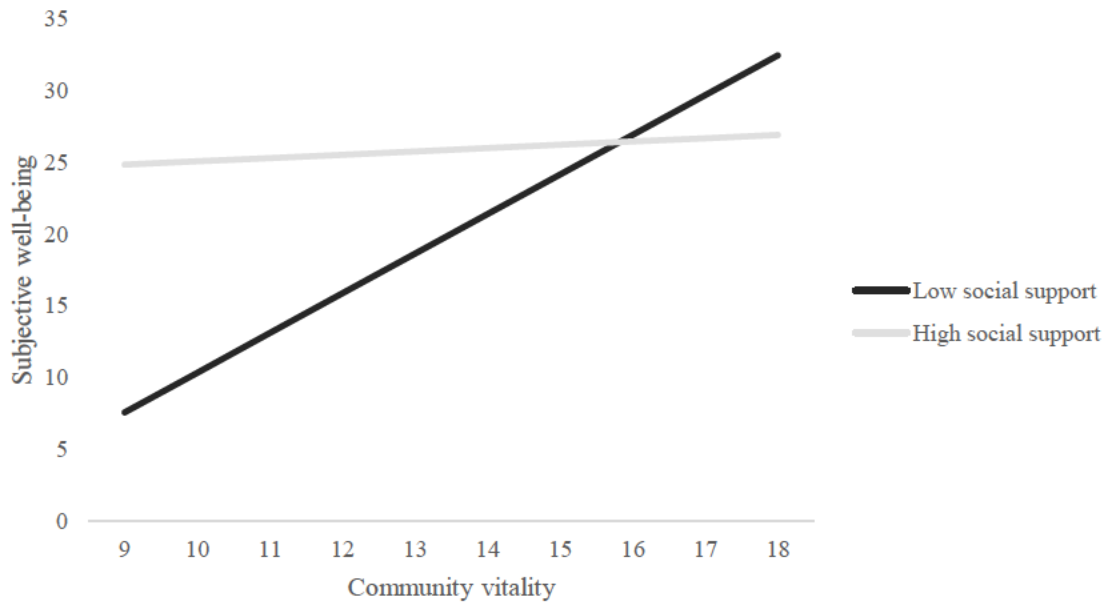
Variable	1	2	3
1. Subjective well-being	-	.46***	.39**
2. Social support		-	.33*
3. Perceived community vitality			-

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The moderation analysis was then conducted with two steps of hierarchical regression as explained in the method section. After adding the interaction term in step 2, there was a significant change in  $R^2$  ( $\Delta R^2 = .08$ ,  $F$  change (1, 48) = 6.10,  $p = .02$ ) and the interaction term (social support\* community vitality) was a significant predictor of subjective well-being ( $\beta = -3.71$ ,  $t = -2.47$ ,  $p = .02$ ). Although the interaction term explained only a very small amount of additional variance ( $\Delta R^2 = .08$ ), these results support the hypothesis that social support



moderates the effect of perceived community vitality on subjective well-being. An interaction plot (Figure 2) was created to examine this interaction.



*Figure 2.* Interaction plot for high and low social support

The graph in Figure 2 suggests that for individuals with low social support, the relationship between perceived community vitality and subjective well-being was much stronger ( $\beta = 2.76$ ) than for that of people with high social support ( $\beta = 0.23$ ).

## Discussion

Despite the documentation of farm consolidation and rural community decline for the past several decades, this study is one of the first in Australia to consider how both farming and non-farming rural residents view the social impacts of farm consolidation, where the bulk of previous research has focused solely on environmental and economic outcomes. Specifically, the way in which the decline of rural community vitality affects the well-being of rural residents has been noted as a gap in the literature (Arbuckle & Kast, 2012). Forth (2001) expressed that community decline and the loss of population and services must adversely impact quality of life for people living in such communities. Further evidence suggests social support to be a strong predictor of well-being for rural residents, acting as a buffer to stressful events and promoting well-being (Kutek, Turnbull, & Fairweather-Schmidt, 2011). Social support may therefore moderate the effect of perceived community vitality on subjective well-being, and act as an appropriate point of intervention should rural community decline be unpreventable. The present study aimed to explore rural community members' concern towards the effects of farm consolidation on their community's vitality, and how perceived community vitality is associated with subjective well-being and social support for people residing in rural and remote Australia.

