Anticipating subnational depopulation:

Policy responses and strategic interventions to regional decline

A thesis

submitted in partial fulfilment

of the requirements for the degree

of

Masters of Social Science in Demography

at

The University of Waikato

by

Rachael Christina McMillan

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

2015

Contents

Table of Tables

Tables of Figures

Abstract

Population growth has already ended in a number of countries around the world. Significant demographic trends are transforming the global population, with record low fertility across the globe, increasing longevity and increasingly mobile populations. Depopulation is multifaceted and has major flow on effects for the allocation of resources, the provision of services and the viability of communities isolated from the economic powerhouses.

This thesis studied the drivers of depopulation, the policy responses to population decline and the spectrum of interventions available to address population decline from a number of OECD countries. It also looked at whether population decline could be slowed or reversed through studying the demographic and distance challenges of peripheral towns in the Waikato Region in New Zealand.

There is a strong relationship between depth and length of depopulation and the response to depopulation. Responses to population decline vary from country to country based on historical, cultural, political, institutional arrangements, issues to be addressed and resource availability.

The literature proposes that there are only three possible policy responses to population decline, non-intervention, countering and accepting. It was found that successful 'countering' strategies were dependent on the location, economic and demographic context of each community and primarily slowed decline rather than reversing it. None of the 'accepting' strategies that were identified were able to stop population decline. It is easier to achieve improved quality of life than to slow population decline. The research showed that in the context of zero or low national population growth peripheral towns are unlikely to gain population. Outmigration is even more significant in peripheral communities in nationally declining countries.

What became apparent through this research was that towns are like businesses – they need to keep reinventing themselves in the global marketplace to remain competitive. However, some communities do not have the functional elements to succeed.

It will be many years before New Zealand is depopulating at a national level, so there may still be opportunity to slow down population decline in peripheral locations. The Waikato case study showed that this would be a challenging proposition for some Territorial Authorities on the periphery. At the very least New Zealand can adapt to ageing population structure and increase the quality of life for those that inhabit small declining towns. As more regional areas shift towards natural decline with low fertility rates and ageing populations and many enter permanent zero growth or decline, it is important that there are policies which are fit for purpose.

Acknowledgements

Studying demography has been a fascinating journey. I have been very fortunate to have two supervisors – Professor Natalie Jackson and Dr Bill Cochrane. Natalie has been a paramount figure in my explorations into the world of research since 2011 and I am very grateful for her enthusiasm, guidance and depth of knowledge in all things demographic. Bill has been a font of wisdom in learning the art of dealing with the minefield of political ramifications that can come with research and policy making, as well as guiding me in political economy and labour market concepts. I am grateful for both Natalie and Bill for their valuable insights and contribution to this document.

Finally, my thanks goes to my long suffering husband Graeme and my children, Iain and Megan, for putting up with my research predilections and supporting me so much through the process.

1. Overview

1.1. Introduction

Population decline has been identified as a major future challenge. The consequences of depopulation are wide ranging and will have tremendous impact on how countries operate (Ferry & Vironen, 2011). The last century was categorised by tremendous population growth which brought the World's population to over 6 billion before the close of the Century (United Nations Population Division, 2001), with another billion added to this number by 2011 (United Nations, 2011). The 21st Century, on the other hand, is ushering in a new population trend - depopulation. Although probabilistic projections released in July 2014 for individual countries to 2100 show little prospect of world population growth ending before the end of this century, decline in many More Developed Countries (MDCs) is masked by high fertility in sub-Saharan Africa (Gerland, et al., 2014; Kunzig, 2014). Low or zero growth is becoming an issue for many advanced-economy countries (Lee, 2011). By 2008 twenty-six countries were already shrinking at national level, such as Russia, Bulgaria, Ukraine and Latvia (Pearce, 2010). Germany and Japan began shrinking during 2010 and 2011, respectively (World Bank, 2015).

Population shrinkage is impacted upon by wider economic and social transformations within societies on global, national and regional levels (Martinez-Fernandez, et al., 2012b). The drivers for population shrinkage are multi-dimensional with complex and cumulative self-reinforcing linkages (Matanle & Rausch, 2011). Depopulation typically occurs first at subnational level before becoming a national issue and there is evidence that population decline begins in the regions before extending to the cities (Jackson, et al., 2014). Subnational decline is clear in many countries that have not yet tipped into national decline, such as Australia, Canada, several European countries, the United Kingdom and the United States (Mackenzie, 1994; Martinez-Fernandez, et al., 2012b; Sedlacek, et al., 2009; Warkentin, 2012).

Population decline influences the functioning of social institutions at all levels of a country but has particularly profound impacts at the subnational level and presents both threats and opportunities to regional areas (Ferry & Vironen, 2011; Hospers & Reverda, 2015). Shrinking and growing processes may be seen in parallel in many countries at the subnational level (Wiechmann & Pallagst, 2012). This diversity between areas is caused by local level mixes of the drivers of population ageing – birth rates, longevity and migration (Jackson, 2007). These factors have different mixes in different locations, but have significant impacts on the ability of subnational areas to provide services for their populations. For the most part, population change is likely to be incremental, but where the drivers combine, the process may be much more rapid and lead to absolute or terminal decline (Jackson, et al., 2014).

Governments and planners have yet to learn how to manage population decline in that it does not occur in a uniform manner at the local level and institutional arrangements and the legal framework are geared for a growth paradigm (Hospers & Reverda, 2015). For depopulating communities, population shrinkage can become self-reinforcing, creating a cycle of slowing economic activity, out-migration of human capital, restricted local revenues, degradation of social and physical networks and services, and a reduced quality of life for those left behind (Australian Bureau of Statistics, 1998; Haartsen & Venhorst, 2009; Matanle & Rausch, 2011).

