Farmer Identity in Multifunctional Landscapes: using a collective identity construct to explore the nature and impact of occupational identity

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Farmer Identity in Multifunctional Landscapes: using a collective identity construct to explore the nature and impact of occupational identity

THERESA M. GROTH, ALLAN CURTIS, EMILY MENDHAM & ERIC TOMAN, Charles Sturt University, Australia; Charles Sturt University, Australia; Charles Sturt University, Australia; Ohio State University, USA

ABSTRACT The use of multifunctionalism to conceptualise contemporary rural landscapes has focused attention on the increased extent and impact of non-farmers in traditionally agriculture-based rural communities. Typologies of rural landholders have been developed as part of that research effort. However, those typologies are not grounded in established theory, including collective identity theory that could provide an important foundation for the study of occupational identity. Indeed, most quantitative studies may be flawed in drawing on only one of the seven elements contributing to collective identity. This paper examines the efficacy of relying on self-declared occupational identity through the analysis of rural landholder survey data in an Australian region. Tests for expected relationships between self-declared identity of farmer/non-farmer and social and farming variables expected to be correlated with occupation, such as property size, profitability, hours worked on- and off-property, enterprise type and membership of farming-related local organisations found that the expected relationships existed. It seems that self-declared occupational identity is a valid and cost-effective way to explore occupational identity amongst rural landholders. Collective identity, however, is complex and it is unlikely that important research questions can be adequately explored without a more holistic approach to the study of farmer identity in multifunctional landscapes. The paper concludes with a discussion of the potential benefits of moving beyond self-declared occupation to include other elements in the collective identity construct.

KEY WORDS Identity; multifunctional landscapes; collective identity construct; agricultural landscapes; rural restructuring; occupation.

Introduction

In Australia and the USA rural areas are becoming multifunctional, in that many regions are no longer dominated by agriculture and are shaped by a mix of production, consumption and conservation values (Holmes 2006; Abrams & Bliss 2013). Although land may continue to be farmed, a diversity of land-use and land
management practices occur (McKenzie 2013; Weller et al. 2013). These practices reflect the different values, beliefs, personal norms, knowledge, skills, experience, time available and connection to extension agents and commodity groups amongst landholders (Mendham et al. 2012).

In Australia, areas with attractive natural and cultural assets and areas close to metropolitan areas have experienced population growth (Haberkorn et al. 2004; Buxton et al. 2006). Similarly, in the American West large areas of agricultural and forested land have transferred from production-oriented to amenity-oriented owners (Gosnell et al. 2006; Yung & Belsky 2007; Abrams & Bliss 2013). Advances in transport and communications, increasing levels of transferable incomes and a large cohort of wealthy individuals approaching retirement age are some of the factors driving amenity migration. It seems that these new amenity owners have different motivations from ‘traditional’ farming property owners and that an important difference between new and longer term owners is related to a production or consumption orientation (Nelson 1997; Bohnet et al. 2003; Kendra & Hull 2005; Loeffe & Ernst 2007; Lankester 2012; Mendham et al. 2012). In the USA, new owners are more likely to engage in practices related to recreation, aesthetics, and conservation, while longer term owners are more likely to engage in production-related activities such as improving irrigation efficiency and express concerns about maintaining the economic viability of their operations (Gosnell et al. 2006, 2007). Similar differences have been found in Australia, with new owners often more interested in the recreation and conservation values of their properties (Mendham et al. 2012). Likewise, individuals who more closely align with ‘wider community roles’ as opposed to traditional farming roles were more inclined to favour nature conservation (Lankester 2012). Much of this research builds upon the work of Gasson (1973), who drew upon Maslow’s hierarchy of needs to identify the instrumental, expressive, intrinsic and social values that farmers seek to obtain.

While the use of multifunctionalism to conceptualise contemporary rural landscapes has focused attention on the increased extent and impact of non-farmers, that research and the work of those attempting to develop rural landholder typologies have done so largely without reference to identity theory, in particular, the theoretically based construct of collective identity. This construct appears to provide a solid foundation to more fully understand the concept of occupational identity. Indeed, most quantitative studies have simply asked respondents to self-declare their principal occupation. This approach may be flawed in that it draws on only one of the seven elements of collective identity theory.