### Research Question 1

The first aim of the study was to explore rural community members' concern towards the effects of farm consolidation on the community. The results indicated that 65.5% (95% CI: 53.3 to 77.7) of participants are highly concerned, suggesting that the true estimate could be as low as 53.3% or as high as 77.7%. Although this interval is wide, it indicates that a substantial proportion of the community is concerned. In line with the research from McAdams et al. (1993), the current findings suggest that a majority of Southern Mallee residents may be motivated to

participate in community-driven efforts to benefit the community, its social systems and its future. This is consistent with previous findings that rural community members often have a strong sense of community and identity, which leads to strong community engagement (Wilson & Sanyal, 2013).

### **Research Question 2**

Close to all of the participants with high concern indicated they are concerned because the reduced population will result in loss of sporting clubs and other social organisations (97.3%), shops and businesses (97.3%), and education and healthcare services (94.6%). This suggests that majority of rural residents are concerned that farm consolidation is negatively impacting the availability of essential services. This is not surprising given loss of services has been attributed as both a marker of community decline and a result of low demand from declining populations, and has been hypothesised to adversely affect costs and quality of life for the remaining residents (Forth, 2001). Loss of employment was also a common reason for concern (64.9%) followed by loss of longstanding community members (56.8%) and the failure of incoming contract workers to contribute to maintaining the town and its services (56.8%). Interestingly, one participant provided their own response that ‘community spirit’ evaporates when shops are lost, as “the shop was the one place where everyone saw each other”. This suggests that farm consolidation can also impact social support systems, which will later be discussed as a highly important factor for the well-being of people living in rural or remote areas.

The most frequently reported reason for low concern was that running larger scale farms is necessary to keep up with the industry (78.9%), followed by the fact that it is more profitable (63.2%). Very few participants indicated that they do not think farm consolidation has a very negative impact on the community (21.1%). These findings suggest that they are unconcerned

because it is an inevitable or a practical development, rather than due to a belief that the community is not detrimentally affected.

### **Research Question 3**

The third research question involved exploring the relationship between concern and the demographic variables which included age, time lived in the region, employment, gender and community involvement. The results showed that none of these variables were significant predictors of concern, suggesting that concern does not depend on gender or whether residents are farmers or not.

Similarly, there was no difference in degree of concern between residents aged 18 to 45 years and those aged 45 to 78 years. However, data were collapsed to overcome small minimum expected frequencies and the resulting age groups were no longer of theoretical interest. It is likely that there is large variability in degree of concern within each of these age groups as they each span over 30 years, which would explain why a difference between groups was not found. Furthermore, based on the findings of McAdams et al. (1993) it was expected that midlife adults would have higher concern than both young and older adults which the age groups did not account for. Therefore a larger sample size that allows for more theoretically relevant age groups may bare different results.

Concern was expected to be contingent on community involvement however the results did not support this. This may be because the number of ways someone is involved in the community is not the best reflection of their commitment and care to the community, and the extent to which they are involved may be more relevant. This reflects the difficulty in how to most appropriately measure community involvement.

It was expected that those who had lived in the community longer would be more concerned due to being more strongly included in the community and having had more time to develop an interest in the community. Past research also suggests that it can take a long time, even decades, for people to be properly accepted into small rural communities (Judd et al., 2006) which is expected to result in them feeling less concerned for the community's future than those who have lived there longer. However the results suggested there was no difference in time lived in the community between those who were highly concerned and those who were not.

#### **Research Question 4**

The second aim was concerned with how farm consolidation impacts the community's vitality and residents' subjective well-being. Over half of participants scored between 24 and 35 on the perceived impact of farm consolidation measure, suggesting rural residents believe farm consolidation has a moderate to strong negative impact on the community's vitality, supporting previous researchers' claims that farm consolidation not only affects communities economically and environmentally, but socially as well (Lobao & Stofferahn, 2007).