The consequences of depopulation impact on all sectors and actors of society from education to housing developers and local governments to business corporations. The problems associated with depopulation are challenging to address, with major flow on effects for the allocation of resources, the provision of services and the viability of communities (Ferry & Vironen, 2011; Hospers & Reverda, 2015). Martinez-Fernandez, et al., (2012) consider that it is crucial that political strategies and guidelines are developed to tackle demographic change, or communities risk becoming disconnected from the economic opportunities of the global market place. Communities may then become trapped in a pattern of

reinforcing population, economic and employment shrinkage. As such, demographic change in regional areas is a relevant issue for policy makers and requires concerted effort to find appropriate place-based initiatives (Ferry & Vironen, 2011).

1.2. Research focus

Demographic decline and its accompanying difficulties have encouraged policy-makers across numerous countries to develop combating policies (Hospers, 2014). This thesis explores the spectrum of policies and the interventions available to address population decline from seven countries that are members of the Organisation for Economic Cooperation and Development (OECD), with some additional examples from New Zealand. The countries selected were; Australia, Canada, Germany, Japan, the Netherlands, the United Kingdom (UK) and the United States (US). The aim of this study was to locate strategies that may assist in reducing the social and economic consequences of subnational depopulation and which might be applied to areas within New Zealand which are experiencing such decline.

Although subnational New Zealand has not reached the depopulation extremes of Japan and Europe, population ageing is advancing rapidly and lessons from countries further down the shrinkage pathway need to be analysed to enable local governments and other organisations to buffer the future effects of depopulation. The first of New Zealand's Territorial Authorities are experiencing natural decrease (Jackson, 2013a; Jackson, 2014). New Zealand has only recently begun to explore ways to deal with the challenges of subnational depopulation and little research has been undertaken to explore possible strategic interventions to population decline in this country. It is important that we have policy strategies that are fit for purpose and enable New Zealand to manage the challenges that are to come.

This objective was framed into the following research questions:

- What is the spectrum of policy responses to depopulation?
- What is the spectrum of interventions available to address subnational population decline?
- What are the key messages and themes from international examples of interventions?
- How transferable are interventions from other countries to New Zealand's context?

The research questions follow a progression of; a theoretical framework for responses to depopulation, exploring the subnational interventions that countries are using to deal with depopulation and creating a typology of interventions. This is followed by a thematic analysis of the key messages and themes across the case studies and literature examples. The transferability of interventions to the New Zealand context is also explored in a short case study of New Zealand with a focus on the Waikato Region. Finally, the thesis concludes with policy recommendations for developing an action plan for local level communities.

Over 40 case studies and literature on initiatives were examined, but this list is by no means exhaustive. There are large bodies of research undertaken on each type of strategy. This thesis seeks to understand the broad context of the initiatives. Due to time constraints and the breadth of scope of this thesis, case study selection was limited to only a few OECD countries. However it should be noted that there are many other useful initiatives occurring in countries outside the scope of this study.

1.3. Thesis outline

This thesis is presented in nine chapters. Chapters 1-2 cover the thesis overview and methodology. A comparison New Zealand's demographic indicators with the indicators of seven OECD countries selected for the thesis is provided in the methodology, laying the rationale for selecting case studies for thematic analysis.

Chapter 3 discusses the drivers of population decline, types of depopulation and the consequences of depopulation. Chapter 4 provides a synopsis of seven theoretical policy response frameworks from the literature on how selected governments respond to the issue of depopulation. This is followed by a discussion of the range of responses to depopulation by governments at various levels from sources such as the United Nations World Population Policies survey, OECD databases, case studies and literature.

Chapter 5 drills down into the types of interventions that countries are using to either counter or accept depopulation, categorizing these interventions into policy sector groups, such as governance, economic, planning, social and promotional interventions. This chapter also looks at the limits of countering and accepting interventions to slow down or reverse depopulation. Chapter 6 presents findings of a thematic analysis of the case studies and literature.

Chapter 7 explores the demographic and geographical context of the Waikato Region in New Zealand. The case study provides a description of subnational population variation with depopulating peripheral areas within the context of overall regional growth. In light of the underlying drivers of depopulation there is a discussion on the scope of change that can be achieved for those subnational areas that are suffering depopulation. The constraints in transferring interventions from other countries to the New Zealand's governance context are then deliberated.

Chapter 8 outlines recommendations for building a local level action plan for community level change within the context of a regional strategic framework. Chapter 9 concludes the thesis.

2. Methodology

2.1. Conceptual framework

This thesis investigates strategic interventions to population decline from several OECD countries. Interventions were examined from countries that are more advanced than New Zealand in terms of structural ageing, to provide New Zealand planners, policy makers and advisors with comprehensive and timely insight into the range of possible interventions that may be applicable here.

This study was based on a comprehensive review of relevant literature, individual and grouped case studies and secondary data, supported by a case study of the New Zealand experience with a focus on the Waikato Region. Instead of assessing substantive evidence of theories of population decline, the focus of this thesis is how countries are responding to depopulation through policy and the range of subnational interventions that countries are operationalising to address their depopulating areas. No other examples of a comprehensive review of interventions could be identified from the literature, rather, most response literature is in the form of individual case studies or at the most, groups of two or three case studies.

The methodology used by this thesis was:

- A review of policy response literature to develop a policy response typology
- Comparative analysis of:
    1. central government population policies – migration, fertility and ageing and key demographic indicators
    2. central government spatial distribution population policies and key demographic indicators
- A review of subnational interventions through developing a database of selected variables and typology of interventions from case studies and literature for the purposes of thematic analysis.

- Case study research – a New Zealand case study with a particular focus on the Waikato Region.

A challenge of studying population policies is that there is no consensus on the definition of a population policy. Population policy definitions can range from narrow to broad. Narrow definitions may be as specific as all deliberate government actions to influence population (i.e. laws, government programmes and regulations), while broad can include population-responsive policies, such as all the ways that government respond to population changes (i.e. reducing the number of houses available, closing schools in a depopulating situation etc.) (Lucas & Meyer, 1994).

Population policies may be divided into broad categories: direct or indirect, explicit or implicit, policies of intervention or non-intervention. For instance, direct policies affect population variables directly, such as immigration policies which may increase growth rates, while indirect policies may be targeted at another goal but have an indirect effect on population variables (Lucas & Meyer, 1994). Some policies may be aimed at explicitly addressing population decline, while others may be focused on managing the effects of depopulation, such as through the proxy of economic development (implicit). Finally, there can be policies of intervention and non-intervention. Policies of non-intervention are deliberate actions by a government to choose not to intervene after investigation of the issue (Lucas & Meyer, 1994).

