DEVELOPING A TYPOLOGY OF CHANGING MULTI-FUNCTIONAL REGIONS

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ABSTRACT: The classification of regions as functionally or socio-economically identifiable clusters lets us explore and describe geographies of seemingly complex and individualised change. It also improves our understanding of the varied nature of processes such as counter-urbanization and the formation of multi-functional rural regions. Using principal component analysis and subsequent cluster analysis, this study identified five types of regions in regard to characteristics of overall and newly resident communities. The study was undertaken for a broad region of Victoria, Australia that has experienced population growth and the decreasing influence of agriculture; typical conditions of counter-urbanisation. The results suggest that counter-urbanisation occurs in a variety of ways that are broadly consistent with explanations of processes such as rural gentrification, retirement mobility, exurbanisation and welfare-led migration. In addition, clustering included some areas where socio-economic change is less apparent, with a perseverance of rural characteristics.

KEY WORDS: Counter-urbanisation, multi-functional regions, regional typology, internal migration

1. INTRODUCTION

The changing nature of peri-urban and rural areas in Australia is complex, with patterns of growth, stability and decline occurring within a framework of drivers such as agricultural restructuring, emerging lifestyle preferences, demographic trends and changes in housing affordability. Evidence from the 2011 Australian Census suggests that population decline has continued in much of inland rural Australia, while growth has continued to be focused in and around larger cities and 'amenity' landscapes such as coastal areas. However, the economic fortunes of inland mining regions reveal some divergence from this pattern.

Trends of 'counter-urbanisation' in various forms have been observed and described in Australia since the 1970s (Bourne and Logan, 1976;

Hugo and Smailes, 1985; McKenzie, 1996; Burnley and Murphy, 2004), reflecting the common experience of a number of developed economies (Mitchell, 2004; Philips, 2010). However, the basis of this trend is not uniform, and various approaches to explaining experiences such as peri-urbanisation, 'amenity' migration and movement 'downwards' in the urban hierarchy suggest that spatial patterning as well as socio-economic conditions may be influencing migration.

Typically, characterisations of change in peri-urban research have included consideration of the contrasts between growth occurring immediately beyond the metropolitan fringe, and growth driven by lifestyle (amenity) expectations and in-migration by people seeking relative affordability, which often occurs in more distant locations. In south-eastern Australia, such patterns can indeed be ascertained; however, in many places there are also factors such as proximity to employment, relative housing affordability and 'amenity'. Thus, simple explanations are not sufficient.

For example, the agricultural regions of western Victoria and inland New South Wales have experienced long-term population decline; at the same time, expanding regions of growth have occurred along the coast, close to larger regional centres and immediately beyond the expanding fringes of metropolitan cities. These regions have clearly different population characteristics, suggesting complex socio-economic drivers of population growth.

This paper outlines an exploratory typology of these socio-economic characteristics of change. The typology has been developed using the case study of an extensive multi-functional rural region (including peri-urban, coastal, riverine and hill-scape areas) in Victoria, Australia, through the development of a model based on 2011 Australian Census data. It addresses the socio-economic characteristics of the populations in these regions and also focuses on the specific characteristics of 'new' populations; that is, those who moved into these locations between 2006 and 2011. The typology has been developed though principal component analysis (PCA) of the larger dataset, subsequent cluster analysis, and a descriptive and spatial review.

Change and Continuity in Rural Victoria

Victoria, Australia, is a state with a population of over 5.53 million (ABS, 2012), 75 percent located in metropolitan Melbourne. Melbourne's growth remains higher than the state average, although a number of fringe locations and smaller cities and towns have experienced higher

levels of growth in recent decades. While Melbourne has experienced a resurgence of inner urban population (and more particularly household) growth since the 1990s, suburban growth at the city fringe remains dominant in the geography of urban growth. The settlement geography of Victoria also includes regional cities (Geelong, Ballarat, Bendigo) with growing populations in excess of 80 000 each. These exert their own significant peri-urban influence and allow for two-way commuting in the regions between these smaller cities and metropolitan Melbourne — this effectively contains and defines a broad field of peri-urbanisation and population growth.

Population trends in rural Victoria are far from uniform. Broad processes include:

- Exurban development beyond the fringe of metropolitan Melbourne.

- Peri-urbanisation in a larger area including the surrounds of regional cities.

- Population growth in coastal areas in both towns and rural landscapes.

- Concentration of growth in the main regional centres in the north and west of the state where agriculture remains prominent.

- Concurrently long-standing trends of population decline in the broadacre cropping and grazing regions of the Wimmera, Mallee and rural areas of the south-west and far-east Gippsland. Each of these regions is at a geographic extreme of the State (see figure 1).