The purpose of this paper is to explore the efficacy of self-declaration, a commonly used approach to assess occupational identity of landholders in rural landscapes and to explore the potential applicability of the collective identity construct (CIC) to more fully describe these landholders. In the next section we provide an overview of the concept of collective identity, including the key elements of the construct and potential measures. We conclude with a discussion of the potential benefits of moving beyond self-declared occupation to include some of the other elements proposed in the CIC.
Collective identity construct

A collective identity is a statement of categorical membership that is ‘shared with a group of others who have (or are believed to have) some characteristic(s) in common’ (Ashmore *et al.* 2004, p. 81). Collective identity theory employs aspects of social identity theory, which analyses the behaviour of individuals in group settings and how this relates to their self-concept as a group member (Stets & Burke 2000), and identity theory, which postulates that a person’s identity can influence their attitude and that these identities can influence behaviour (Stryker & Serpe 1982; Stets 2006). An occupational identity is one in which its ‘members’ sense of identity is closely tied to their occupation’ (Carroll & Lee 1990, p. 142). Occupational identity can be shaped by the title of the position but also the social context and feelings of connection on the part of an individual. Occupational identities are just one of many collective identities that individuals hold. Each individual has multilayered, complex and continually changing identities based on the social networks and positions they occupy, all of which are influenced by the particular social context (Burke & Stets 2009). The CIC (Ashmore *et al.* 2004) is a foundation model for viewing the elements that could be included in theories of identity. The CIC contains seven distinct elements of collective identity; the seven dimensions highlight those elements that indicate the relative strength of an individual’s collective identity (see Table 1). The CIC can be used to explore the occupational identity of rural landholders, how this influences behaviour and how this affects natural resource management (NRM).

The foundation of the CIC is arguably the dimension of self-categorisation (e.g. does the individual perceive him/herself to be a member of a particular group?). To assess self-categorisation, Ashmore *et al.* (2004, p. 86) suggest researchers allow respondents to fill in open-ended questions regarding membership affiliation as ‘this will allow the researcher to confirm that a respondent is answering any additional questions in reference to the phenomenological “correct” social category’ and may yield ‘important information regarding the person’s social self-categorisation that might otherwise be overlooked’. The dimension of self-categorisation provides insight into the remaining six dimensions of the construct. The six dimensions are dependent on the classification of group membership. Without a group membership

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-categorisation</td>
<td>Individual self-identification as a member of a particular group</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Evaluation of a group on a personal and public scale</td>
</tr>
<tr>
<td>Attachment and sense of</td>
<td>Feeling of fate being tied to a group</td>
</tr>
<tr>
<td>interdependence</td>
<td></td>
</tr>
<tr>
<td>Behavioural involvement</td>
<td>Reflection of action of group members signifying group membership</td>
</tr>
<tr>
<td>Importance</td>
<td>Mental hierarchy position amidst other memberships held</td>
</tr>
<tr>
<td>Social embeddedness</td>
<td>Number of interactions individuals have with group members</td>
</tr>
<tr>
<td>Content and meaning</td>
<td>Actual or perceived history of the group</td>
</tr>
</tbody>
</table>

Note: *As found in Ashmore *et al.* (2004).
to assess, the CIC is no longer a cohesive construct but rather a list of irrelevant evaluation criteria. Suggested measures to operationalise the elements of CIC can be found in Ashmore et al. (2004).

Contemporary approaches to assess occupational identity amongst rural landholders

Petrzelka et al. (2006) developed a scale to measure the strength of natural-resource-based occupational identity. These authors identified two main facets of resource-based occupational identity: involvement with aspects of the occupation during the individual’s ‘off’ time and attachment to natural resources near where they live. Survey participants rated their involvement in four voluntary natural-resource-based groups: their local watershed council, local irrigation district group, water conservation district group and agricultural production organisations. Attachment to natural resources was measured by a respondent’s rating for two statements: the importance of ‘preserving opportunities for traditional multiple-use activities such as grazing/logging, and the importance of ability to earn a living off the land (e.g., farming, logging)’ (Petrzelka et al. 2006, p. 699). A summated index was created using both the involvement and attachment measures. While this is the first measurement of occupational identity in a natural resource context identified by the authorship team, this approach appears to touch on only the CIC element of behavioural involvement.

