

# **The Human Capital Factor: Generating, Attracting and Retaining Human Capital in Regional Australia**

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## **ABSTRACT**

In the field of labor economics, human capital refers to the stock of knowledge or characteristics of a worker that contributes to their productivity. Investment in education and training of individuals can enhance their level of human capital and this will be valued in the market because it increases firms' profits. Various researchers have looked at the intersection of migration and human capital suggesting that higher levels of human capital are found in cities and that areas with high levels of human capital act as an attractor for individuals with high levels of skills and education. This self-reinforcing process of attraction raises many questions in the context of Australia's urban primacy, as it suggests that capital cities will enjoy a cumulative gain in human capital over time, potentially at the expense of non-metropolitan areas. Net flows of young adults from regional to metropolitan Australia reinforces the concentration of economic activity and a relatively young metropolitan labour force. At the same time, it has led to a gradual ageing of the population structure and a depletion of human capital in many rural communities, placing constraints for local development, particularly through skills shortages and difficulty attracting professional workers. This paper explores whether the loss of regional capital from regional areas is inevitable. It poses a number of questions for discussion such as: Are there non-traditional ways in which regional communities can access or generate human capital? Can human capital be enhanced via mobility rather than permanent migration?

## **1. INTRODUCTION**

This paper is the first in a series which will contribute to a PhD by portfolio. The portfolio is a series of 6 published articles which cover economic and demographic change in regional Victoria over the past two decades. In incorporating these into the PhD thesis, human capital theory will be used as an integrating theme.

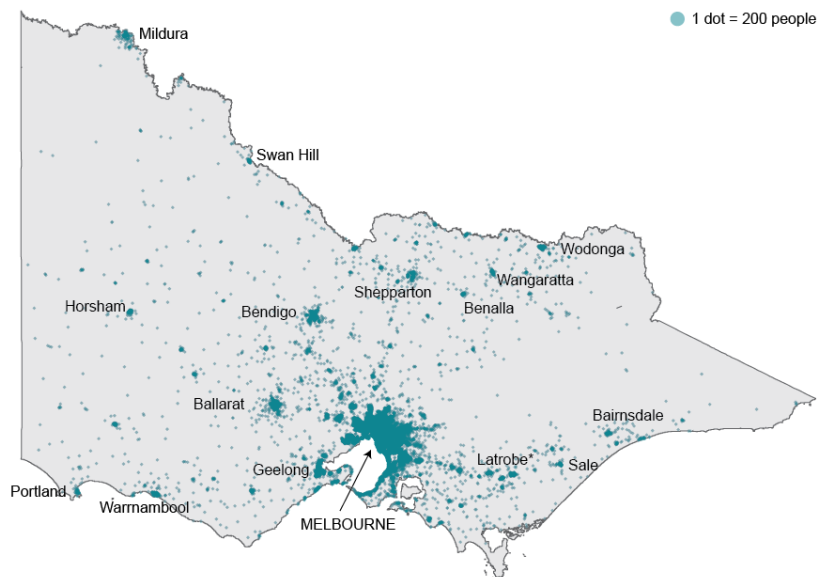
In this paper, as in the thesis, the term 'regional' is used when referring to non-metropolitan areas. The Australian settlement pattern of dominant state capitals has contributed to an Australian use of the term 'regional' which is somewhat different from international parlance where 'regional' may mean any sub-national level of analysis, urban or rural.

## 2. VICTORIAN CONTEXT: ECONOMIC AND DEMOGRAPHIC CHANGE

Although Victoria is the most densely settled state within Australia it has, by world standards, a low population density. Three-quarters of its population is concentrated in a single city, Melbourne. This primacy is also common to other States in Australia. Together with large land areas, the result is a very low density of population across non-metropolitan areas.

At 30th June 2015, the population of Victoria was estimated to be 5.9 million with 4.5 million people in Greater Melbourne and 1.4 million in the rest of the State (ABS cat no 3218.0). Beyond the metropolitan area, the regional cities of Geelong, Ballarat, Bendigo and Latrobe form a ring of cities within 1 to 2 hours of Melbourne (Figure 1). Beyond this, another group of regional cities are evident – these perform important service roles within large rural hinterlands. Nevertheless, even the largest of the regional cities, Geelong, has a population of around 187,400, a mere 4 per cent of Melbourne's size<sup>1</sup>.

**Figure 1: Population Density, Victoria, 2011**



Source: ABS Census of Population and Housing 2011.

One of the most consistent patterns of demographic change affecting regional Victoria is that of young adult net out-migration. Research points overwhelmingly to the role of education and employment as motivators of this out-movement (McKenzie, 1994; Eversole, 2001; Eacott and Sonn, 2006; Geldens, 2007; Hillman and Rothman, 2007; Argent and Walmsley, 2008). As higher education has become more important in securing a job and career, the draw of the city has become even stronger.