#### **Research Question 5**

The fifth research question asked how these negative effects could be mediated. Content analysis of 37 open-ended responses determined bringing new businesses and industries into the area as the most common recommendation. Collits (2001) highlighted how the lack of economic diversity in small rural towns is one of the main causes of their lack of economic growth. If the increase in farm consolidation and its negative impacts are unpreventable, then the future of the community cannot solely depend on the agriculture industry and, as suggested by the current study, introducing new industries may be the only solution. Financial support for farmers and other local businesses was also a frequently occurring theme as was maintaining health and

education services. Shopping and employing locally were suggestions that can be more immediately carried out by residents.

### **Research Question 6**

Finally, moderation analysis was used to explore how perceived community vitality affects individual subjective well-being. Social support and perceived community vitality were both moderate to strong predictors of subjective well-being. This finding of social support is consistent with a large body of previous research, which has identified social support as one of the few universal predictors of subjective well-being (Diener, 2012). The relationship between perceived community vitality and subjective well-being has not been the subject of many studies, although the findings here are supported by the Iowa study by Arbuckle and Kast (2012).

The results of the moderation analysis indicated the presence of an interaction effect, with the interaction term (social support\* community vitality) only explaining a small amount of additional variance in subjective well-being beyond that explained by community vitality and social support alone. Nevertheless, the increase in variance explained was significant and an interaction plot (figure 2) demonstrated that the relationship between perceived community vitality and subjective well-being is stronger for people with low social support than those with high social support. That is to say, people with low social support depend more on the community's vitality, which may be due to a lack of closer social networks. Arbuckle and Kast (2012) described the importance of support from both close social networks and perceived well-being of the community. The current research suggests that when close social supports are lacking, the perceived vitality of the community plays an important role in subjective well-being.

The results also provide evidence for the buffering effect. Interpreting the results with this model suggests that social support protects rural residents against the negative impacts of

low perceived community vitality (Cohen & Wills, 1985). Evidence for the buffering effect has also been found in previous studies, such as the study completed by Bailey, Wolfe, and Wolfe (1994) which suggested that the effect is present for stressful events but not for chronic conditions in life or at work. Bailey et al. (1994) also asserted that the presence of a buffering effect indicates that the stressors are responded to and coped with in different ways with and without the social support. In other words, buffering effects are observed when the support functions measured are those that are most relevant for the stressors (Cohen & Wills, 1985). Given the current study also found support for the buffering effect, it can be concluded that the COMMVITA scale does not reflect a chronic stressor, but one that is appropriately moderated by social support from friends, family and a special person, as measured by the Multidimensional Scale of Perceived Social Support (Diener et al., 1985).

### **Practical and policy implications**

These findings point to the importance of maintaining current services including social organisations, shops and other businesses, and health and education provision. Loss of these services were the main causes of concern for rural residents, and the need to maintain and support current services were among the most frequently mentioned suggestions for mitigating the negative effects of farm consolidation, along with introducing new industries and services. These findings suggest that government funding should be directed towards the maintenance and introduction of new types of local businesses. The government can also assist by providing tax rebates for businesses in country towns, as suggested in the open-ended responses to how the effects of farm consolidation can be mediated. Interventions at the community level can focus on motivating residents to shop locally although this is currently complicated by the expense of local services compared to the affordability of shopping online or at nearby regional centres.

Government incentives can again help in this area by reducing the costs of running businesses in rural towns, thus reducing retail prices. Volunteering for social events and organisations as well as in hospitals and schools are other actions that individuals can engage in, although rural areas are already heavily reliant on volunteers.