Nunkoo and Gursoy (2012) added to the approach of Petrzelka et al. (2006) by including five additional survey items to measure the level of involvement with local organisations. Other research examining land ownership motivations in central Texas ‘measured self-identity as a rancher or farmer, using four items (e.g., Ranching/farming is an important part of who I am)’ (Sorice et al. 2012, p. 59). A variety of different approaches have also been employed to arrive at self-declared social categories such as asking respondents to select one word from a pair (e.g. black–feminine) or to choose from a list of groups and indicate how much they identify with that group (described in Ashmore et al. 2004). However, not one of these studies incorporated all seven elements of the CIC.

The majority of quantitative NRM research reviewed has employed a mix of variables, including those that are economic (property profit or income), social (group affiliation) and/or environmental (land management practices such as fencing waterways) to determine an individual’s occupational identity (Holloway 2002; Jongeneel et al. 2008; Barnes et al. 2011; Sorice et al. 2012; Abrams & Bliss 2013). Some quantitative studies have asked respondents to self-declare their occupation using either a tick-the-box or an open-ended question (Curtis & Mendham 2012; Race et al. 2012). The use of strict self-declaration to derive a collective (and occupational) identity may be problematic in that this approach draws on only one of seven elements of collective identity.

Landholder typologies

Typologies are often used to identify groups of landholders with similar characteristics. Typologies are often based on the socioeconomic characteristics, values or approaches to decision making of landholders (Emtage et al. 2006). The classification of landholders is often then modified depending on the theoretical lens a researcher is
applying with the landholders’ primary occupation receiving varying levels of priority. The reality is that most landholder typologies have focused on land use (Hassink et al. 2012), value orientations (Gasson 1973; Holmes 1986; Holmes & Day 1995; Kuehne et al. 2008), and farming styles and scripts (Vanclay et al. 2006, 2007), while less attention has been placed on the landholders’ occupation.

Some researchers prefer to classify landholders broadly as farmer/non-farmer and others choose to describe them as productivist/non-productivist (Curtis et al. 2008; Wilson 2008). Race et al. (2012) initially classified landholders into two types: farmers and non-farmers based on the landholders’ self-declared occupation. Through a small sample (n = 29) of interviews of rural landholders, the researchers determined that the farmer/non-farmer classification was not sufficient and further divided the non-farming category into part-time farmers and lifestyle landholders. This further classification was atheoretical and based on primary occupation, property size, and income sources (on- or off-farm income). Primdahl and Kristensen (2011) identified five main categories of farmers by using age and income to separate the types. These authors identified full-time farmers (no income from off-property), part-time farmers (income from on-property > off-property), hobby farmers (income from off-property > on-property), and then pensioners and others. Kuehne et al. (2008) used profit motivation and family involvement to identify three different clusters of irrigators in their Australian study: investors, lifestylers and providers.

Research by Vanclay and colleagues (Vanclay et al. 2006, 2007; Vanclay & Enticott 2011) utilised farming styles, scripts and parables to classify various types of farmers. Styles, scripts and parables were used as aids to explain the diversity, conformity and complexity that exists in the farming community. Farming styles are ‘strategies of farming’ that guide individual farmer practice and incorporate the worldviews of the farmer. However, Vanclay et al. (2006, p. 5) regard ‘farming styles to be more an intellectual construction of social researchers, rather than a social construction of farmers themselves’. Scripts complement styles in that they are ‘cultural models combining cultural, ideological and social factors at the level of society, and are reinforced by personal experience, knowledge and belief at the individual level’ Vanclay et al. (2006, p. 9). For farmers, the script of hard work means producing visible results through manual labour. Lastly, parables are caricatures of farmers that contain strong normative messages intended to influence farming practices. The labels applied included ‘real farmers’, those who rely on the farm for their income; ‘safety-net farmers’, those who are supported from alternative employment; and ‘lifestyle farmers’, who are not regarded as ‘real farmers’ (Vanclay et al. 2007).

Using a mixed-methods approach within a ‘framing’ methodology (cognitive constructs used to organise and interpret information) and through the application of cluster analysis, Jansujwicz et al. (2013) established a typology for landholders in relation to vernal pool conservation. The three categories of ‘supportive’, ‘uncertain’ and ‘opposing’ landowners were identified based on responses to statements exploring the perceived personal gains and losses associated with ecologically important pools of water that act as the breeding ground for invertebrates.