The final example relates to regions where the economic output of agriculture remains significant, albeit with fewer people (Stimson, 2011). These patterns of change can be considered in relation to factors such as agricultural restructuring (Barr, 2003; Alexander and Mercer, 2007), demographic change and ageing (Hugo, 2005), transport accessibility (Fisher, 2003), changing 'lifestyle' preferences (Argent *et al.*, 2010) and relative housing affordability beyond the metropolitan market (Costello, 2009).
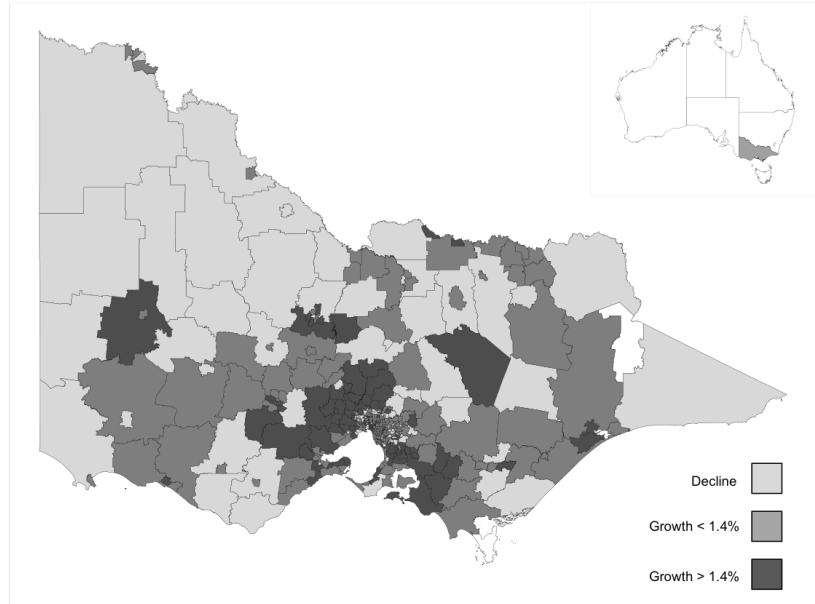
Figure 1. Average Annual Population Change (%) 2001-2011, Victoria by SA2. Source: ABS Census 2011 (ERP) – (Victorian State Average Annual Population Change 2001-2011 = 1.4%).

Population growth has also occurred in smaller cities and regional towns, particularly those with populations over 10 000 people. In some instances, such as Wangaratta and Benalla in the State's north-east and in the more isolated north-western towns of Swan Hill and Mildura, this has occurred despite population decline in their surrounding rural areas as the centrality of services and employment in these locations has increased. In other examples, particularly in amenity landscapes, rural growth has outstripped growth in smaller urban centres. While some variation is evident at the local level, these patterns of peri-urbanisation, coastal growth and concurrent decline in more distant agricultural regions have been evident for several decades.

2. CONCEPTUALISING COUNTER-URBANISATION: MODES, DRIVERS AND OUTCOMES

Perspectives on the differentiation of rural growth, including counter-urbanization, in Australia and elsewhere typically emphasise demand-side issues associated with population movements from urban to rural and

small-town environments, and supply-side issues associated with rural (typically agricultural) restructuring and its spatial divisions.

Broad conceptions of the nature of rural restructuring include 'social landscapes' of agricultural practice and change (Barr, 2003; 2008), where change in the landscape and economy are critical indicators of potentially *post-agricultural* or *multi-functional* regions (Smailes *et al.*, 2002). These regions are conceptualised as different from 'genuine' agricultural regions and experiencing 'post-productivist' (Wilson, 2001) or broader 'multi-functional rural' transitions (Holmes, 2002). Within these conceptions, the valuing of rural places for a range of non-productive purposes (e.g. leisure, landscapes and residential amenity) is evidence of a transition in physical, economic and cultural meanings of place.

Yet these conceptions remain contested (Argent, 2002), at least as adequate explanations across Australian regions. In Australia's expansive peri-urban areas, agricultural activity remains a feature of increasingly mixed landscapes and economies (Houston, 2005; Butt 2013a).

Alternatively, growth in peri-urban areas may be considered as largely urban-derived processes of exurbanisation and counter-urbanisation; that is, a tendency for downward movement through the urban hierarchy based on a range of drivers, particularly amenity, affordability and accessibility (Buxton *et al.*, 2011). The inward movement of new populations, and consequent growth and housing development, is a key feature of peri-urbanisation. Thus, the *sources*, *scale* and *patterning* of this population change offers evidence of processes of peri-urbanisation that are conceived differently and perhaps provide more adequate explanations.

Sources and Scale of Population Change

Fisher's (2003) explanations of population growth include multiple population sources — from within the metropolis and from more distant rural areas that are experiencing longer term decline. Added to these primarily urban-focussed perspectives of migration sources, authors such as Burnley and Murphy (2004) and Ragusa (2010) suggest a broader trend of counter-urbanisation (or 'anti-urbanisation') — the 'treechange' phenomenon — occurring within the amenity landscapes surrounding large urban centres, but also in more remote areas. In addition, Burnley and Murphy (1995) distinguish between two types of migratory movements: peri-metropolitanisation, involving relocation beyond the fringe of the metropolis, and counter-urbanisation, which is net internal

migration downwards in the hierarchy, including to smaller towns and regional centres.