The results of the relationship between concern and various demographic variables did not establish one group of people who are more likely to be concerned and therefore more likely to exhibit proactive behaviour as suggested by previous research (McAdams et al., 1993). Instead it can be concluded that rural residents in general are likely to participate in interventions targeting community decline, based on the high prevalence of concern in the sample and the high “perceived impact of farm consolidation” scores. The latter results suggest that residents are not only concerned, but also consider the threat of farm consolidation negatively impacting the community to be high. This high threat appraisal was considered by Stevens et al. (2012) to be a necessary component in concerned people’s willingness to take action. Self-efficacy was also described as an important factor, that is, the degree to which participants perceive their own actions to be able to contribute to reducing the negative effects of farm consolidation. Although self-efficacy was not explicitly measured, there were only a small amount of participants with high concern who indicated that they believe nothing can be done when asked about mitigating the effects of farm consolidation. A large majority of respondents had suggestions, giving some evidence that high self-efficacy may be present. However, many of the suggestions given do not explicitly involve individual or community level action but instead rely on government funding and policy change. Therefore efficacy, and other factors beyond willingness to participate such as provision of leadership and funding, need to be considered when implementing community level interventions.



Finally, this research has highlighted the importance of maintaining social support systems given they buffer against the detrimental effects of low perceived community vitality on the well-being of rural residents. This was also reflected in the high prevalence of participants who indicated that loss of social organisations due to farm consolidation was a cause for concern. Social support may be facilitated through maintaining entertainment services such as the cinema and market days, maintaining sporting and other recreational clubs, or introducing new initiatives such as the “men’s sheds” which are increasingly popular in rural Australia and have been found to promote positive social interactions amongst rural men (Ballinger, Talbot, & Verrinder, 2009).

### **Methodological limitations and strengths**

The current study provides correlational data only, meaning inferences about the direction and causation of relationships cannot be made. High social support and perceived community vitality were suggested to lead to improved subjective well-being, however Arbuckle and Kast (2012) described how higher levels of well-being result in maintaining and generating social support systems. Therefore it may be that high well-being leads to improved social systems and higher perceived community vitality. However there is an extensive body of research that interprets this relationship to be in the direction of social support promoting well-being (for example Cohen & Wills, 1985), giving justification for studying the same direction presently.

The external validity of the current sample is questionable due to the small sample size and the composition of the sample. The size of the sample was problematic for finding associations between concern and demographic variables, however the sample size was adequate for the moderation analysis as indicated by the a-priori power calculations, making it a strength of this part of the study. The sample was gender-biased, with 69.0% of the sample being women.

Furthermore, participants were not randomly sampled and consequently those who chose to participate may have been higher in concern, social support and subjective well-being and lower in perceived community vitality than the general Southern Mallee population. Access to and competency with computers were required to complete the survey online, which may have excluded some groups within the population. The degree to which these results can be applied to rural areas other than the Southern Mallee is also unknown. It is likely that residents of other agriculture-dependent, declining small towns would exhibit similar characteristics. However larger regional centres, coastal areas or other-industry related areas (such as mining or fishing) may differ in their levels of concern and relationship to perceived community vitality.

A final limitation of the present study is its reliance on self-report measures which are subject to interpretation and the effects of social desirability, although survey responses were anonymous and kept confidential to reduce the effects of social desirability. The measure for perceived community vitality is particularly important to distinguish as subjective so as not to exaggerate claims as to how the community's actual vitality influences the well-being of rural residents. However, it was acknowledged throughout that the measures are based on perceptions and subjectivity, so self-report is somewhat appropriate.

Despite the above considerations, this study has its merits as one of the first studies to consider the impact of community vitality on subjective well-being which Arbuckle and Kast (2012) noted as an important gap in the literature. Furthermore, it considers these effects in the context of how farm consolidation in particular is impacting community vitality. This research adds to the small body of literature concerned with the social impacts of farm consolidation in Australia and does so using validated and reliable measures such as those used for social support and subjective well-being.

Another strength of this research is that it accounts for both farmers and general community members. Majority of the previous research towards rural issues tends to focus on farmers and farming families as the sample. However the current study recognises that farm consolidation impacts general community members as well as farmers and that, given the decline in the number of Australian farmers, the non-farming population will play an essential role in the future of rural communities.