A key finding from this review of the literature is that most existing typologies have been based on variables unrelated to occupation. Moreover, as Emtage et al. (2006) illustrated, there has been limited attention to the non-farming cohort of landholders despite evidence that farming and non-farming identities are likely to be significant influences on NRM outcomes (Curtis & Mendham 2011). By using a
largely atheoretical approach to develop landholder typologies, the applicability to other contexts is limited; the variables generally implemented are largely context dependent and may not apply in circumstances under different conditions.

Methods/approach

In this paper, we seek to examine the effectiveness of self-reported measures of occupational identity by analysing survey data from rural landholders in a region in southeast Australia. We hypothesise that those who self-identify as farmers will own larger properties, be more likely to report a profit, work more hours on-property and less off-property, partake in more labour-intensive enterprises and be more likely to participate in farming-related organisations. The extent that self-declared occupational identity as a farmer is correlated with these proxy variables will provide a measure of the validity of self-declaration as an approach to determining occupational identity.

The Wimmera region as a study site

The Wimmera Catchment Management Authority region (WCMA region) is one of 10 NRM regions in Victoria covering approximately 30 000 km² in western Victoria, approximately 3 hours’ drive from the city of Melbourne. The climate is typical of a Mediterranean type with most rainfall in winter and spring. Average annual rainfall totals vary from up to 1000 mm in the Grampians to as low as 300 mm in the northern plains. The Wimmera River flows north to join the Murray River and is the largest Victorian river that does not flow directly to the ocean. The region includes a series of terminal lakes, the largest of which are Lake Hindmarsh and Lake Albacutya. Agriculture is the predominant land use and approximately 85 per cent of the region has been cleared of native vegetation. Much of the remaining native vegetation exists within public reserves including the Grampians and Little Desert National Parks. Cropping (cereal, oil seed and grain legume) is the principal agricultural activity, followed by meat, wool and dairy. Tourism is also an important industry in the region. The Wimmera regional population is approximately 50 000, with almost a third of these people living on farms or in small townships. Horsham is the largest centre, with Edenhope, Nhill, Stawell and Warracknabeal as other larger centres.

The Wimmera is typical of many regions in the Murray-Darling Basin (MDB) in that there is a mix of social landscapes (production, amenity and transitional (Barr et al. 2005), but it is more typical of regions located some distance from a major capital city and away from the coast. The Wimmera region reveals internal variation between landscapes of high amenity, such as the Grampians National Park, and areas of low amenity, such as the drier desert country towards the Murray River. The region includes large areas of productive dryland and irrigation agriculture. There is evidence of significant, ongoing changes in social structure (e.g. occupation of landholders, property size, subdivision/amalgamation, absentee ownership and multiple property ownership) that is also typical of other Australian regions within the MDB (Curtis & Mendham 2012). In particular, an increasing non-farmer cohort is evident, despite the strong farming orientation of much of the western and northern Wimmera (Curtis & Mendham 2012).
The mail survey process

The 2011 Wimmera survey gathered information that would enable the research team to describe trends in social and farming structure including occupational identity; assess progress in the achievement of NRM program objectives; and explain landholder adoption of recommended sustainable agriculture practices. The survey process employed a modified Dillman (1978) Total Design Method. A detailed explanation is provided in Curtis et al. (2005). Survey booklets were addressed to 1243 randomly identified property owners (greater than 10 ha) from the local government rural property owner lists. The final N value for the survey after removing multiple listings, return to senders and returned blank surveys with a valid reason for not completing the survey was 1003. With 495 completed and returned surveys, the response rate was 49 per cent. Survey respondents were compared with the population of rural property owners using data from the Australian Farm Census and local government ratepayer lists. Comparisons using area of holding, age of landholders and membership of Landcare suggests that there are no significant differences between the survey respondents and the population of rural landholders in the region.