Both types of migratory movements may be considered at odds with broader trends of urbanisation; metropolitanisation (or exurbanisation) may also be considered as a process of (extreme) suburbanisation, while counter-urbanisation is consistent with examples internationally (Champion, 1988; Lewis, 2000; Vias, 2012), where movements 'down' the urban hierarchy are considered to relate to diseconomies of scale, housing costs and positive lifestyle attributes of smaller communities, among other factors. Mobility, both real and virtual, and the increased accessibility this affords can blur the nature of these two processes.

Internationally, Zasada *et al*. (2011), through a case study of Copenhagen, offer four explanations for peri-urbanisation: (i) ex-urban development by the wealthy, (ii) 'displaced' (sub)urban growth from those seeking housing options and prices unavailable to them in metropolitan markets, (iii) 'hidden' urbanisation resulting from increasing connectedness to urban economies, and (iv) anti-urbanisation apparent in counter-urbanisation among retirees (among others). Their analysis offers a descriptive conceptual typology of the sources of peri-urbanisation (or counter-urbanisation) outlined by Mitchell (2004), where each appears to strongly emphasise urban-generated drivers of change.

Patterns of Population Change

This process is geographically varied and, as identified by Rauws and De Roo (2011), is non-linear — transition occurs in stages driven by autonomous and external factors at the local and regional level. Recently, this conceptualisation has been explored in the Melbourne region in regard to the underlying dynamics of agricultural change (Butt, 2013b). This work describes correlations between suburban-type expansion and higher incomes, but with divergent and dispersed spatial patterning amongst retiree migrants. Thus, notions such as 'rural gentrification', welfare-led migration, retirement migration and exurbanisation are useful ways to consider the complex social geographies of change and of perceptions of change. Although these characteristics of counter-urbanising populations have a spatial patterning, they are often overlapping and dynamic.

Rural gentrification as a conception of observed changes in 'amenity' regions and peri-urban locations describes a rural parallel to urban trends of increasing investment in comparatively under-invested regions (Smith, 1979; 2002). For rural gentrification, under-investment is associated with the decline in productive use and the revalorisation of place as a 'lifestyle' option. However, Darling (2005) debates the utility of rent-gap models of gentrification in rural settings, and instead suggests that highly differentiated and locally specific consumption-led descriptions offer greater relevance beyond the city. The process is not simply one of displacement by class, but rather the emergence of a new land use system that may include: ongoing rural activities, either a decline or an increase in socio-economic status, and the emergence of new industries that are place-based and link the production and consumption aspects of rural landscapes (e.g. wineries, organic food production).

Consumption-led descriptions of rural gentrification (Ghose, 2004; Costello, 2009; Stockdale, 2010) seek to place an emphasis on emergent consumer preferences and urban 'push' factors in migration. Gkartzios and Scott (2012), for example, describe the active role farmer-landholders can play in providing scope for development and in-migration by developing an income stream through land sales.

Phillips (2010) offers a description of gentrification within the context of counter-urbanisation, which explores the applicability of the term, and considers the way in which concepts are constructed and communicated, as simply one element of the counter-urbanisation process, especially in the context of a literature that often eschews discussion of *class* in counter-urbanisation studies. Consequently, terms such as 'greenification' (Smith and Phillips, 2001) or 'green change' (Buckley *et al*., 2006) have been coined to overcome this lexicographical dilemma. Although gentrification is a contested signifier, Butler (2007) argues that it is generally understood, 'fit for purpose' (p. 164) and a useful exploratory term to consider, although perhaps less so in rural areas.

Beyond amenity-seeking, age and relative affordability are often proffered as drivers of counter-urbanisation. Thus, limited metropolitan housing choice and affordability have been offered as drivers of peri-urban growth and counter-urbanisation in general (Costello, 2009); this is apparent on the urban fringes as well as in more distant rural locations.

Drozdzewski *et al*. (2011) describe a range of age groups in a study in the New South Wales central highlands, where older (retirement) age groups are prominent. Although this is consistent with a feature of rural migration that has been described in Australia since the 1970s, relating to emerging pre and post-retirement mobility preferences (Murphy, 1979;

Murphy and Zehner, 1988), it is also consistent with the hypothesis of 'welfare-led' migration (Hugo and Bell, 1998), which describes the marginalisation of those seeking housing affordability.

Bijker and Haartsen (2012) offer a more recent analysis from the Netherlands that suggests that lower housing costs provide a key driver of inward movement in less desirable rural areas. Such welfare-led movement, as with rural gentrification, may be considered as exhibiting production and consumption features. Processes such as the deindustrialisation of small and medium-sized towns in regional Australia, the reduced connections between many towns and the agricultural hinterland (in terms of economy and population), and centralisation of employment and services, have resulted in many economically and demographically underperforming and vulnerable rural towns and regions (Stimson *et al*., 2001), at least in terms of jobs and housing markets, including some within in the study region considered in this paper (Davies *et al*., 1998). Yet this is also a 'consumption-led' process insofar as displacement from urban locations, housing and labour markets create comparative advantage in low-cost regional areas.