This thesis uses the narrow definition of a population policy to discuss central government policies for addressing national population change and subnational distribution, and focuses on specific population policy actions. These policies are categorised as explicit direct policies, which means that their objectives and means for achieving them are formally articulated (Lucas & Meyer, 1994). When drilling down into regional and local government policy action the broader definition of 'population responsive action' was adopted due to the fact that many governments at this level do not have the power to change traditional population policies to influence their regions (i.e. fertility, abortion, etc.) but

rather rely on the use of economic development to change their population situations (Lucas & Meyer, 1994). Certainly the regions of New Zealand do not have the ability to adopt their own explicit population policies, such as fertility policies, although in federal systems the states can have this level of control. Many of population responsive policies could be defined as implicit, in that they may affect population variables, but are not purposely aimed at such. Finally, this thesis focuses on both policies of intervention and non-intervention, and this distinction underlies part of the discussion of theoretical policy responses in Section 4.1.

2.2. Theoretical framework

This thesis does not use a direct theoretical framework as there are few, if any, theories of depopulation (Jackson, 2014). One intention of this thesis is to contribute to the development of such a theory, alongside a project that is currently in progress and led by one of the supervisors of this thesis – 'The sub-national mechanisms of the ending of population growth, Tai timu tāngata Taihoe e?'.

This research was developed with a practical outcome in mind; to develop a framework for conceptualising policy responses, as well as provide a range of possible subnational interventions for depopulating areas, so that local level policy makers may be able to adopt strategies that fit with their governance framework and their demographic and economic context to achieve the greatest measure of success.

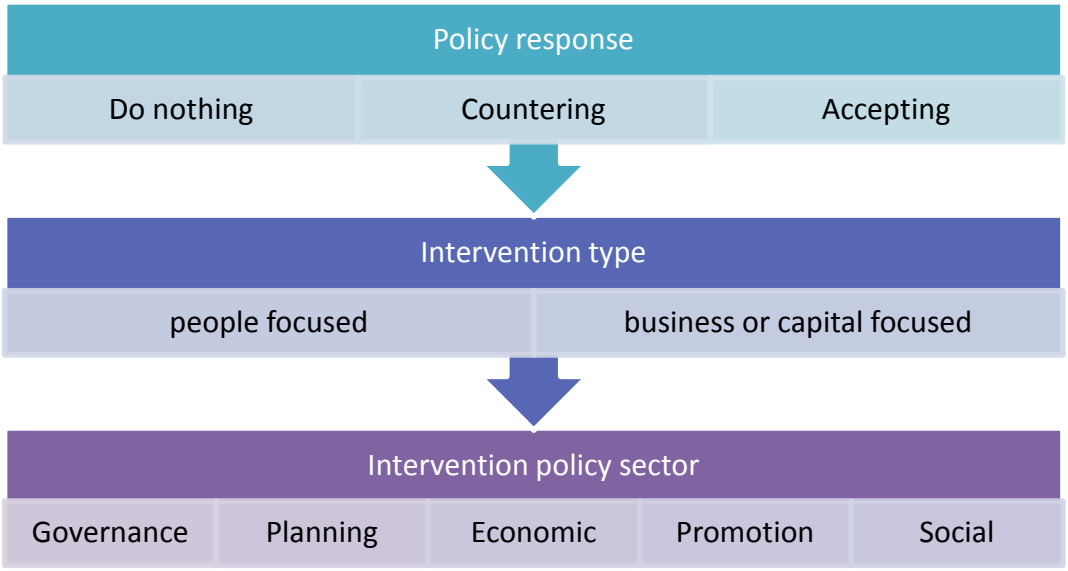
2.3. Analytical framework

Figure 1 presents the analytical framework for this study, which covers policy responses, intervention types (what the intervention is trying to influence) and intervention policy sectors (the policy area of action).

This policy response framework was adopted from a synthesis of the response literature which shows that there were only three possible policy responses to

population decline. These were defined as **do nothing**, stimulation or **countering,** or **accepting** the decline and managing the consequences.

Figure 1: Analytical framework for intervention study



Interventions or strategies are "a collection of actions and activities that help achieve a predetermined goal" (Rink, et al., 2012, p. 4). Case studies of policy interventions and initiatives across the seven OECD countries (see Section 2.4.2) were drawn from conventional academic sources, news articles and grey literature (such as, but not limited to: reports, theses, conference proceedings, technical specifications and standards, bibliographies, technical and commercial documentation, and government reports and documents) (Alberani, et al., 1990) (Gordon & Glenn, 2003).

Case studies and individual interventions were defined as 'countering' if the text clearly stated that the intention was to regenerate a location by attracting either industries, income or migrants into an area.

Case studies and individual interventions were defined as 'accepting' if they described one of the following, to:

- Enable service provision with less resources
- Enable service provision in a declining area
- Attempt to retain population

- Redevelop to adapt to an ageing population
- Specifically state that the intervention was to manage consequences
- Specifically mention an acceptance of population decline

According to Heindenheimer et al. (1983) “government inaction, or non-decision, becomes a policy when it is pursued over time in a fairly consistent way against pressures to the contrary” (p. 7). This definition has been adopted for the ‘do nothing’ category. As this thesis focuses on interventions, which by definition are taking some form of action, the do nothing option is discussed as a policy response but does not feature in Chapter 5 where subnational interventions are outlined.

Most locations do not focus specifically on population policies to boost population, therefore in this thesis countering interventions were defined by explicit policy actions – attraction of capital (defined here has attracting industry, investment or spending), or the attraction of people into a given area. These policy actions were further grouped by the type of policy area that were targeted for action (described as ‘policy sector’ in this thesis). For example, drawing people to an area by developing the built environment was considered within the planning sector, whereas drawing people to an area by promoting the location through the means of advertising was considered in the promotion sector. There is significant overlap between the policy sectors and a comprehensive strategy may cover several sectors.