While regional Victoria experiences a net loss of young adults to Melbourne, it gains in other age groups. Across all age groups, regional Victoria did have a net migration gain from Melbourne of nearly 24,000 people between 2006 and 2011. However, nearly 70 per cent of these movements were simply 'boundary-hopping' to peri-urban areas within Melbourne's immediate hinterland. It could be argued that this is a form of exurbanisation rather than migration to regional Victoria. Furthermore, Melbourne gained large numbers of interstate and

<sup>1</sup> This calculation uses the population of Geelong SA3 and the population of Greater Melbourne Capital City Region as at 30 June 2015. If the Greater Geelong municipality (incorporating Bellarine Peninsula) is used instead, the proportion is around 6% of Melbourne's size (ABS cat no 3218.0).

overseas migrants, which regional Victoria did not. The end result of all these demographic trends was a centralization of Victoria's population into Melbourne and, to a lesser extent, into the major regional cities.

While many authors point to the early 1970s as the point of major change in Australia's regional economies as trade barriers were removed, there were other factors at play and these had roots in changes which were already occurring. As early as the 1940s, McIntyre and McIntyre (1944, p. 11) observed:

Better roads, the motor car, and bus services between small and large centres, are all detracting from the small centre, and together make one of the reasons why the small centres, in general, are declining, and the larger ones growing. The larger towns, with their more varied and effective goods and services, are undoubtedly more attractive to the farm people. Fast transport not only enables the more distant farmer to do business in the large town which he could not have reached in the days of the horse and gig, but allows the near a farmer to live in the town and run out to his land as necessary.

Rose (1966, p. 18) made a similar observation in the 1960s:

In former times [isolated farmhouses] were normally provided with their lowest-order services by small hamlets or villages. Such centres are now moribund. They have been bypassed by the settlers in their automobiles and the children in their school buses making for the nearest substantial town...

Although the 1970s brought a reprieve in population terms for some regional locations as trends of counterurbanisation emerged, the trend mainly favoured areas close to major cities (Hugo and Smailes, 1985, Burnley, 1988; Hugo, 1989). Other, more remote, parts of the state fell into a cycle of population loss. This in turn led to business and service loss which encouraged further population decline (McKenzie, 1994). In many ways, counterurbanisation ran counter to the prevailing forces of economic geography which, by the 1980s were favouring large cities like Sydney and Melbourne (O'Leary, 2003, p. 7; Alexander and Mercer, 2007, p 234). Subsequent growth patterns bore this out.

By 1980, regional Australia was seeing the impacts of these technological, economic and social trends. Farms were, on average, larger and more productive, but fewer workers were needed as capital intensive methods superceded labour intensive farming practices (Stayner and Reeve, 1990; Garnett and Lewis, 1999, p. 1). Declining terms of trade in the agricultural sector also fuelled the trend towards consolidation, as productivity could be increased through expansion into larger farms (Barr, 2009, p. 9). Transport improvements and greater personal mobility enabled greater access to larger regional centres and this in turn reduced demand for businesses in smaller towns, many of which closed down. The concentration of businesses into larger centres was paralleled by the rationalisation of public services with the larger centres providing a central point from which government departments and health services could be run (McKenzie, 1994, p. 43-5; Tonts and Jones, 1996, p. 139; Garnett and Lewis, 1999, p. 12).

The decline of services in smaller towns made larger centres more attractive and many people moved into them from the hinterland. As population starts to decline, demand lessens and facilities and services are withdrawn which can start a downward cycle (Sorenson, 1990, p. 45; McKenzie, 1994, p. 43). As envisaged by McIntyre and McIntyre in the earlier quote, farmers also made the move into town, increasingly into larger towns, where they could more easily access services for themselves and their family. This included access to larger, better resourced schools and health services. In effect the farmer then became a commuter to their farming property or properties. Changes in the agricultural sector also led to the 'uncoupling'

of farming from the local rural economy (Stayner and Reeve, 1990). Key factors involved in this change included (idem, pp. 1-2):

- a shift from local rural processing to city-based processing;
- increased complexity of capital inputs meaning local firms less likely to carry out servicing;
- greater use of mobile contract labour leading to wage leakage from local area;
- farm debt servicing creating leakage of farming income to city-based banks;
- changes in retailing whereby larger centres offer a greater range of both farm-related and consumer goods;
- centralising tendency in many professions such as health in which access to specialist facilities favouring the largest centres; and,
- consolidation of services into larger centres increases the frequency of visits to those centres by rural residents.

As regional Australia became increasingly integrated into global economic systems, a parallel process of economic policy reform was occurring (Tonts and Jones, 1996, p. 140). In the 1980s, the Hawke and Keating governments led a period of major economic reform which effectively ended the high levels of protectionism in Australian trade and industry. Fiscal reforms such as floating the Australian dollar and allowing entry of foreign banks into the country made Australia much more open to the global economy. The subsequent coalition government undertook further economic reform from the mid-1990s. This neoliberal agenda continued through the 2000s and was characterised by: fiscal conservatism; labour market deregulation; mutual-obligation pacts; introduction of a national competition policy, and a move away from the welfare state (O'Neill and Fagan, 2006, pp. 206-207; Hogan and Young, 2015, p. 323).