These diverse conceptions of counter-urbanisation and peri-urbanisation provide sometimes discrete and sometimes overlapping examples of change as a socio-spatial process. Age, income, rurality and displacement are among the signifiers of change. Ragusa (2010) offers an effective critique of the over-emphasis on simplistic accounts in this understanding, especially as it is generalised in various media and popular perceptions. Likewise Phillips (2010) cautions that counter-urbanisation studies using aggregate population data can de-identify individuals and social practices. Nonetheless, differences in the socio-economic characteristics of communities across a broad peri/counter-urbanising field do suggest a need to interrogate difference, particularly in relation to outcomes of change for service needs, economic connections within and beyond localities, and an emerging geography of advantage and disadvantage. The analysis provided in this paper is a systematic approach to exploring this difference.

3. TYPOLOGIES OF PLACE

Typologies of the socio-economic characteristics of regions typically aim to improve understanding of economic functions, vulnerabilities and corresponding community characteristics. In Australia, such classifications have included functional studies of urban centres (Smith, 1965; Freestone *et al*., 2003; Beer and Clower, 2009), considerations of

relative advantage and vulnerability of economic and population characteristics (Stimson *et al*., 2001), and the relationships between population change and economic performance (Mardaneh, 2012). The overall aim is to develop understanding of characteristic groupings and trends in broad datasets, and to use these in the consideration of alternative policy directions and the interrogation of relationships between indicators.

This case analysis is intended to explore two key notions: first, that a set of socio-economic factors can be articulated (and reduced) to develop a typology of 'counter-urbanising' places in Victoria, and to consider if these relate to processes of rural gentrification, age and welfare-led mobility, and second, that there is continuity and change expressed within these categorisations, as evident in the outcomes of an analysis of 'recent' internal migration patterns between 2006 and 2011.

A total of 106 areas in Victoria were selected for analysis. These areas were selected at the Statistical Area 2 (SA2 Census Geography) level, a level newly developed for the 2011 Australian Census that typically comprises two or more areas for each Victorian Local Government Area. The population and land area of SA2 level boundaries vary, but are intended to reflect localities of interest; for example, larger urban centres are separate from surrounding rural regions.

The selected SA2 areas included rural areas and those smaller urban areas of fewer than 50 000 people (see Figure 2) and were considered for inclusion based on the following criteria:

1. The study area does not include metropolitan Melbourne or the urban areas of the larger regional cities of Ballarat, Bendigo, Geelong and Wodonga.

2. The areas for study have a growing population or are immediately bounded (and contained) by areas with growing populations. Peri-urban, coastal, riverine, and hill-scape areas were included, as were areas experiencing net population migration from metropolitan Melbourne (sometimes these were one and the same).

3. The areas include localities typically considered to be transitional or post-productive agricultural areas, and not included within the commodity-farming rural regions of the state where agriculture is economically dominant. This selection was generally consistent with Barr (2003, 2008), McKenzie (1996) and Houston (2005).

4. The overall study area was contiguous and excluded areas that, while meeting criteria 1–3 above, were geographically isolated (typically some areas within 'genuine' agricultural regions, both dryland and irrigation), or had very small populations, such as areas predominately comprising public and/or alpine land.

This is clearly a broad conception of the peri-urban field and multi-functional landscapes; however, it is intentionally inclusive of areas that may be considered 'treechange' or 'seachange' locations (Burnley and Murphy, 2004), as well as areas of peri-urban influence surrounding metropolitan Melbourne and Victoria's regional cities.
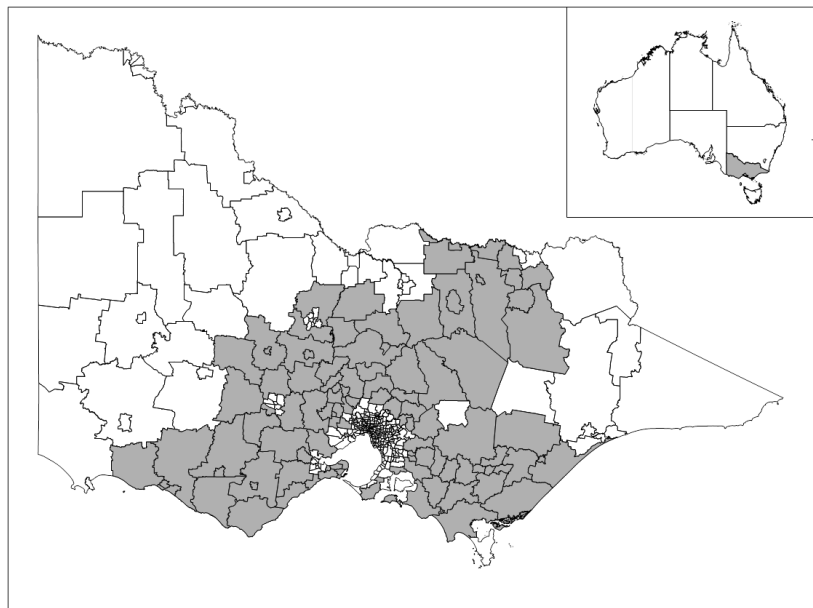