A database of interventions and case studies was created to enable thematic analysis. The database listed:

- Location
- Response type – countering or accepting
- Government operation level of the intervention – national, regional, local
- Policy sector that the intervention was focusing at – economic, governance, planning, promotion, social

- Parties or 'actors' involved with the intervention – state or local government, the business community or local community
- Details of interventions or strategies
- Whether the initiative required input from higher level initiatives, funding sources or expertise.
- Outcomes and lessons learnt

Few case studies were selected from the national level. Many regional level case studies covered a large number of intervention initiatives across several policy sectors. Local level case studies were more focused on one or two policy sectors and contained a number of interventions.

2.3.1. A review of policy response literature

This study firstly examined the spectrum of policy responses to depopulation and the influences on policy responses to build a framework for exploring the policy choices of countries at both national level and subnational level. Seven policy response frameworks were identified in the literature. These frameworks guided a brief review of the political economy literature to identify influences on policy responses. A theoretical policy framework was formulated from a synthesis of the various policy groupings provided by the response literature as well as the analysis of the political theory that underpinned governmental responses to depopulation.

2.3.2. Country and case study selection

A central premise of this thesis was to identify subnational interventions that may be of use to depopulating areas of New Zealand. Due to the word constraints of this thesis it was decided that interventions would be explored from a limited number of countries only. Seven countries were selected as appropriate countries to draw case studies and interventions from. The countries selected were; Australia, Canada, Germany, Japan, the Netherlands, the United Kingdom and the United States. The countries were chosen for a range of factors but primarily because they had a number of interventions that had been operationalised at various levels of government. In particular, case

studies and literature describing groups of case studies were selected from seven OECD countries that:

- have similarity to New Zealand by political economy (Australia, Canada, UK, US).
- are depopulating significantly on a national level and are exploring strategies with which to address the situation (Germany, Japan)
- have active strategies to deal with decline at regional level (Netherlands, Nordic countries[1]).
- showed a range of response types and intervention levels for comparability.

Countries that were too dissimilar from New Zealand in political, historical or social governance were left out of the selection. For instance, although Portugal has seen systematic shrinking of 121 of its 278 mainland municipalities and has interventions to deal with shrinkage, it was decided that some of the types of policies that local governments are using would not translate well to New Zealand's social context i.e. – incentives to marry (Panagopoulos & Barreira, 2011). It was felt that such interventions would be met with significant resistance in New Zealand.

2.3.2.1. Justification for country selection

Selected demographic indicators were used to compare countries' levels of depopulation. This analysis serves to add to the justification for selecting case studies from these countries that are further down the depopulation pathway than New Zealand. The demographic indicators analysis explains how New Zealand compares to the intervention case study countries in terms of levels of depopulation and ageing.

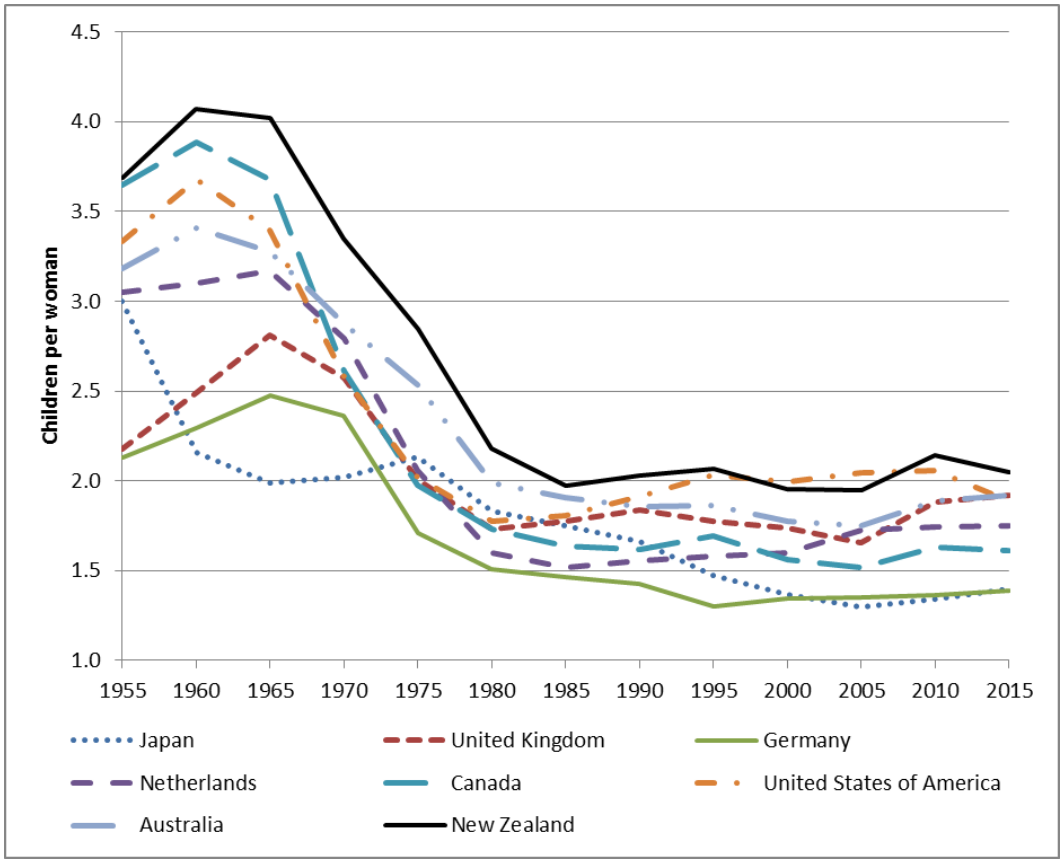
This comparison shows how New Zealand compares with selected OECD countries. New Zealand has historically had a higher total fertility rate[2] (TFR) than

[1] Although the Nordic countries have many useful initiatives, profiles of these countries were restricted to seven countries for ease of comparison.

most other OECD countries. Population replacement level is 2.1 children per woman. Figure 2 shows that the total fertility rate of most of these countries, except the US and New Zealand, fell below two children per woman during the 1970s and, except for slight rises, have not regained replacement level fertility. Although Figure 2 shows an increase in New Zealand's TFR between 2002 and 2010, more recent data has shown that this upturn was short lived. This upturn reflected the movement of a large cohort through the key reproductive age groups—essentially an echo of the baby boom. Both the US and New Zealand have shown a drop in fertility rate over the last 5 years.