The transformation of Australia's rural economy in the latter part of the 20<sup>th</sup> Century was notable as O'Neill and Fagan (2006, p. 211) point out:

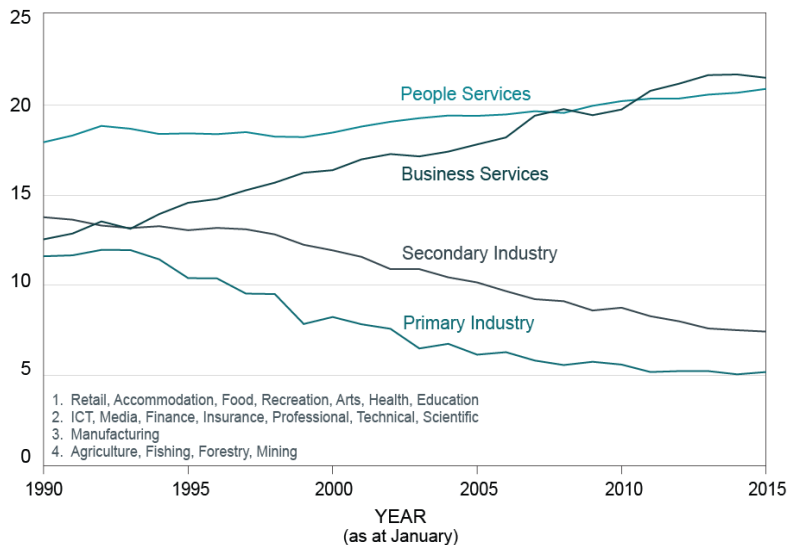
... the 1980s period of State-engineered market liberalisation produced a fundamental shift from the protectionist trade policies which had been one of the pillars of Australia's post-1950 economic policy framework.... By the end of the twentieth century, Australia was judged to have achieved the lowest overall barriers to trade and investment among OECD countries.

Regional areas were affected in many ways by the changes wrought by globalisation and deregulation. Structural changes affecting agriculture went beyond the family farm to have a major impact on many country towns which serviced the industry. In turn this had impacts on population and settlement patterns (Hogan and Young, 2013, pp. 325-6). Traditional industry sectors like agriculture accounted for a falling proportion of Gross State Product (GSP) compared to the rapidly growing business services sector (Figure 2). The critical implication of this structural economic change is that business services tend to concentrate in larger cities. Thus city-based economies increased their share of growing industry sectors. The declining importance of agriculture in relative GSP terms had a spatial outcome for rural areas as they could not easily compensate by switching to new economy sectors which favoured places like Melbourne.

These shifts in industry structure have geographic implications. Agriculture is necessarily a rural activity but, as labour requirements have fallen in the sector since the 1960s, the need for large populations across rural regions has lessened. In contrast, the business services sector

gains greater benefit from agglomeration and cities have generally formed the focus of growth in this sector.

**Figure 2: Industry Share of Gross State Product (GSP), Victoria, 1990 to 2015**



Source: ABS *Australian National Accounts: State Accounts*, cat. no. 5220.0.

### 3. HUMAN CAPITAL

Human capital is a term used by economists to refer to the stock of knowledge or characteristics of a worker that contributes to their productivity. Investments in human capital may take the form of schooling, on-the-job training, medical care, as well as migration and searching for information about employment opportunities or incomes. Investment in education and training of individuals can enhance their level of human capital and this will be valued in the market because it increases firms' profits. These investments improve peoples' skills and knowledge and in doing so, they raise productivity and contribute to economic growth (Schultz, 1961, p. 1; Becker, 1964, p. 1).

While economic theorists were interested in the role of human capital in economic production and growth, their interest also captured the significance of human capital investment for the individual. While firms may benefit from the higher productivity level of a skilled workforce, the individual also has an incentive to undertake investment in themselves (Becker, 1964, p. 61). There is an incentive for individuals to invest in their own human capital as this can lead to returns in the form of higher incomes. These returns are gained over the long-term so, in economic theory, the earlier one invests the longer the period in which to gain the returns (Schultz, 1961, p. 4).

The work of Schultz and Becker in the 1960s represented part of a growing range of economic theorists who were seeking an explanation of economic growth that accorded more with reality than did neoclassical models of the 1950s. Much academic work was initiated as a result of the lack of clarity around technological progress in the neoclassical model. Kaldor looked at the way in which new ideas and technical innovations required the existence of particular types of capital goods for them to be absorbed into an economy (Kaldor, 1957, p. 595), while Arrow began examining the role of learning in production and on the level of productivity (Arrow, 1962, p. 157). An additional perspective on human capital was provided by Nelson and Phelps who argued that education is particularly important for the functions that require adaptation to change (Nelson and Phelps, 1966, p. 70).

From this group of economists, it was the work of Schultz which had the greatest influence on later work, notably on the development of endogenous theories of economic growth in which human capital becomes a key driver of technological progress through innovation and creativity. Work by Romer (1986, 1990) and Lucas (1988) are the most often cited in this revised view of human capital. Within a neoclassical framework, human capital is still an exogenous factor – an external component which is part of the ‘technological progress’ element that had remained undefined in models from the 1950s. The development of endogenous theories of economic development placed human capital more centrally in processes of innovation which, influenced by the work of Schumpeter from the early 20<sup>th</sup> century, was part of the dynamic process of economic development, albeit with the subsequent costs of obsolescence (Schumpeter 1934, p. 217).

The work of Romer (1986) brought human capital into the discussion of economic growth and agglomeration. In Romer’s model, knowledge is itself a form of capital and it is incorporated as an endogenous element which directly influences economic growth (idem, p. 1003). The investment in, and accumulation of, knowledge provides a positive externality as knowledge spillovers benefit many firms across the economy. It displays increasing rather than decreasing returns as knowledge can grow ‘without bound’ (idem, p. 1003).