Figure 2. Selected Study Area. Source: Author's Analysis

Twenty variables were drawn from the 2011 Australian Census in three sets considered to:

1. Describe place characteristics, including population change, density and household characteristics.

2. Explicitly relate to socio-economic characteristics, including age, employment, income and commuting levels.

3. Select for the specific sub-set of the population that had moved into the SA2 from elsewhere between 2006 and 2011 (internal migration).

These variables and a rationale for their selection are detailed in Table 1 below.

Consistent with previous typologies (Smith, 1965; Andrews, 1971; Bogdanov *et al*., 2008; Monasterolo and Pagliacci, 2011; Freestone *et al*. 2003) the process involved two stages: variable reduction and classification. This was achieved through a principal component analysis (PCA), which was intended to develop a smaller set of common dimensions identifying underlying structures with groups of variables or indicators. The PCA was followed by a cluster analysis of the resultant factors, to best assign the study locations to a cluster, and to identify outliers within each cluster.

Table 1. Selected Variables for PCA Analysis, Description and Analytical Purpose

Variable	Definition and Purpose
Population Change 2001-11	Average Annual % Population Change (UR) 2001-2011: *Highly urban influenced locations experiencing growth, others continuing to experience population loss (O'Connor et al., 1998)*
Population Density (Log) 2011	Usual Residents/sq. km: *Higher rural population density is an indicator of community and economic health (Smailes et al., 2002)*
Median Age 2011 (years)	Rural areas exhibit higher median ages (Hugo, 2005)
Median Household Income 2011 ($)	*Median Weekly Victorian Household Income was AUD1213 in 2011 – for Greater Melbourne this figure was higher at AUD1333*
Change (%) Household Income 2001-11	Percentage change in median household income 2001-2011: *Higher rates of income growth are indicative of socio-demographic change*
Volunteering 2011 (%)	Nominated as volunteering at 2011 Census: *Levels of volunteering are indicative of social capital and of service removal in rural areas (Alston, 2002)*
Unemployment 2011 (%)	Nominated as looking for work 2011: *as an indicator of economic activity and access to work*
Employment in Agriculture 2011 (%)	Proportion of employed persons in Agriculture, 2011: *Lower rates of (primary) agricultural employment in urban and peri-urban regions*
…Manufacturing 2011	…Manufacturing 2011: *higher rates expected in urbanising areas and larger regional centres*
…Retail 2011	…Retail 2011: *higher rates expected in urbanising areas and larger regional centres, with localised employment (Bill et al., 2008)*
…Property and Finance 2011	…Property and Finance 2011: *higher rates expected in urbanising areas with metropolitan linkages*
…Education and Health 2011	…Education and Health 2011: *higher rates expected in urbanising areas with linkages larger regional centres*
Place of Work – Other LGA 2011	Percentage of employed persons with nominated place of work in another Local Government Area: *higher rates in exurban areas and in areas with higher level occupations* (Bill et al., 2008)
Income<$300/wk (inward migrant 2006-2011) %	Percentage of new (2006-2011) residents with weekly income in 2011 below AUD300: *The bottom quartile of individual income in Victoria (2011) was below AUD216/week (lower in rural areas) high levels an indicator of 'forced relocators'* (Burnley and Murphy, 2004)
Income > $1250/week % (inward)	Percentage of new (2006-2011) residents with weekly income in 2011 above AUD1250: *The top quartile of individual income in Victoria (2011) was above AUD1058, (lower in rural areas) - high levels an indicator of* amenity migrants *(Gosnell and Abrams, 2011)*
Unemployed % (inward)	Percentage of new (2006-2011) residents who were unemployed in 2011: *high levels an indicator of 'forced relocators'* (Burnley and Murphy, 2004)
Professional Occupation % (inward)	Percentage of new (2006-2011) residents in 'Professional' Occupation categories in 2011: *high levels an indicator of 'amenity migrants' (Gosnell and Abrams, 2011)*
Machinery Operator/Labourer % (inward)	Percentage of new (2006-2011) residents who were in 'Machinery Operators/Driver' and 'Labourers' category in 2011: *an indicator of more localised employment (Bill et al., 2008)*
Age < 15 % (inward migrant 2006-2011)	The percentage of new (2006-2011) residents aged under 15 years in 2011: *an indicator of 'family' migration and displaced suburbia (Mitchell, 2004)*
Age 50-74 % (inward migrant 2006-2011)	The percentage of new (2006-2011) residents aged 50-74 years in 2011: *Older in-migrants feature in more remote landscapes and coastal areas (Argent et al., 2010)*

The PCA identified a smaller set of common dimensions and therefore reduced the number of variables to be considered. It initially included an oblique rotation in order to ascertain the degree of covariance among the extracted components. Five components were extracted with eigenvalues greater than 1, suggesting this limit to the useful number of reduced factors.