[2] Total fertility is the mean number of children a woman would have by age 50 if she survived to age 50 and were subject, throughout her life, to the age-specific fertility rates observed in a given year. The total fertility is expressed as the number of children per woman. Total fertility (TF) is computed as the sum of age-specific fertility rates weighted by the number of years in each age group, divided by 1,000 (United Nations, Department of Economic and Social Affairs, Population Division, 2013).

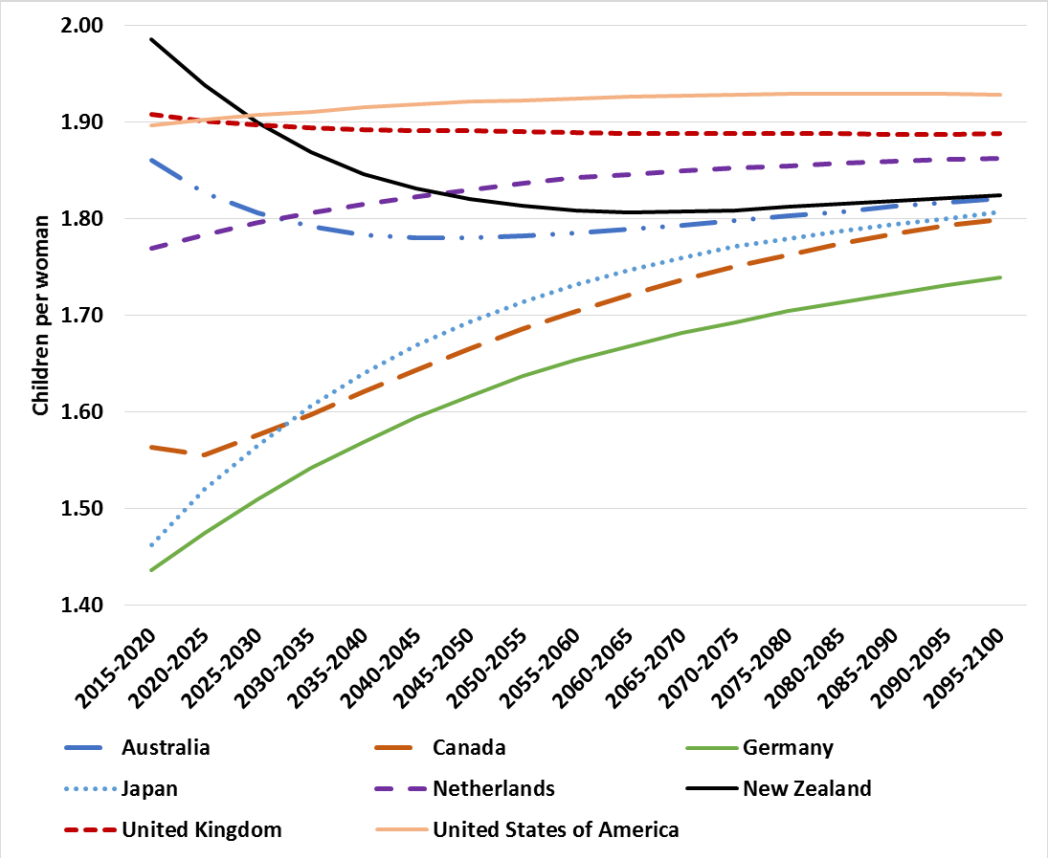
Figure 2: Estimated Total Fertility Rate for selected nations 1955-2015



Source: World Population Prospects 2015 Revision: UN Population Division

The majority of these countries have experienced below-replacement fertility rates for more than three decades. Fertility is not expected to recover to reach replacement levels in the selected countries.

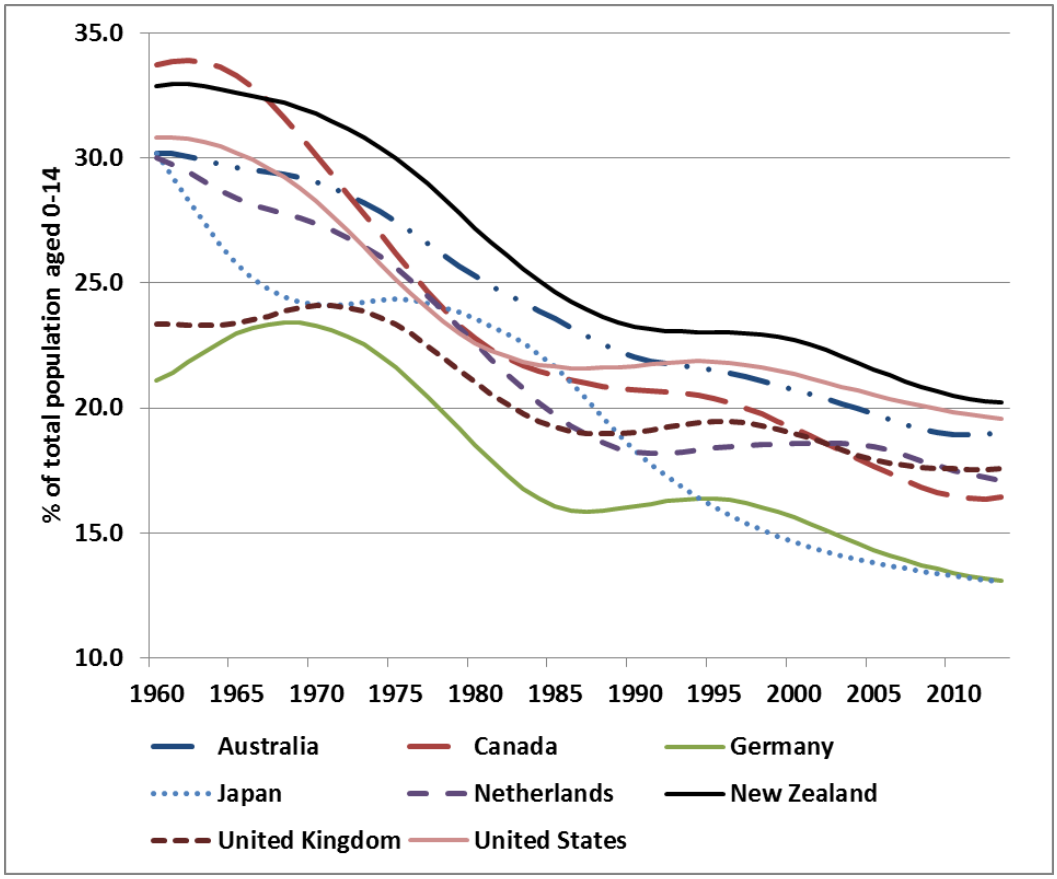
Figure 3: Projected Total Fertility Rate for selected nations 2015-2100 (Medium variant)