Rural landholder values, identity and connection to the land are reflected in their land management decisions (Holmes 1986; Holmes & Day 1995). McKenzie (2013) highlighted the extent of farmer-driven innovation in the Australian context that further emphasises the need to examine farmers’ land management practices in depth. In partnership with the WCMA, the research team identified a set of land management practices widely accepted and promoted as ‘best-practice stewardship’, including by farmer-driven groups such as Landcare. Accordingly, the survey asked respondents for information about the extent they had implemented practices such as minimum-tillage, established perennial pastures, fenced wetlands and river frontages to control stock access and revegetated using native species. See Curtis et al. (2005) for more details of the specific measures employed in the study.

The extensive literature on the adoption of sustainable agricultural practices and biodiversity conservation practices underpinned the selection of other survey topics and specific items. The key topics explored landholder values, long-term plans and factors influencing adoption based on a widely cited synthesis paper (Pannell et al. 2006). Those factors included:

1. the nature of the practice (such as its trialability, complexity and observability);
2. the personal characteristics of the landholder (such as knowledge, income, stage of life);
3. the wider social context (such as prevailing norms; the existence and activities of local organisations); and
4. the nature of any intervention or learning process (such as grant programs).

Previous research has identified variables correlated with farming and non-farming occupations and which could be employed as either surrogates of occupation or as part of attempts to develop typologies based around occupation (Curtis & Robertson 2003; Pannell et al. 2006; Curtis & Race 2012; Race et al. 2012). The Wimmera survey asked respondents to self-declare their occupation using an open-ended item. The survey also gathered data for six variables expected to correlate with landholder occupation: property size; land use/enterprise; hours on property;
time in work off-property; organisational membership; and profit/income. These variables were used in analyses to explore the validity of using self-declaration to measure occupational identity.

Data analysis

Statistical analyses applied in this research included descriptive statistics (median, sum and total) of survey items, and pairwise comparisons to explore relationships between occupational identity and landholder characteristics. Further analyses included examination of data for statistically significant differences between groups (e.g. those who identified as farmers and those who did not). Mann–Whitney U tests were used to test for differences on a continuous variable or a Likert scale based on a grouping variable (e.g. farmer/non-farmer). Chi-square tests and Fisher’s exact tests were used to examine dependence between two categorical (or grouping) variables (e.g. between farmer/non-farmer and Landcare member/Landcare non-membership).

In all analyses, the p statistic represents the significance level where a value below 0.05 is considered to be statistically significant. A p value below 0.05 means that it is unlikely (probability of less than 5 per cent) that the observed relationship or difference has occurred purely by chance. The phi coefficient and r values are correlation coefficients that can range from 0 to 1, with higher values indicating a stronger association between the two variables. Cohen’s (1988) phi interpretation criterion states that a phi of 0.1 is equivalent to a small effect; 0.3 is a medium effect; while 0.5 is a large effect. All statistical analyses were performed using IBM SPSS Statistical software and Microsoft Excel.

Results

Occupational identity

Respondents were asked to self-declare their primary occupation. The survey item included examples of possible occupations (e.g. farmer, teacher, accountant, investor, retiree). Of the 494 returned surveys, 40 did not list an occupation. All responses were recoded into four categories: farmer, n = 253; professional (e.g. accountant, teacher), n = 105; retiree, n = 68; and trade (e.g. plumber, construction worker), n = 28. These initial four categories were then recoded into farmer and non-farmer, with farmers being all those who were self-declared farmers (n = 253) and those professionals, retirees, and those in the trades who were self-declared non-farmers (n = 201). This reclassification was important as it allowed for direct testing of the influence of occupation on variables of interest to the researchers: land use/enterprise, property size, hours worked on property, amount of paid off-property work, farm-related membership affiliations and profit/income.

Property size

Previous research has found that property size strongly influences farm structure (Weller et al. 2013). We hypothesised that farmers would own larger properties than non-farmers. Two survey items asked respondents the amount of land owned/managed by them or their immediate family; and the area of property the respondent owned. As expected, farmers owned and managed significantly larger
properties than non-farmers (see Table 2). With a large effect size, we suggest that both variables are very good proxy indicators of occupational identity.