The role played by knowledge externalities associated with human capital was also shown by Lucas (1988). Like other researchers in the human capital field before him, he was seeking to explain the residual element of ‘technical progress’ in the neoclassical models of Solow (1956) and Swan (1956). Influenced by the works of Schultz (1961) and Becker (1964), he added human capital to his model of economic growth. In doing so, he noted that there were both internal and external effects of human capital investment. The individual gains from human capital investment (internal effect) but knowledge spillovers from human capital investment have economy wide (external) effects. The latter is an important contributor to economic growth and knowledge accumulation (Lucas, 1988, p. 18). The external effects of human capital are significant and, for Lucas, they helped to explain the existence of large cities, the higher costs of which would suggest that people should leave them rather than be attracted to them. However, the external effects of human capital and knowledge spillovers, makes cities highly attractive. As he notes, ‘What can people be paying Manhattan or downtown Chicago rents *for*, if not for being near other people?’ (idem, p. 39).

#### 4. DIVERGENT GROWTH AND AGGLOMERATION PROCESSES

Economists in the neoclassical tradition had been concerned with processes of convergence and divergence and many empirical studies at international and regional levels sought to test which was more likely to occur (see Martin and Sunley, 1998, p. 203 for a review). However, neoclassical approaches had also been challenged due to their inability to explain empirical observations about the existence of, or the speed of, expected convergence trends in income, capital-labour ratios and factor prices (Bodenhofer, 1967, p. 448; Lucas, 1988, p. 17). At a more fundamental level, writers such as Myrdal (1957) actively challenged the idea of equilibrium, highlighting the tendency of economic and socio-political forces towards uneven development and perpetuation of inequality (idem, p. 26). Myrdal’s work was set within debates around international inequalities between nation states (a key concern of the new United Nations for which he worked). While he recognised that the process had a parallel at the sub-national level, his work was set more within development economics than urban agglomeration. Nevertheless, his description of circular causation processes highlighted the ways in which virtuous circles of growth and prosperity, or vicious circles of decline and disadvantage, could occur spread across the landscape (idem, p. 12). Initial events affecting a local economy can lead to vicious or virtuous cycles. In the negative case, an initial industry

closure for example may lead to a cumulative pattern of out-migration and disinvestment. In a positive example, an initial startup business, or new resource opportunity may create an increase in demand which is followed by increasing investment and subsequent development. This tendency for economies to diverge from an initial state is seen by Myrdal as a more natural tendency which can only be checked by intervention of some kind (*idem*, pp. 23-26).

The emphasis on uneven development was also evident in the work of Hirschman (1958) and Perroux (1955). The process of cumulative causation fitted well with the ideas of urban analysts seeking to explain the dynamics of urban agglomeration (Stough *et al*, 2011, p. 6). These analysts included both geographers and economists who sought to describe and explain the dynamics of urban externalities and spillovers. Among economists, the concept of localisation externalities goes as far back as Marshall in 1890 who described the advantages for firms locating close to each other (Marshall, 1890, IV: 10.3 para 1):

When an industry has thus chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another.

In modern parlance, these localization externalities can be described in terms of: labour market pooling; supplier specialization; and knowledge spillovers (Cortright, 2006, p. 8). These externalities, or spillovers, lower the transport and transaction costs for people, goods or ideas. Both customers and suppliers can benefit from proximity and higher levels of specialization can occur. Labour sorting is also enhanced, with better matching of jobs and positions leading to higher levels of productivity. Employees can also benefit from such specialization in terms of: acquiring new skills; having a greater choice of potential employers; and, accessing higher incomes (Marshall 1890, IV: 10.3 para 3):

... a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where there are many employers who need such skill as theirs and where therefore it is likely to find a good market.

Other types of benefits arise from urbanization externalities. Firms locating in large cities not only benefit from the co-location of other firms, they also benefit from having access to a diversity of urban amenities such as business services, cultural activities, and high quality infrastructure (Harris, 2011, p. 929). Jacobs (1969) outlined the ways in which cities enable economic growth through such urbanization externalities. The diverse range of producer services and local services found in large cities provide an array of support services for existing and nascent firms (Jacobs, 1969, p. 181):

In cities with many organizations supplying so many bits and pieces of work, it is possible to start a new exporting organization while depending upon others for many of the goods and services one needs.

The social and cultural amenities offered by large cities themselves act as an attractor of workers and businesses. The perspective of Jacobs is supported in the work of Lucas (1988) who recognized that cities afford significant information spillovers through the clustering of human capital.

An added attraction of large cities is the higher wage levels compared to non-urban regions. The causes of this 'urban wage premium' presented various questions: was it due to a simple level effect where those moving to the city received a wage increase straight away, or did urban wages increase over time? If the latter, was it due to the greater efficiency of a large city in terms of matching skilled workers to well-paid skilled jobs? Or did cities themselves promote learning, thus increasing the levels of human capital and hence higher wages?

Glaeser and Maré (1994) found that longer residence in cities created higher incomes and that migration out of cities did not automatically reduce wage levels. From this they concluded that cities were generators of human capital: ‘Workers are actually acquiring more skills in dense environments’ (idem, p. 4).