Source: World Population Prospects 2015 Revision: UN Population Division

The fertility trends show a corresponding decline in the proportion of each population aged 0-14 years over the last 50 years. Figure 4 shows that Germany and Japan have the lowest youth population levels out of the eight countries, with New Zealand and the US enjoying the highest comparative rates. The peak baby boom years in the 1960s were not experienced as strongly by Germany as the other countries depicted, and as a result proportionally, Germany has not experienced the same rapid descent in youth rates (Teitelbaum & Winter, 1985). In comparison, Canada and Japan experienced the largest negative change in youth rates from 1960 to 2013.

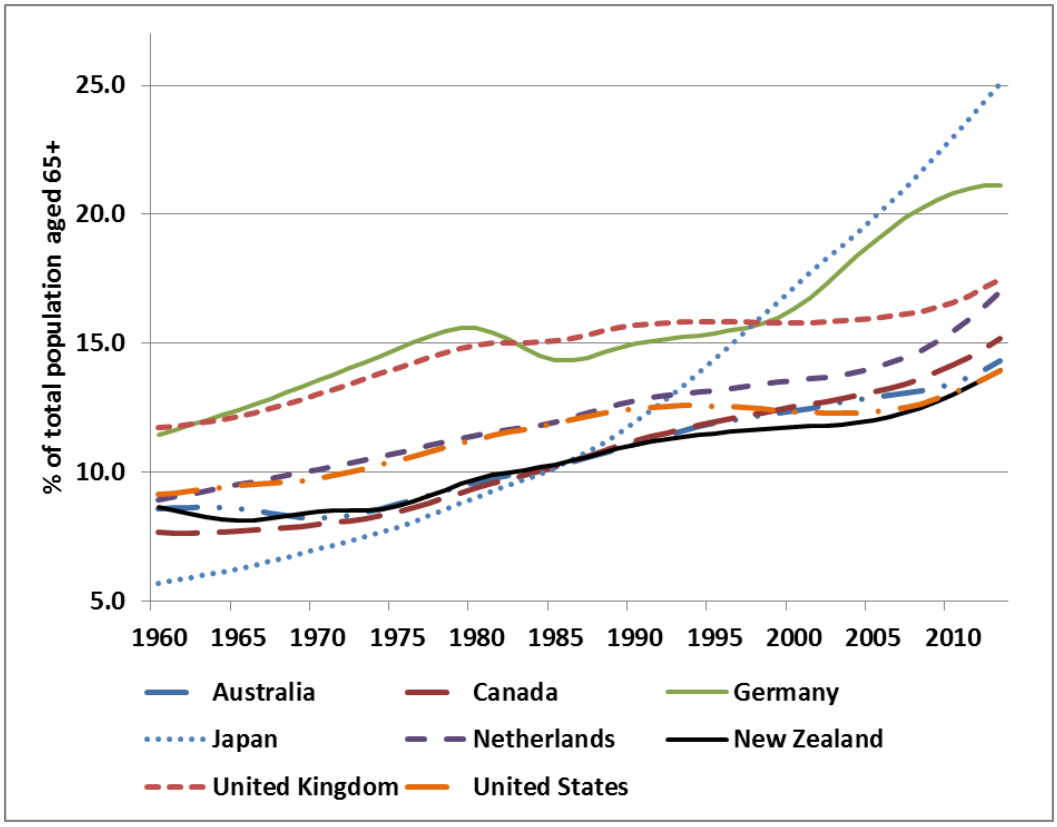
Figure 4: Youth population rate (percentage aged 0-14 years) for selected nations 1960-2013



Source: World Bank (2015) indicator database

Accompanying these fertility trends is numerical and structural ageing of populations, associated with increased longevity and declining fertility (United Nations, 2000). Figure 5 shows the change in the percentage of the total population over the age of 65 from 1960 to 2013 for the selected OECD countries. Across the world there is a clear trend in structural ageing, with the exception of Africa and parts of the Middle East (Martinez-Fernandez, et al., 2012b). The steady increase in the proportion of elderly people in the populations of the selected OECD countries can be seen in Figure 4, with Japan and Germany leading the trend. Even though New Zealand and the US have the highest fertility rates and highest youth population rates out of this group of countries, Figure 4 clearly shows that their populations are also ageing significantly.