**Land use/enterprise**

We hypothesised that farmers would be involved in more labour-intensive land uses/enterprises than non-farmers. Labour-intensive enterprises would include those activities that are more complex, demanding of time and labour, and are relatively inflexible in their labour demands (e.g. dairying; broadacre cropping). We also hypothesised that the more ‘alternative’ enterprises and those reflecting strong conservation values are more likely to be undertaken by non-farmers (e.g. trees planted to provide shade/shelter/habitat; farm-based tourism). Seventeen land-use/enterprise categories were included in the survey but only nine were expected to vary with occupation and had sufficient numbers of respondents for statistical analyses to be undertaken (see Table 3). There were significant relationships between self-declared occupation (farmer/non-farmer) and land use/enterprise for five of the items, and these differences were as expected. For example, broadacre cropping and dryland pasture are mostly undertaken by self-declared farmers. The evidence suggests that certain land-use/enterprise types can be a useful proxy indicator of occupational identity.

| Table 2. Property size (n = 195–246) |
|---|---|---|---|---|
| Property size | Median | U | z | r | p |
| Amount of land owned/managed | | | | | |
| Farmers | 1100 ha | 5415.5 | -14.01 | -0.67 | <0.001 |
| Non-farmers | 118 ha | 5180 | -14.12 | -0.67 | <0.001 |

| Table 3. Land use/enterprise (n = 450–451) |
|---|---|---|---|
| Land use/enterprises on your property | Chi-square | Phi | p |
| Broadacre cropping (farmer n = 208; non-farmer n = 92) | 65.82 | 0.38 | <0.001 |
| Dryland pasture (farmer n = 200; non-farmer n = 118) | 22.25 | 0.22 | <0.001 |
| Beef cattle (farmer n = 48; non-farmer n = 22) | 5.42 | 0.11 | <0.05 |
| Sheep for meat (farmer n = 192; non-farmer n = 94) | 40.18 | 0.30 | <0.001 |
| Sheep for wool (farmer n = 175; non-farmer n = 86) | 31.38 | 0.26 | <0.001 |
| Farm forestry (farmer n = 22; non-farmer n = 14) | 0.44 | 0.03 | 0.601 |
| Areas greater than 1 ha of trees planted to provide shade and shelter, habitat, erosion control, recharge control (farmer n = 152; non-farmer n = 109) | 1.40 | 0.06 | 0.236 |
| Part of the property is under a conservation covenant/management agreement with the WCMA or another organisation (farmer n = 43; non-farmer n = 30) | 0.32 | 0.03 | 0.569 |
| Remnant native bush (trees and/or grasses) covered by a conservation covenant (farmer n = 22; non-farmer n = 27) | 2.75 | -0.08 | 0.097 |
We hypothesised that farmers spend more time working on farming- or property-related activities than non-farmers over a 12-month period. As expected, farmers worked significantly more hours per week on property than non-farmers (see Table 4). The effect size indicates that there is a strong relationship between hours worked per week on property and occupational identity. This finding established that hours worked on property is a useful proxy indicator of occupational identity.

**Paid off-property work (time off-property)**

Our next hypothesis was that non-farmers would perform more paid off-property work than farmers. Of the farmers, 24 per cent indicated that they participated in paid off-property work and the median number of days indicated for paid off-property work was 25 days/year. Amongst the non-farmers, 60 per cent indicated that they participated in paid off-property work. Retirees made up the majority (73 per cent) of those non-farmers not engaged in any paid off-property work. Of the 118 non-farmers who indicated that they were involved in paid off-property work, the median number of days worked off-property was 200 days. As expected, non-farmers worked significantly more days in paid off-property work in the past 12 months (see Table 5). The extent of off-property work is therefore another useful proxy indicator of occupational identity.

**Membership of farm-related organisations**

We expected that farmers were more likely to be members of farm-related organisations. Respondents were asked whether they were a member or involved with a local Landcare group (community-based local organisations focused on sustainable agriculture and biodiversity conservation) (Curtis & De Lacy 1996); and whether they were a member or involved with a local commodity group (e.g.