### **Future research**

Future research may consider through which pathways perceived community vitality improves subjective well-being. Social network theory suggests social support to be one of these mechanisms (Berkman & Glass, 2000) which could be tested with a mediation analysis. However, for this analysis the measure for community vitality would need to be objective rather than a measure of how participants perceive the community's vitality to be. This is because a mediation model would assume community vitality causes social support, which is not true of perceived community vitality. While an objective measure of community vitality is currently lacking, previous research has used economic variables such as change in population as an indicator for the decline of rural communities (Forth, 2001). Other mediating pathways such as sense of community and sense of place could also be considered.

The current research has provided evidence that perceived community vitality is an important predictor for subjective well-being for people from rural and remote areas, however more research on perceived community vitality is required to improve its definition and measurement. Future research should also consider how perceived community vitality correlates with objective measures for example, socio-economic variables such as social class composition, crime rates, business closures and loss of services which have previously been used as indicators

for community vitality. The current research also gives grounds for using subjective well-being as an indicator for community vitality, which is particularly important given the aforementioned variables have been criticized for being economic rather than social factors (Arbuckle & Kast, 2012).

Future research can make methodological improvements to support the current findings such as expanding the population beyond the Southern Mallee district to improve external validity by attempting to replicate the current findings in other rural areas affected by decline. Such research should consider place of residence in the analysis to account for any differences between districts or states, which could be achieved through the use of multi-level modelling. A longitudinal research design would be a further improvement to provide evidence for causation and to analyse the long-term effects of social support on the relationship between perceived community vitality and subjective well-being.

### **Conclusions**

Majority of Southern Mallee residents perceive farm consolidation to have a strong, negative impact on the community's vitality, and are highly concerned about its effects. Furthermore, the current study provides evidence for a relationship between perceived community vitality and subjective well-being for people living in rural and remote areas. This relationship depends on the individual's level of social support in that it is stronger for people with low social support than those with high social support. This suggests that social support acts as a buffer from the effects of low perceived community vitality, or that the well-being of those with less social support depends more on the overall community's vitality than for that of people with high social support.

The decline of rural towns due to the effects of farm consolidation is oftentimes viewed as inevitable (Forth, 2001). Small rural towns may therefore become more like the outback with limited access to services. Although loss of services is an outcome that rural residents want to prevent, this study suggests that maintaining social support systems may be just as important for residents' well-being. This study highlights several suggestions to prevent or mitigate against the effects of farm consolidation on rural communities, however should all else fail, facilitating social support may be the key to the ongoing well-being of rural residents.

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## Appendix A: Letter of Introduction



10<sup>th</sup> May 2017

To the householder,

You are invited to take part in research being conducted by Joanna Hancock (from Parilla) which will form the basis of her honours degree at the University of Adelaide. The research is related to how farm expansion may impact on the vibrancy and sustainability of communities in the Southern Mallee.

The research involves completing a survey which is expected to take no more than 20 minutes to complete.

Anyone over 18 years of age who is a resident of the Southern Mallee district or has been a resident within the last three years and still has close ties to the community (e.g. through sport, employment or close friends and family) is eligible to participate in this study.

Participation in this study is completely voluntary and you are free to discontinue your participation at any time. Participation is anonymous and none of the participants will be individually identifiable in the resulting thesis or other publications.

The survey and more information can be accessed at the following link:

<https://www.surveymonkey.com/r/QYJ5HJR>

If you are eligible and choose to participate in the study, it would be greatly appreciated if you could complete the survey by Friday the 30<sup>th</sup> of June.

Thank you for your time and assistance.

Yours sincerely

Student Researcher  
Bachelor of Psychology (Honours)  
University of Adelaide

Professor Deborah Turnbull  
Research Supervisor  
Professor in Psychology  
University of Adelaide

Appendix B: Recruitment Flyer

# The Future of Rural Communities

## THE IMPACT OF FARM CONSOLIDATION ON COMMUNITY VITALITY AND INDIVIDUAL WELLBEING

### About this study

is seeking participants to help fulfill the requirements of her honours thesis. The study aims to achieve an understanding of how residents believe farm expansion is impacting on rural communities and, if there are negative impacts on the community, how they might be resolved.