Given the small degree of association between the components, the PCA was re-run using the orthogonal (varimax) rotation. This analysis produced five components accounting for 77.81 percent of the variance. Examination of the resulting scree plot indicated that most of the reliable information in the database was captured by the first four un-rotated components, which jointly accounted for over 70 percent of the variance in the data. These factors were then used for the cluster analysis.

The factor component loadings were observed as being positive/negative and above 0.3/0.5 (see Table 2) and can be summarised as follows:

- Factor one emphasised population growth, retail employment, unemployment (including among new residents) and low levels of volunteering.

- Factor two emphasised population growth, high household incomes, employment in property and finance, commuting and the inward movement of individuals with higher incomes.

- Factor three emphasised employment in health and education and the inward movement of those in professional occupations.

- Factor five emphasised an older profile among both the extant and recently arrived populations.

Table 2. Factor analysis with the 20 selected variables.

Variable	Factor Components			
	1	2	3	4
Population Change 2001-11 (%)	**0.50**	**0.50**	-0.39	
Population Density (Log) 2011	**0.87**			
Median Age 2011 (years)	-0.48	-0.36		**0.62**
Median Household Income 2011 ($)		**0.80**		-0.46
Change (%) Household Income 2001-11		0.46		0.32
Volunteering 2011 (%)	**-0.78**		0.43	
Unemployment 2011 (%)	**0.62**			
Employment in Agriculture 2011 (%)	**-0.77**	-0.43		
…Manufacturing 2011	0.32		-0.35	
…Retail 2011	**0.85**			
…Property and Finance 2011	0.42	**0.69**		
…Education and Health 2011			**0.83**	
Place of Work – Other LGA 2011		**0.65**	-0.30	
Income<$300/wk (inward migrant 2006-2011) %		**-0.73**		
Income > $1250/week % (inward)		**0.81**	0.43	
Unemployed % (inward)	0.44	**-0.69**		
Professional Occupation % (inward)			**0.87**	
Machine Operator/Labourer % (inward)			**-0.80**	
Age < 15 % (inward migrant 2006-2011)	-0.33			**-0.77**
Age 50-74 % (inward migrant 2006-2011)	-0.34			**0.85**

Note: principal component analysis, Rotation method: varimax. Six iterations. KMO= 0.741. Parameters with significant factor contribution (> 0.5) are bold. Source: Author's Analysis.

A cluster analysis to represent subsets of locations (SA2 areas) that are similar within each cluster and different to locations in other clusters was undertaken in two stages, firstly to identify a suitable number of clusters, and secondly to confirm cluster membership. Initially exploration of cluster formation allowed consideration of suitable cluster numbers and identification of those cases that were late to join clusters. Following Hair *et al*. (2006) a hierarchical cluster analysis was performed initially to identify outliers in the sample and determine the number of clusters.

Subsequently, a k-means cluster with five cluster centres prescribed was undertaken using the four component factor scores resulting from the initial PCA. The cluster centres are described in Table 3.

Table 3. Final Cluster centres.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Factor 1	-0.26015	-0.40699	**1.23124**	**-0.95059**	0.54701
Factor 2	**1.2217**	-0.40282	**-1.11629**	-0.30346	**0.75599**
Factor 3	**1.54479**	-0.29407	0.77905	-0.087	**-0.81581**
Factor 4	0.07104	**1.37947**	-0.28428	**-0.74186**	-0.3286

Note: The dominant factor component/s in each cluster is highlighted. Source: Author's Analysis.

The final clusters can be seen to represent a range of differential characteristics of peri-urban and rural locations:

- Cluster One emphasised Factors 2 and 3 — extant high incomes, higher growth and the inward movement of professionals and those on higher incomes. This cluster suggests characteristics of rural gentrification.

- Cluster Two emphasised ageing and the inward movement of older retirees and pre-retirees.

- Cluster Three is associated with Factor 1, which shows urban characteristics and unemployment, lower incomes and inward movement of populations with these characteristics (suggesting 'forced relocation'), and displays characteristics contrary to Factor 2.

- Cluster Four suggests low rates of change in population levels, characteristics and urbanisation.

- Cluster Five exhibits urbanisation growth characteristics, but is not fully consistent with the 'gentrification' indicated in Cluster One, instead higher rates of machinery operators/labourers and lower rates of professionals and 'retirees' are more consistent with 'displaced' suburban processes occurring at and beyond the city fringe.

Table 4 shows the mean values of the indicators for each cluster, confirming the basis of the cluster differences in relation to indicators of income, employment and inward movement of occupations.