Discussions of human capital in cities are related to studies of innovation. Schumpeter’s work in the early 20<sup>th</sup> century highlighted the role of the entrepreneur in developing ‘new combinations’ which referred not only to new products but also new processes, markets, or sources of supply (Schumpeter, 1934, p. 132-5), in other words, innovation. The process of innovation and adjustment towards a new economic state were fundamental to the process of economic growth and development (idem, p. 245):

The stream of goods is enriched, production is partly reorganised, costs of production are diminished, and what it first appears as entrepreneurial profit finally increases the permanent real incomes of other classes.

Because large cities are seen to have high levels of human capital, dense networks and information spillovers, they are seen as being a driving force of innovation and development. Florida (2002) emphasises the role of human capital, urban amenities, social diversity, and the location of creative people in cities as an important component of innovation. These ‘creative’ locations, in turn attract more creative people and innovative firms, particularly those in high-technology (idem, p. 754). Scott and Storper (2003, p. 581) also supported the view that agglomeration was central to innovation and economic development:

These city-regions are locomotives of the national economies within which they are situated, in that they are the sites of dense masses of interrelated economic activities that also typically have high levels of productivity by reason of their jointly-generated agglomeration economies and their innovative potentials.

While many of the ideas around innovation and cities became popular within academic and government circles, their very popularity led to a dilution of many concepts. Terms like ‘knowledge economy’ which began to be widely used in the 1990s (see for example, OECD, 1996) were compelling as a notion, but almost impossible to accurately define or measure. As Harris points out in his review of regional growth theories, this is not unlike the earlier work on growth poles which was an appealing concept but proved to be very difficult to define precisely (Harris, 2011, p. 934, citing Richardson, 1978). From the point of view of this thesis, another key problem is that this literature has moved away from an understanding of core-periphery relationships to one that not only focuses on cities but seems to exclude the possibility of non-city narratives.

Admittedly Krugman in his influential work *Geography and Trade* (1991a) was positing a core-periphery model of economic growth in which a transition from dispersed activity to a core-periphery pattern occurred when one or more of the following occurred: a fall in transport costs; an increase in economies of scale; or, an increase in the proportion of expenditure on non-agricultural goods (Krugman, 1991b, p. 487). However, writing 20 years afterwards, he noted that the New Economic Geography that his work spurred had focused less on geographical patterns of core and periphery, and more on economic clusters (Krugman, 2010, p. 10).

The growing focus on clusters and city agglomeration may be seen in the context of the significant point in human history, 2009, when urban living surpassed rural living as the most dominant human settlement pattern on the planet (UN, 2009). While the urbanisation of humanity has been a long process, the milestone of 50% was seen as significant in world history and tended to focus a lot of popular and policy attention on urbanisation and cities. This focus on cities created a narrative that excluded views from the periphery. And with the

dichotomous nature of Australian settlement systems brought about by capital city primacy, this city focus had the effect of excluding much of regional Australia. As noted by Tonts *et al.* (2012, p. 300), ‘Metropolitan Australia is mainstream Australia.’

## 5. HUMAN CAPITAL MIGRATION – PROCESSES AND OUTCOMES

While human capital was clearly a very important element of the urban dynamics being described by Glaeser and others, the role of mobility in determining the location of that human capital was beginning to be addressed by a number of authors. Various researchers have looked at the intersection of migration and human capital and have delivered some consistent findings:

- More educated individuals are more likely to migrate (Kodrzycki, 2001, p. 30; Ritsilä and Ovaskainen, 2001, p. 317; Faggian and McCann, 2009, p. 212).
- Peripheral regions are more likely to experience a net loss of human capital (Bodenhofer, 1967, p. 447; Stockdale, 2006, p. 360; Ritsilä and Ovaskainen, 2001, p. 317; Argent and Walmsley, 2008, p. 148; McHenry *et al.*, 2014, p. 236).
- Cities attract human capital (Glaeser and Maré, 1994, p. 318; Glaeser and Saiz, 2004, p. 27; Corcoran *et al.*, 2010).

Job search theory places migration behaviour within the context of labour markets and jobs. According to the theory, labour will consider taking a job if the wage is equal to or higher than minimum level acceptable to the individual. A job seeker will continue to look for work until this ‘reservation wage’ is met (Faggian and McCann, 2006, p. 480). For individuals who have invested in human capital, for example by obtaining higher education, the reservation wage is likely to be higher. They are likely to spend longer looking for the right job and tend to search over a greater geographical area (McCann, 2013, p. 216). Job search theory is often combined with human capital theory in order to ascertain the degree to which education levels affect the propensity to migrate (Lemistre and Magrini, 2011, pp. 3-4).

A number of researchers who were developing theories of human capital in the 1960s recognised its relationship with migration. Sjaastad (1962) looked at returns to the individual for their investment in a migration decision (*idem*, p. 83). The concept of human capital is significant in this approach because it views migration as potentially an investment made by the individual to increase their earnings in a more conducive labour market in another location (*idem*, 1962, p. 88).