### Who can participate?

You are eligible to participate if you are **18 years or older** and are a **resident of the Southern Mallee** or **have been a resident within the last 3 years and still have ties to the community** (for example through employment, sport or close friends and family).

### What does this study involve?

This study involves completing a survey which is expected to take around 20 minutes.

Survey answers will be kept confidential and stored securely.

This study has received ethics approval from the Human Research Ethics Committee at the University of Adelaide.



To complete the survey, scan the above code or visit the following website

[Redacted website link]

For more information please contact

[Redacted contact information]



[Redacted contact information]

## Appendix C: Survey Information Sheet and Consent Form



## The Future of Rural Communities: The Impact of Farm Consolidation on Community Vitality and Individual Wellbeing

Dear Participant,

You are invited to participate in the research project described below.

**What is the project about?**

The study aims to achieve an understanding of how farm consolidation is impacting on rural communities and what measures can be taken to reduce any negative effects.

**Who is undertaking the project?**

This project is being conducted by Joanna Hancock. This research will form the basis for the degree of Bachelor of Psychology (Honours) at the University of Adelaide under the supervision of Professor Deborah Turnbull.

**Why am I being invited to participate?**

You have been invited to participate because you are a resident of the Southern Mallee region or you have been a resident within the last three years and still have ties to the community (e.g. through employment, sport or close friends and family), you are able to complete the survey in English and you are over 18.

**What will I be asked to do?**

You will be asked to complete a survey containing a number of measures relating to your stance towards the effects of farm consolidation on your community's vitality and your own wellbeing.

**How much time will the project take?**

The survey is expected to take up to 20 minutes.

**Are there any risks associated with participating in this project?**

There are no foreseen risks in participating in the study apart from the inconvenience of completing the survey. However, if participation in this study raises any concerns, for example regarding your level of wellbeing, please contact either your general practitioner or one of the following service providers:

- *Lifeline: 13 11 14* (cost of a local call) for confidential access to trained counsellors, 24 hours a day
- *Rural and Remote Mental Health Service: 13 14 65* (cost of a local call) for emergency mental health information and assistance

**What are the benefits of the research project?**

The research may result in an understanding of the effects of farm consolidation on rural communities and its members, how they can be mediated and by whom. Participants may not directly benefit from participating.

**Can I withdraw from the project?**

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time. As survey responses will be unidentifiable, they can be withdrawn up until they are submitted.


**What will happen to my information?**

The information you provide will be kept confidentially on a password protected, secure server at the University of Adelaide. Personal information such as your name and address will not be recorded and your responses will not be identifiable. The results of the study will be reported for the use of the student researcher's Honours thesis.

**Who do I contact if I have questions about the project?**

For questions or complaints about the project please contact:

Professor Deborah Turnbull    [deborah.turnbull@adelaide.edu.au](mailto:deborah.turnbull@adelaide.edu.au)  
08 83131229

The study has been approved by the Human Research Ethics Committee at the University of Adelaide (approval number H-2017-43). For any questions concerning the ethics of this project, please contact the convener of the Subcommittee for Human Research in the School of Psychology, Dr. Paul Delfabbro, 8 313 4936. 

## CONSENT FORM

1. I have read the attached Information Sheet and agree to take part in the following research project:

Title:

The Future of Rural Communities: The Impact of Farm Consolidation on Community Vitality and Individual Wellbeing

Ethics Approval Number: H-2017-43

2. I have had the project, so far as it affects me, fully explained to my satisfaction by the information sheet. My consent is given freely.
3. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.
4. Although I understand the purpose of the research project it has also been explained that involvement may not be of any benefit to me.
5. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.
6. I understand that I am free to withdraw from the project at any time.

## Appendix D: Survey Questions

\* 1. What is your age? 

\* 2. What is your gender? 