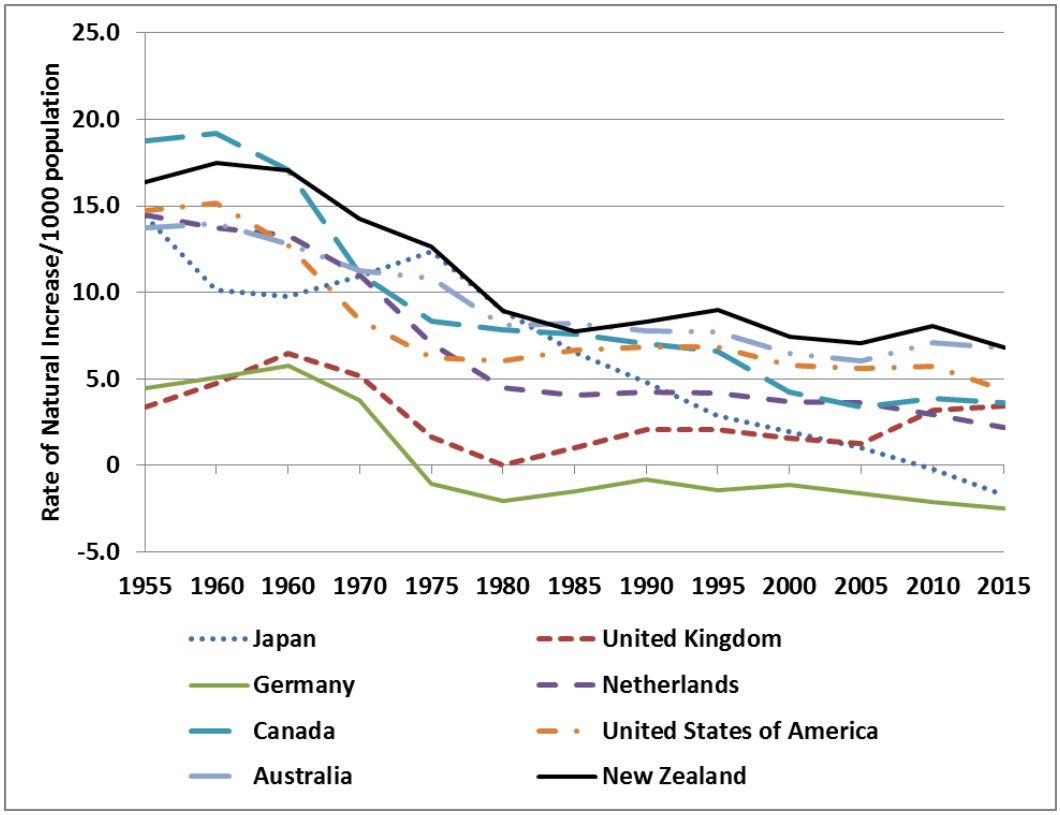
Figure 5: Percentage of population aged 65 and above, 1960-2013 selected OECD countries



Source: World Bank (2015) indicator database

Figure 6 shows that Germany has been in a state of natural decline (where deaths exceed births) for several decades, whereas Japan has only recently crossed the threshold. Some countries that have a low fertility rate, such as Canada and the UK, have a high net migration gain that is sustaining their population in the short term. New Zealand's Rate of Natural Increase (RNI) (the difference between births and deaths) is still relatively high. New Zealand also typically has a high net migration that is sustaining population growth.

Figure 6: Rate of Natural Increase for selected countries 1955-2015



Source: World Population Prospects Revision 2015: UN Population Division

This analysis has shown that these OECD countries are appropriate choices for selecting case studies and interventions from, as they are either already experiencing depopulation or have more negative demographic indicators than New Zealand that are likely to lead to population decline sooner than New Zealand. In many cases these countries have been active in attempting to change their demographic future, although not all of these countries have interventions at the national level. Some have appropriate interventions that are in operation at the regional level.

2.3.3. Analysis

2.3.3.1. Comparative analysis

This research employed comparative analysis which enables a comparison of the similarities and differences between the phenomena (Unikaite-Jakuntaviciene & Rakutiene, 2013, p. 51). Comparison analysis was undertaken first of national government policies from the United Nations World Population Policy 2013 database, to assess how the selected countries (including New Zealand) are responding at national level to population change, particularly the response of countries at national level to population size and growth by adopting (or not) fertility or migration or ageing policies to increase or decrease their respective populations against key demographic indicators. Comparative analysis was also undertaken of the spatial redistribution policies of national governments policies from this database, such as reducing migration from rural to urban places, with other sources of information such as OECD sources, response literature and case studies to assess how countries are responding at national level to subnational spatial distribution of their populations.

Comparative analysis is useful when there are defined sets of data, such as census, economic indicators and surveys. A disadvantage of comparative analysis of such data is that country differences at regional level can be obscured by national level data and the surveys do not contain contextual information. This problem was partially addressed analysing literature, reports, case studies and news articles that provided more in-depth information on policy approaches at regional level.

2.3.3.2. Thematic analysis of subnational interventions

Thematic analysis was chosen to analyse the case studies and interventions due to the difficulties of undertaking comparative analysis. These case studies are a collection of individual cases, grouped cases or interventions draw from a wide range of sources rather than a systematically selected and methodologically controlled sample of cases. There are great difficulties in attempting to study a large number of case studies in any detail as they generally lack universal

theoretical frameworks and have a vast array of contextual issues (Bernt, et al., 2014).

Thematic analysis of case studies and literature was conducted to identify themes about:

- types of policy responses
- the underlying theories forming the policy responses
- the spectrum of interventions available to address population decline
- the key messages and themes from international examples of strategies being used to address population decline
- the key themes for success of strategies where strategies do succeed
- the factors that are needed to enable the transfer of strategies from one context to another.

Key questions were asked:

- What were the outcomes and key lessons learnt?
- What are the key factors for success when an initiative was successful?

Not all questions were able to be answered due to difficulty of measurement, lack of information and length of time since the initiative began. Themes for success were identified and cross grouped with the levels, initiatives and policy sectors.

Intervention type was discussed under the motivator 'countering' or regeneration strategies in terms of:

- Attracting human capital
- Attracting capital flows

For the motivator 'accepting', the strategies were discussed in terms of:

- Maintaining and retaining human capital
- Maintaining and retaining investment and infrastructure

2.3.4. Waikato Region – New Zealand case study

A case study approach was adopted to carry out an analysis of the Waikato Region of New Zealand. This case study aimed to justify the need to explore interventions for subnational depopulation in New Zealand. The case study presented analysis from a report to the local government authorities of the Waikato which shows that eight of the 10 districts that make up the Waikato Region are projected to experience population decline between 2014-2063 (Cameron, et al., 2014). Analysis of the peripheral relationship of distance from small towns to the main urban hubs of Hamilton and Auckland and population projections served to explain some of the impacts of globalisation on this region. Suggestions are made for an approach to intervening in each territory's projected demographic future. Finally, the challenges for transferring interventions from other countries to the New Zealand governance framework is outlined.