Bowles (1970, p. 357) states this as one of the key hypotheses in his 1970 study of migration as a form of human capital investment:

The present value of expected future income in the ... destination is probably the best measure of the gross economic benefits of migrating. The present value of expected future income in the place of origin represents the economic benefits which are foregone by moving. Thus we can expect that the migration rate will be positively associated with the present value of the stream of income differences between the origin and destination, summed over the expected working life of the prospective immigrant.

Bodenhofer (1967) aimed to integrate labour mobility into the theoretical framework of human capital theory. In particular, he was interested in the situation of structural economic change where individuals may require new skills and relocation. In some cases, migration alone will ensure that an individual can secure the value of their human capital investments but in other cases, additional qualifications or skills will need to be gained (Bodenhofer, 1967, p. 437-8).

As with investment in formal education, the benefits of migration will be accrued over a longer period (and thus be higher) if the investment is made early. While other explanations of migration behavior explain the fact of young adults being more mobile than older age groups (for example, life stage analysis), the returns on mobility may also be subject to the same theoretical explanation – moves made early in order to enhance investment in human capital will be of greater lifelong benefit if they are made early in one's working life (Schultz 1961, p. 3; Sjaastad 1962, p. 88; Becker 1964, p. 50; Bowles 1970, p. 357).

Studies such as those cited above tend to focus on the migration of those who have already attained higher education. Another category is the migration of those seeking higher education. Authors such as Stockdale (2006) and McKenzie (2010) have looked at this type of human capital migration. The problem is that the attainment of human capital usually requires people to leave smaller rural settlements to move to a city where higher education is available. This represents a loss of human capital unless the person returns to their home location (Stockdale, 2006, p. 360).

In Australia, this process of moving in order to gain higher education is possibly more significant than subsequent migration movements. This is in contrast with work on human capital migration in the British context where graduate migration was often the key point of change (Faggian and McCann, 2009). Those who had grown up in northern parts of England were able to access tertiary education within the Northern region but subsequently tended to migrate southwards to gain employment opportunities in London, a region noted by Fielding (1992) as an 'escalator region' in terms of social and economic mobility. In the Australian context, the major move tends to be made for regional students after finishing secondary school. Some students living outside the capital cities will have access to tertiary institutions in large regional cities, however, the pattern of primacy which characterises Australia settlement system creates a large gap between the size and scope of universities outside the capital city compared to those within.

At one level it might be argued that, whether human capital is mobile before or after the acquisition of skills, there is still an outcome which favours certain regions, be it London or Melbourne. And the net outcome is potentially one of polarisation between regions experiencing net loss of human capital and those experiencing net gain. The self-reinforcing process of cities attracting human capital, and in so doing becoming more attractive, raises many questions in the context of Australia's urban primacy, as it suggests that capital cities will enjoy a cumulative gain in human capital over time, potentially at the expense of non-metropolitan areas.

Very few authors have challenged the view that large cities are the only places where innovation and human capital can congregate. Shearmur (2012, p. S9) articulates the concern which is central to my thesis:

Another question that is not usually confronted concerns the apparent absence of any constructive role that non-urban settings can play in the innovation game. The consignment of non-urban spaces (and also of non-creative classes) to the scrap-heap of economic dynamism is of some concern ...

Shearmur (2015) challenges the view that cities are the only sources of innovation. He argues that some types of information require immediate action and, in such cases, proximity between individuals or firms is advantageous. However, other types of information or knowledge lose their value slowly and therefore distance is less of a constraint. Furthermore, proximity itself may mean different things apart from physical proximity. It may include social, organisational, or cultural connections which form strong networks across a variety of distances (idem, pp. 2-3). This view of proximity appears to be borne out in the work of Fitjar

and Rodríguez-Pose (2011) who surveyed 436 managers of regional businesses in Southwest Norway – a peripheral region which has continued to remain both wealthy and innovative. Factors such as local collaboration, agglomeration and clustering were not found to be significant. Instead, it was international networks and long-distance cooperation which accounted for much of the product innovation occurring in the region (*idem*, section 2).

The education levels and attitudes of managers were also found to be important in the creation and retention of international networks, suggesting that human capital can play a significant role in bringing innovative practices to peripheral regions (Fitjar and Rodríguez-Pose 2011, p. 570):

.. managers with high levels of education would have been forced in the past—due to the absence of a local university—to go elsewhere in Norway or even abroad in order to complete their studies. This personal trajectory would have prepared more educated individuals to expand their horizons and encouraged them, on their return to southwest Norway, to continue developing collaborations that are not necessarily place-based. The general open-mindedness associated with the life experience of moving in order to improve their level of education can be considered as a fundamental factor in overcoming place-boundedness in their work relationships.

These alternative views to the mainstream narrative of city-based innovation open some interesting avenues for considering the future prospects for human capital and economic potential in regional Victoria. An initial exploration of these ideas within the context of the PhD portfolio is presented in the following section.

## 6. THE PORTFOLIO

Six articles form the body of the PhD dissertation (McKenzie, 2003, 2004, 2006, 2010, 2015; McKenzie *et al*, 2014). These articles highlight key aspects of demographic and economic change in regional Victoria during the 2000s.