Female

Male

\* 3. Which of the following best describes your form of employment? Select as many as apply 

Farmer (including partner of)

Farm employee

Government sector including  
local government

Business owner

Retail/hospitality employee

Healthcare

Education

Retired


Unemployed

Student


Carer/ stay-at-home parent


Other employment (please specify)



\* 4. How are you currently or have previously been involved in the community? Select as many responses as apply 

- |   |  |
|---|--|
| <input type="checkbox"/> Sports player                | <input type="checkbox"/> Lions club/ Apex/ Rotary                    |
| <input type="checkbox"/> Sports committee             | <input type="checkbox"/> Social club                                 |
| <input type="checkbox"/> Town committee               | <input type="checkbox"/> Scouts                                      |
| <input type="checkbox"/> Church committee/ attendance | <input type="checkbox"/> Volunteer (CFS, ambulance, meals on wheels) |
| <input type="checkbox"/> Other (please specify)       |  |

\* 5. How many years have you lived in the Southern Mallee region? 

Throughout this questionnaire, the term ‘farm consolidation’ refers to farmers increasing the size of their farm, typically by purchasing nearby properties. This has resulted in a reduction in the number of farming families and the overall population of rural communities, which may have impacts on the community. This study aims to explore how farm consolidation might impact on the sustainability and vibrancy of rural communities in the Southern Mallee. Question 6 below is regarding how you feel about the effects of farm consolidation on the Southern Mallee community. 

\* 6. How concerned are you about the effects of farm consolidation on future vibrancy of the community?



Not at all concerned    A little concerned    Quite concerned    Very concerned

\* 7. What are the main reasons you feel the effects of farm consolidation are of low concern? Select as many responses as apply 

- |   |   |
|---|---|
| <input type="checkbox"/> Farm consolidation does not have a very negative impact on rural communities             | <input type="checkbox"/> Larger scale farming is good for the Australian economy        |
| <input type="checkbox"/> Running larger scale farms is necessary to keep up with the industry                     | <input type="checkbox"/> There are more important issues of concern                     |
| <input type="checkbox"/> Buying more land will bring in more profit for the farms/ businesses which are expanding | <input type="checkbox"/> I do not think about the effects farm consolidation might have |
| <input type="checkbox"/> Other (please specify)   |   |

\* After considering the potential negative impacts of farm consolidation on the community, in your own words, what measures do you think can be taken to reduce these effects? 





12. Our community will no longer be sustainable in the future due to farm consolidation.

13. Farm consolidation is good for the future of rural life in the Southern Mallee.

14. This community would be a good place for future generations to raise their families.

15. The future of this community looks bright.

16. This community has more things going for it than other communities in South Australia.

17. I can't think of any other community where I'd rather live.

18. In most ways my life is close to my ideal.

19. The conditions of my life are excellent.

20. I am satisfied with my life.









Appendix E: SPSS Output for Moderation Analysis

Regression with interaction term (step 2)

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.523 <sup>a</sup>	.273	.244	5.50841	.273	9.220	2	49	.000
2	.596 <sup>b</sup>	.355	.315	5.24257	.082	6.095	1	48	.017

a. Predictors: (Constant), Commvita, SocialS

b. Predictors: (Constant), Commvita, SocialS, Interaction

Regression for high social support

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.085 <sup>a</sup>	.007	-.020	5.27095

a. Predictors: (Constant), Commvita

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.469	1	7.469	.269	.607 <sup>b</sup>
	Residual	1027.967	37	27.783		
	Total	1035.436	38			

a. Dependent Variable: Wellbeing

b. Predictors: (Constant), Commvita

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	22.770	6.778		3.360	.002
	Commvita	.230	.444	.085	.519	.607

a. Dependent Variable: Wellbeing

Regression for low social support

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729 <sup>a</sup>	.531	.489	5.01764

a. Predictors: (Constant), Commvita

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	313.825	1	313.825	12.465	.005 <sup>b</sup>
	Residual	276.944	11	25.177		
	Total	590.769	12			

a. Dependent Variable: Wellbeing

b. Predictors: (Constant), Commvita

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	-17.303	10.571		-1.637	.130
	Commvita	2.764	.783	.729	3.531	.005

a. Dependent Variable: Wellbeing