Table 4. Mean values for indicators by cluster.

Variable	*Cluster 1*	*Cluster 2*	*Cluster 3*	*Cluster 4*	*Cluster 5*
Population Change 2001-11 (%)	1.0	0.8	0.8	**0.3**	**3.0**
Population Density (Log) 2011	1.5	0.9	**2.0**	**0.6**	1.7
Median Age 2011 (years)	42.9	**47.0**	40.8	41.3	**36.8**
Median Household Income 2011 ($)	**1335.9**	**827.3**	913.3	1055.5	1236.3
Change (%) Household Income 2001-11	**21.9**	18.7	17.0	**13.7**	19.0
Volunteering 2011 (%)	28.9	28.5	23.1	**29.4**	**19.4**
Unemployment 2011 (%)	**2.3**	2.9	**3.4**	2.5	3.1
Employment in Agriculture 2011 (%)	**2.9**	13.4	3.6	**17.0**	3.5
…Manufacturing 2011	**8.3**	10.0	11.8	10.2	**12.6**
…Retail 2011	9.9	10.1	**13.4**	**9.0**	11.1
…Property and Finance 2011	**4.4**	2.5	2.9	**2.4**	3.4
…Education and Health 2011	**23.0**	18.8	22.1	18.5	**17.6**
Place of Work – Other LGA 2011	48.2	27.0	**17.8**	36.0	**55.9**
Income<$300/wk (inward migrant 2006-2011) %	**22.1**	**30.9**	28.7	27.0	24.6
Income > $1250/week % (inward)	**27.4**	10.7	**10.7**	14.4	17.0
Unemployed % (inward)	**2.2**	4.1	**7.0**	4.0	3.4
Professional Occupation % (inward)	**31.4**	19.4	23.3	18.9	**16.4**
Machine Operator/Labourer % (inward)	**7.4**	17.9	17.0	17.1	**19.8**
Age < 15 % (inward migrant 2006-2011)	15.4	**12.7**	14.1	**18.1**	15.7
Age 50-74 % (inward migrant 2006-2011)	26.9	**38.6**	22.9	25.1	**20.8**

Note: highest/lowest indicated in bold. Source: the Author's Analysis

4. DISCUSSION

The clusters as determined by this methodology generally have a good relationship to the range of examples of counter-urbanisation described in the literature: rural gentrification, age-related retiree mobility, welfare-led migration and the 'displaced' suburban development at and beyond the metropolitan fringe. However, Cluster four, despite meeting criteria for inclusion in the study, does not appear to exhibit socio-economic characteristics markedly distinct from more 'genuine' rural areas.

Bringing together a set of static socio-economic indicators with the more dynamic indicators of 'new communities' has provided insight into the nature of change in peri-urban locations. The results tend to reinforce the characteristics of place, rather than showing a stark contrast between extant and 'new' populations. A review of 'like' indicators such as unemployment suggests a high correlation between overall population figures and those for 'new' residents who arrived between 2006 and 2011.
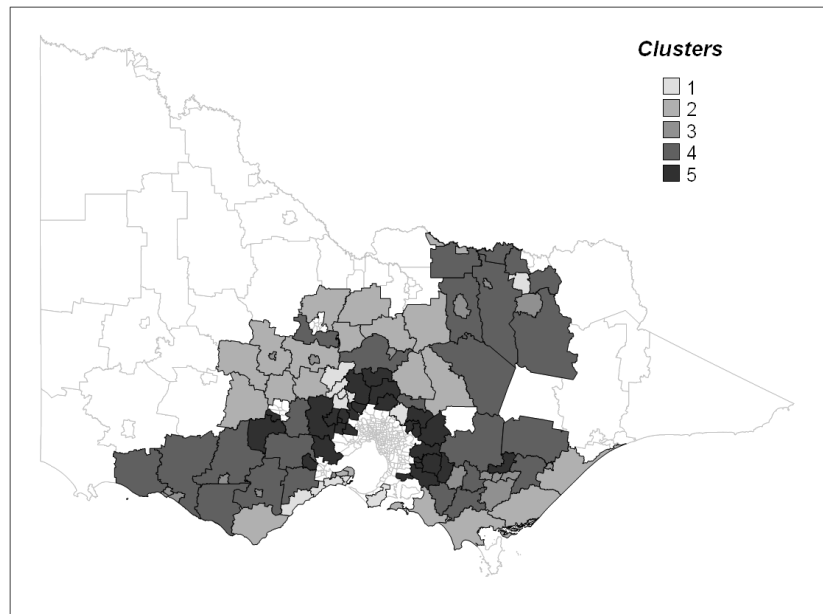

Figure 3. Case Study Clusters. Source: Author's Analysis

A spatial consideration of the clusters reveals some distinct and some more diffuse geographic patterns (see Figure 3). Cluster One, representing areas that score highly in indicators of *rural gentrification,* includes the Macedon Ranges, the Mornington Peninsula, the Bellarine Peninsula and the Beechworth area. These are all locations that exhibit high amenity values and landscape qualities and are accessible to larger cities.