### Table 4. Hours spent working on property

<table>
<thead>
<tr>
<th>Hours on property</th>
<th>n</th>
<th>Median</th>
<th>U</th>
<th>z</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>252</td>
<td>50</td>
<td>3637</td>
<td>−15.54</td>
<td>−0.73</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Non-farmers</td>
<td>196</td>
<td>5</td>
<td>453</td>
<td>−0.78</td>
<td>−0.73</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

### Table 5. Days of off-property work

<table>
<thead>
<tr>
<th>Off-property work</th>
<th>n</th>
<th>Median</th>
<th>U</th>
<th>z</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>247</td>
<td>25</td>
<td>12713.5</td>
<td>−9.61</td>
<td>−0.46</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Non-farmers</td>
<td>195</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Flockcare, Cropcare, FM 500, Target 10, Best Wool, Birchip Cropping Group). Just under half (44 per cent) of all farmers indicated that they were involved in a Landcare group, while a third (35 per cent) indicated membership or involvement with a local commodity group. Only 22 per cent of non-farmers were involved in a Landcare group and 7 per cent affiliated with a local commodity group. As expected, farmers were significantly more likely than non-farmers to be involved with natural resource/agricultural-based organisations (see Table 6). Again, the strength of the relationship supports the finding that membership affiliation is a useful proxy measure of occupational identity. An important caveat regarding this measure to keep in mind for future studies is the importance of focusing on organisations where membership is selective and likely influenced by collective identity rather than organisations open to all comers, as is the case with Landcare groups in Victoria.

**Profit/income**

We expected that farmers would be more likely to earn a net profit from on-property enterprises and the level of profit to be higher. We acknowledge that agricultural producers are not always able to operate profitably, but our view is that those who see themselves as farmers will be more likely than non-farmers to seek or be able to make a profit. Conversely, we expected non-farmers to be more likely to earn a net profit from off-property sources of income and for that income to be larger than for farmers. We were therefore able to explore the potential of these four proxy variables for occupational identity (see Tables 7 and 8).

Our analyses showed that farmers are significantly more likely than non-farmers to report a net profit from their on-property enterprises (see Table 7). Indeed, 84 per cent of farmers reported a profit compared to 53 per cent of non-farmers. On the other hand, non-farmers are significantly more likely to have received a net off-property income (89 per cent of non-farmers; 61 per cent of farmers). For both variables, the effect size is considerable.

There were also statistically significant relationships between the median net level of on-property profit and off-property income and occupational identity (see Table 8).

<table>
<thead>
<tr>
<th>Membership affiliation</th>
<th>n</th>
<th>Chi-square</th>
<th>Phi</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Landcare group</td>
<td>444</td>
<td>24.87</td>
<td>0.237</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Local commodity group</td>
<td>447</td>
<td>49.24</td>
<td>0.332</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property profit and income</th>
<th>n</th>
<th>Chi-square</th>
<th>Phi</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net property profit</td>
<td>434</td>
<td>51.48</td>
<td>0.344</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Net off-property income</td>
<td>439</td>
<td>44.54</td>
<td>-0.319</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Again, these relationships are as expected and the effect size is large, particularly for the relationship between net on-property profit and occupational identity.

Discussion and conclusions

In this paper we have demonstrated that rural landholders in western Victoria who self-identify as farmers are statistically different from non-farmers on a number of characteristics. The binary division of farmers and non-farmers only recognised the current occupation and not past livelihoods. Even so, farmers in the Wimmera catchment region own larger properties, partake in more labour-intensive land uses/enterprises and work more hours on property and fewer hours off-property than non-farmers. Non-farmers in this area are less likely to be members of local commodity and sustainability groups, less likely to earn a profit from their land and more likely to earn income from working off-property than farmers. Given the similarities between the Wimmera and other inland farming regions in the MDB, such findings are likely to be similar in other landscapes experiencing a rural transition with the associated potential for conflicting landholder values.

Confirmation of the assumed relationships between these proxy variables and occupational identity based on the single measure of self-declared identity suggests that this single measure is a valid and reliable measure of occupational identity amongst rural landholders. The strength of the effect size for the relationships between most of these proxy variables and self-declared identity as a farmer provides further support for this conclusion. That is, a single item measuring occupational identity may be sufficient for many research purposes. This is an important finding given the efficiency of employing a single measure of occupational identity rather than the complex multi-dimensional conceptualisation as operationalised in the CIC (Ashmore et al. 2004).