Article 1 in the series (McKenzie, 2003) outlines a government project initiated by the author. This ‘Regional Atlas’ project aimed to identify and compile information on issues affecting the Victorian State government in the early 2000s (Victorian Government, 2002). At that time, more integrated, whole-of-government approaches to policy-making were being promoted. To support this inter-agency approach, the Atlas project aimed to provide an integrated set of information upon which interagency discussions could be held, and policy developed. The starting point for selecting information was a review of issues identified by senior government officers. This ‘issues-led’ approach differed from the more common ‘data-led’ approaches, enabling a greater focus on new and emerging challenges rather than on past issues reflected in many existing datasets.

The reason for developing a journal article on the experience of this project was that it was innovative and unique in its attempt to pull together related, policy-relevant, material upon which whole-of-government decisions could be based. Government policy approaches can benefit from interagency collaboration and coordination. Underpinning this approach is the development of an integrated knowledge base for understanding trends and issues. This article highlights both the opportunities and challenges of a whole-of-government approach using the experience of the Victorian Government Regional Atlas. The cross portfolio issue of skills shortages became apparent through this inter-agency approach, reflecting the implications of human capital deficiencies in regional areas.

The issue of skill shortages affected multiple government portfolios however there was a dearth of information on the topic at that time. Hence, the initial exploration of skills shortages undertaken for the Regional Atlas was expanded with Article 2 being the resulting

summary (McKenzie, 2004). Of particular interest was the different conceptual approaches being taken to the investigation and measurement of the issue. In terms of academic discipline, the main approach was influenced by economic understandings of skill shortages – mismatches between labour supply and demand and policy responses involving initiatives such as training schemes. However, an emerging perspective on skill shortages was geographical, with skill shortages being tied to place, rather than industry sector. Of growing concern in this regard was the non-metropolitan emergence of many skills shortages, especially for professional positions. The conceptual framework developed in the paper was subsequently used by the Australian Government by the Bureau of Transport and Regional Economics (BTRE, 2006, p. 7).

A new edition of the Regional Atlas was developed in 2005 (Victorian Government, 2006). Issues of government concern were reviewed again and, hence, it represented a new atlas rather than simply an update of the earlier edition. Key issues arising from this edition of the Atlas are outlined in Article 3 (McKenzie, 2006). Themes of population and economic change are entwined in patterns of: regional growth and decline; sectoral change in employment; internal migration, and the growing concentration of population into large urban agglomerations and their immediate hinterlands. Implications such as income polarisation were added to the issues of skills shortages explored previously.

The cumulative impacts of these changes were of concern to government. The growth pressures on Melbourne stood in stark contrast to the plight of many regional areas, the more peripheral of which had experienced population decline over many decades. The aspirations of regional policy makers to retain people in, and attract them to, regional areas were being undermined by the strength of economic and demographic centralisation being experienced in the 2000s. A particular area of concern was the loss of young adults from regional areas as this represented a key loss of human capital and demographic potential (future family formation) from regional areas. Once again, this critical, emerging issue for government was not easily informed by existing data sources: the degree of return-migration was unknown, and it was unclear from aggregated data whether regional net migration gains of older age groups were returnees or metropolitan residents seeking a new lifestyle ('treechange' and 'seachange' as it became known in popular parlance).

In order to better understand the drivers of youth migration, a qualitative research project was undertaken in 2009 using the services of Sweeney Research for the fieldwork component (focus groups and online survey). The resulting analysis and findings was presented in Article 4 (McKenzie, 2010). The target samples for this research were young adults making a mobility decision at the point of starting tertiary education. In rural Australia, the decision to undertake tertiary studies often involves making such a migration decision. Thus the accumulation of human capital is intertwined with spatial outcomes of migration. This combination of demographic change (migration) with educational decisions (where to undertake tertiary study) was timely given emerging academic interest in the topic from a human capital perspective (Faggian and McCann, 2009; Corcoran *et al.*, 2010). The study highlighted key reasons for young people to move to the metropolitan area of Melbourne: perceived status of metropolitan universities compared to regional; the excitement of moving to a large city with its social and cultural opportunities, and the potential for career opportunities following graduation. Even where regional students remained to attend a local university, there was evidence that many still sought metropolitan experience after graduation as a way to progress their careers.

While many young adults in regional areas seek educational and economic opportunities in Melbourne, older working-age groups display neither the level of mobility nor the net

movement towards the metropolitan area. While there is a generational shift towards living in larger cities, short-term locational decisions often favour remaining in a familiar location. Even where a local industry closes, commuting to access other jobs is often favoured over out-migration. While labour mobility is an assumption in much economic theory (and often seen as an desirable adaptive response), it can have negative social consequences for a town. Where commuting, rather than out-migration, is a viable alternative, social cohesion and social capital can be maintained. (McKenzie, 2012).

This preference for commuting in the face of an industry closure was highlighted in the case study of Stawell which forms the basis for Article 5 (McKenzie *et al*, 2014). The paper compares the situation between two regional towns in which long-distance commuters reside - Busselton in Western Australia and Stawell in Victoria. The desire by such regional communities to retain their local population and access jobs far afield challenges assumptions of economic theory relating to labour force migration. The opportunities presented through long distance commuting – flying in particular – are being pursued with the aim of retaining the local population even in the face of local employment losses. As such, the case studies provide an alternative picture of how communities might adapt to a changing economy while retaining cohesive communities (social capital) (DTPLI, 2003, p. 38):

... tapping into a wider range of mining jobs across the country could in fact help raise the skill levels of Stawell based mining employees bringing both higher incomes and a wider range of knowledge and skills into the community.