Cluster Two, characterised by an older age structure, lower incomes and inward retirees and pre-retirees, includes areas beyond the immediate peri-urban region, the more distant coastal areas of south Gippsland and the transitional farming regions of north-central Victoria. Cobram and Yarrawonga on the River Murray were also included in this cluster. These locations are more distant from metropolitan or regional cities, although features such as riverine and coastal landscapes are prominent.

Cluster Three, which has features of 'welfare-led' migration, including high unemployment and unemployed in-migrants, is primarily made up of urban centres such as Castlemaine, Moe, Benalla and Warrnambool. These locations are distinctly urban, yet are smaller towns and regional centres that typically have a history of industrial employment and subsequent deindustrialisation, and remain beyond the range of substantive metropolitan-focussed commuting. Features of these locations include relative housing affordability and locally derived employment as they are beyond the typical commuter regions of metropolitan Melbourne.

Cluster Four, which has rural characteristics and low population growth, includes areas in the north-west, south-east and non-urban (and non-coastal) Gippsland. This cluster appears to include areas that are experiencing population growth, but may be less affected by processes of counter-urbanisation. This cluster included a number of locations where agriculture is still prominent and urban influences are limited.

Cluster Five, characterised by manufacturing employment and high levels of commuting, covers the immediate Melbourne fringe and Ballarat's (a city of under 100 000 people) southern outskirts, and has developed suburban characteristics over the last few decades, despite being beyond the immediate city fringe. These locations are typically at or within the blurred and growing boundaries of suburban settlement.

Some individual cases within Clusters Four and Five had the greatest distance from the relevant cluster centre, which suggests that these cases exhibit a less obvious fit within their cluster, particularly as some indicators differed significantly from typical results. Corangamite-South in Cluster Four experienced the highest population decline of any case

study location. This area, while coastal, is at the limits of the geographic extent of coastal population growth in south-western Victoria and has a continued substantial agricultural economy focussed on dairying. In Rockbank-Mt Cottrell (on Melbourne's western outskirts) in Cluster Five, over 40 percent of all in-migrants were in manual occupations and only 11 percent of the population recorded volunteering at the 2011 Census, which is a characteristic common in fringe metropolitan regions. This location is effectively suburbanising, despite being beyond the physical limits of planned land release.

5. CONCLUSIONS

The cluster differences provide an indication of a set of varying socio-economic conditions evident in both the extant and the 'new' populations in each of these areas. Such varied patterns offer insights for public policy decisions and for developing understanding of community characteristics. Importantly, it provides an indication of the spatial patterning of the varied experience of counter-urbanization and the formation of multi-functional landscapes. This, in turn, offers a way to categorise and conceptualise locations in relation to resource allocation by policy-makers and the relative structural strengths and vulnerabilities of communities with these locations. Primarily, this suggests that the experience of the formation of multi-functional regions is not uniform in terms of population change, the socio-economic characteristics of change, drivers of internal migration and consequent community need. It also suggests limits to public and political discourse that fail to differentiate the experiences of non-metropolitan regions in Australia, as clearly policy needs are varied. This is particularly relevant in distinguishing those areas where agricultural futures are significant from those where other social and economic forces dominate.

In the case of this typology, it suggests a number of locations (specifically Cluster Two) where the consequences of an increasingly ageing population in rural areas suggests current and future issues in relation to health and transport provision, among others. Those areas classified as Cluster Three exhibit features of structural deficiencies in local employment provision relative to the attraction provided by affordable housing; significantly, these are locations that have experienced de-industrialisation in recent years, but were subject to decentralisation attempts for industry and social housing in the mid-Twentieth Century.

Any analysis of socio-economic census data must take into account the nature of data involved and the available techniques. The method described above uses a relatively common approach, but also explores a subset of newly resident populations in a novel way to reveal dynamics and change, and to offer insights into broad motivations for relocation.

In this study, the selected variables and techniques were consistent with theoretical and observed drivers and characteristics of counter-urbanisation, and age/retirement-led, welfare-led and rural gentrification. In some cases, more clearly (sub)urban and typically rural characteristics were evident.

Based on the selected study area and data, the analysis identified five types of peri-urban locations in regard to their characteristics of overall and newly resident communities. This suggests that counter-urbanisation may occur in a variety of ways, which has implications for the way in which the process is conceptualised, and subsequently the needs of communities in terms of services and infrastructure provision, and strategies to manage changing socio-economic dynamics.

The implications of this analysis suggest a varied experience of counter-urbanization and the formation of multi-functional regions. Crucially it suggests varied vulnerabilities associated with ageing and welfare-led migration, as well as regions experiencing rural gentrification. The consequences of these patterns suggest a need for similarly varied and appropriately focussed policy-making that recognises the diverse needs of rural regions experiencing peri-urbanisation and the formation of multi-functional landscapes and economies.

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