The proxy measures employed in this research move beyond self-categorisation to explore aspects of the CIC elements of social embeddedness and behavioural involvement (the proxy variables of membership affiliation and enterprise type). However, the tested proxy variables do not fully encapsulate the complexity of those elements of CIC. For example, membership affiliation could be better inferred from membership of groups or organisations that are focused explicitly on a specific collective identity. For instance, Landcare groups in Victoria, by being open to all rural landholders, do not exactly fit the CIC dimension of behavioural involvement. Moreover, membership affiliation alone does not embody the CIC dimension of social embeddedness as the respondents were not asked about the

### Table 8. Profit/income and occupation

<table>
<thead>
<tr>
<th>Profit/income</th>
<th>n</th>
<th>Median</th>
<th>U</th>
<th>z</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate profit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmers</td>
<td>188</td>
<td>$55,000</td>
<td>3608.5</td>
<td>-8.38</td>
<td>-0.50</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Non-farmers</td>
<td>96</td>
<td>$15,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total off-property income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmers</td>
<td>139</td>
<td>$25,000</td>
<td>7399</td>
<td>-5.38</td>
<td>-0.31</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Non-farmers</td>
<td>165</td>
<td>$45,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
degree to which fellow members were embedded into their daily personal lives. Those using membership of organisations as a measure of behavioural involvement should focus on those organisations where membership is based on collective identity.

Those attempting to explore the nature and impact of occupational identity will need a stronger theoretical foundation than is provided by a single item asking respondents to self-declare their occupation or a single item supported by some or all of the proxy variables included in this research. It is our view that the CIC provides such a foundation. For example, the use of the CIC enables researchers to explore the influence of identity as a farmer as part of the multiple identities that individuals hold. At a practical level, research findings from the application of the CIC could enhance understanding of the processes shaping the land-use and management decisions of rural landholders (see Holloway 2002; Barnes et al. 2011; Abrams & Bliss 2013).

Research examining the identity of rural landholders should assist those seeking to understand and conceptualise changes in rural landscapes (Sorice et al. 2012), including the application of the multifunctional rural transition construct. By applying the multi-dimensional CIC, researchers should also have a stronger theoretical foundation for developing landholder typologies that have typically been developed using little more than researcher intuition or statistical techniques such as cluster analysis that are data driven rather than theory driven.

As explained, there is more to identity than self-categorisation. All seven elements included in the CIC appear relevant to research examining identity amongst farmers; however, some dimensions appear to be more useful than others. We hypothesise that the four dimensions of self-categorisation, behavioural involvement, importance (the degree that a particular group membership is important to an individual’s self-concept) and social embeddedness will be particularly useful to classify the spectrum of rural landholders as these dimensions should prove applicable to all landholders and their collective identities.

In addition, we hypothesise that the dimension of evaluation (the positive or negative attitude towards a social category) would be less applicable to farmers than non-farmers in that farmers are generally longer-term owners (Mendham et al. 2012) and may be more invested in farming as an occupation and be less susceptible to positive or negative favourability judgements than those newer non-farming landholders. Non-farmers may have less invested in the property and farming as an occupational identity and may still be forming connections to other agriculturally minded individuals or organisations, making them more susceptible to outside influences.

We also suggest that two dimensions (attachment and sense of interdependence, and content and meaning) may be less useful in studying non-farming landholders. The focus of attachment and sense of interdependence is on emotional involvement felt for a group, and new landholders may not have formed the social connections necessary to make this dimension useful in differentiating non-farmers. In addition, we expect the dimension of content and meaning may not be as applicable or useful in distinguishing rural landholders in that this dimension focuses on self-attributed characteristics, ideology and narrative. This dimension may highlight those landholders identifying as farmers but may not necessarily distinguish those individuals who do not primarily identify as a farmer. The subsection of self-attributed characteristics of this dimension (the extent that group traits are exhibited by
individuals of that group membership) may apply to farmers as they fulfil the stereotypical farmer identity. More variation in the non-farming community may exist which may make this dimension unhelpful in classifying landholders.

Ultimately, we expect that drawing on established theory in collective identity will strengthen the validity of research examining farmer/non-farmer identity. In particular, we suggest the elements of collective identity developed by Ashmore et al. (2004) will provide important insights. While we expect that six of these elements are likely to be most useful in occupational identity studies, researchers may find that some elements are not applicable in different contexts (e.g. NRM in Australia); the dimensions may not form a valid and reliable scale; and there may be too many items for all dimensions to be included in most surveys. Ongoing research should explore the use of these dimensions of the CIC in understanding occupational identity as a collective identity, particularly in multifunctional landscapes.

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