Just as Stawell has been seeking ways of surviving and flourishing in a rapidly changing world, other centres have been determining their own responses and pathways in the face of economic challenges. Case studies of Goulburn and Orange (NSW) form the basis of research findings presented in Article 6 (McKenzie, 2015). The research aimed to explore the factors that contribute to regional economic performance. Of interest was the way in which regional centres with many similar attributes (competitive advantages) can have different patterns and trajectories of economic and population growth. The role of non-economic factors was expected to explain some of these differences and qualitative research revealed some of the social and cultural factors likely to affect future development pathways for each city.

The body of work outlined above informs our understanding of the causes, processes, and outcomes of change. A picture emerges of communities grappling with economic change while seeking to retain some of the key values of regional life – strong communities and social cohesion. These elements are not separate from economic fortunes, in fact they may hold the key to future economic success. The competitive advantage of regional settlements lies as much with their social and human capital as with their physical and resource capital. The human dimension is one that is of central importance to the role of government and one which can sustain future economic wellbeing in regional Australia, irrespective of whether population growth is high or low.

## 7. DISCUSSION

Work by writers such as Glaeser (2012) highlight the economic and social success of large cities, their dynamism and complexity, and the ways in which linkages, communication, and density can create innovation and continued growth. As much is any other, this narrative created among many academic geographers a view that the city is where things are happening in the modern world. Yet this leads to a question that underpins much of my own research work – whatever happened to the periphery?

The portfolio presented in the previous section documents the pattern of migration for human capital accumulation (McKenzie 2010) and the potential impacts of human capital scarcity

evidenced through regional skills shortages (McKenzie, 2004). Yet, issues like skills shortages should not be seen as the end of the story. Such shortages themselves can lead to innovative responses, from mobile service delivery to industry-led regional training partnerships.

Where jobs are scarce in regional areas, labour has shown flexibility through mobility – commuting rather than permanent migration (McKenzie, 2012; DEPI, 2014; McKenzie *et al*, 2015). This has created an interesting interplay between human and social capital – maintaining social networks while accessing an expanded range of alternative job, and hence learning, opportunities (DTPLI 2013, p. 40):

With Australian mining becoming more mechanised it is likely that future jobs in the industry (and certainly the higher paid jobs) will be those requiring higher levels of formal education, for example engineering or electronics, rather than being based on manual labour. FIFO alone will not transform the future education levels of the Stawell work force although it will enable exposure of local workers to a more diverse range of mining opportunities. In this regard, it may influence the aspirations of local workers and their families and enable much greater engagement with a globalised mining sector, thus generating future economic opportunities and pathways.

A final theme within the portfolio relates to attitudes and perceptions and their role in regional economic success. This is relevant to human capital through attitudes to, and aspirations for, education. In Orange, many local leaders are home-grown but have had education or experience elsewhere, notably Sydney but also overseas. Several interviewees in Orange highlighted the importance of young adults leaving the town and then returning with a wider range of experience and ideas to contribute to the city (McKenzie, 2015, p. 308).

... the process of acquiring an education, usually involving moving to another location or gathering experience from a variety of circumstances, sectors or locations, is significant in understanding how the world works. ... Learning about or experiencing new ways of doing things can lead to a wider range of options and greater ability to respond to negative trends or unexpected events. (McKenzie, 2014, p. 47)

This aligns strongly with the findings from Southern Norway by Fitjar and Rodríguez-Pose which were presented in the previous section. It also shows how educational aspirations at the regional level can have long term benefits, even if it makes young people more likely to leave for a period of time. It is perhaps a point of debate as to whether such ‘leavers’ are likely to return and contribute to regional economies. Yet there is emerging evidence that many do wish to return at some point (McKenzie, 2010, p. 155; McKenzie, 2016, p. 10).

Whether moving to attain human capital or moving after the attainment of it, the draw of the city has played a central role in economic geography and spatial economics over the past three decades. The patterns of economic and demographic change in Victoria seems to fit well with these explanations. Yet, despite the primacy of cities like Melbourne, there is vibrancy in many non-metropolitan regions and this requires as much attention by academics as city growth. Innovation does occur in non-metropolitan areas and human capital may be found there. Furthermore, the deepening of ICT infrastructure and the increasing ubiquity of smart wireless technology may offer opportunities to regional areas. While Friedman may have overstated the level of ‘flatness’ in the world (2005), some of his views may have been premature rather than totally wrong. It is interesting to read Jacob’s description of an acquaintance choosing New York as a location for their business in the 1960s (Jacobs, 1969, p. 189). The inventory they required involved many different suppliers and thus the diversity of a large city proved the most efficient location. In the current age, the entire list would not only be available online, but some items may *only* be available online. This, of course does not mean the city-dweller need leave town and all its amenities, but it does mean that

someone in a location like Bendigo or Stawell now has access to goods and services that they did not have before. And, just as increasing mobility has given access to a wider range of job opportunities while allowing workers such as those in Stawell the option of living in the place where their social ties and identity are strong, so technology may provide increasing access to goods and services from across the globe. The greatest challenge for regional areas is realizing the full benefits of these opportunities through aspiration, entrepreneurship and the development of their own human capital.

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