Despite the clear presence of end of growth indicators (Jackson, 2014), no depopulation policies are currently being developed or considered in New Zealand. Accordingly, this thesis develops the sort of policy framework that the Waikato and other currently growing regions will eventually need to address depopulation.

2.4. Definitions

2.4.1. Human capital

Human capital is an important concept in this thesis as it is considered to be critical for regional economic prosperity (Kwon, 2009a; Singer, 2012) and is an integral part of many interventions. The OECD defines human capital as "the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" (Westphalen, 1999, p. 4). Growth economists are primarily concerned with human capital as an input that, amongst other variables, influences economic growth (Westphalen, 1999). Kwon (2009a) defines humans as 'labour force', thus related to economic added-value that is generated by the input of labour force as other production

factors such as financial capital, land, machinery, and labour hours (p. 5). Human capital not lonely contributes to an individual's development but also to national economic growth (Kwon, 2009a).

Both forms of human capital are relevant to this thesis. 'Countering' strategies focus on drawing in people with their accumulated human capital from outside the area so that they may use that capital in the new location. 'Accepting' strategies attempt to retain the human capital that exists in a location. There are countering and accepting strategies that also aim on strengthening skills and knowledge of people that are already in a location with the intention that productivity may be increased, thus improving economic outcomes.

2.4.2. Rural, urban and regional

This thesis discusses spatial distribution of population at subnational level between urban and rural areas. In discussing these redistribution effects it is important to note that there is no internationally consistent definition for the terms 'rural', 'urban' or 'regional' (Coburn, et al., 2007; Field & Perrott, 2015).

This lack of common definitions makes drawing comparisons between literature and policies on the topic challenging: the terms 'rural' and 'regional' are used interchangeably throughout the literature. In general, 'rural' denotes any area that is not classed as 'urban', based on the population count of the areas. The level of population that is classified as 'urban' and whether it is defined by geographic unit or administrative boundaries or some other quantifier differs greatly between countries. For instance, New Zealand has built a graduated definition of urban and rural based on the influence of main urban areas on outlying areas. Main urban areas are, for New Zealand, defined as population bases of over 30,000. Small towns on the edge of main urban hubs can be considered to be part of these urban centres. For example, the small urban communities of Te Awamutu and Cambridge, although they are over 20kms from the urban centre of Hamilton, due to their dependence on Hamilton they are classified as part of the main urban centre of Hamilton (Statistics New Zealand, 2015c).

The US, on the other hand, defines 'urban' as areas of 50,000 or more people with 'urban clusters' as greater than 2,500 and less than 50,000. 'Rural' is all other areas not included in an urban area (United States Census Bureau, 2015). According to Coburn et al. (2007) the choice of definition "affects who benefits from a policy and who does not" (p. 1). Consequently any conclusions that are drawn can only be done so at broad thematic level.

2.4.3. Periphery

An additional concept that is utilised in this thesis is 'periphery' or 'peripheral regions'. There is no consistent definition of what constitutes a peripheral region in the literature (Baerenholdt & Granas, 2008). In the context of regional studies, 'Periphery' may be used as a geographical term (Polese & Shearmur, 2006) or as a process of exclusion that relates to geographical location (Beetz, et al., 2008).

For empirical research, the definition of geographical periphery that was adopted in a Canadian study as a radius of one hour's travel time from a major urban centre (population of 500,000 or more) with peripheral areas as all those outside of this limit (Polese & Shearmur, 2006). Although this definition may be appropriate for a very large country, such as Canada, there are issues with this definition for smaller countries. For instance, in the Netherlands all rural areas are close to cities. So the degree of rurality is limited (OECD, 2008).

For the New Zealand case study in Chapter 7 a modified version of the Canadian study's definition is adopted, which is discussed in greater depth in Section 7.2.1. Beetz et al. (2008) introduces the term 'peripherization' which differs from the geographical understanding of periphery to express the spatial aspect of regional socioeconomic decline and associated demographic shrinking. Although peripherization occurs primarily in peripheral locations, it can also occur in urban environments. Some key elements of peripherization are: public service reduction with associated rise in social disparities and social exclusion, political power being held out of the area, and difficulty in producing higher added value in food production, renewable primary products and quality of life. Both of these definitions are used in this thesis.

2.4.4. Place-based versus place-neutral policies

Another concept that is used in this thesis is place-based and place-neutral policies. Place-neutral policies are those that are designed without explicit consideration to location and thus target people in all locations (World Bank, 2009, p. 24). These policies can be an effective way of generating efficiency, guaranteeing equal opportunities, and improving the lives of individuals (Barca, et al., 2012, p. 138). Place-based policies take into account the social, cultural, political, demographic and economic context of a location or place and are designed to specifically target each context (Barca, et al., 2012; Ferry & Vironen, 2011).

2.5. Summary

The purpose of this thesis is to examine the range of strategic interventions that may be applied to New Zealand so that planners, policy makers and policy advisors are well placed to respond to the subnational depopulation that is projected to occur over the next few decades.

This research provides a high level exploration of the spectrum of policy responses to depopulation, explores the policy responses of eight OECD countries, outlines the range of interventions that countries are using to address the issues of depopulation, and discusses the limits of interventions to change the demographic future of depopulating areas. Key themes from a thematic analysis of a wide range of case studies and literature examples are outlined. Based on a case study of the Waikato Region, suggestions are then made for an approach to intervening in each territory's projected demographic future. Finally, the challenges for transferring interventions from other countries to the New Zealand governance framework are outlined. This thesis develops the sort of policy framework that may be of use to regions of New Zealand that are experiencing uneven distribution of their populations.

Contribution of this thesis: This thesis generates what may be the first extensive review of interventions to depopulation, as no such study could be identified from the literature.

3. Population decline

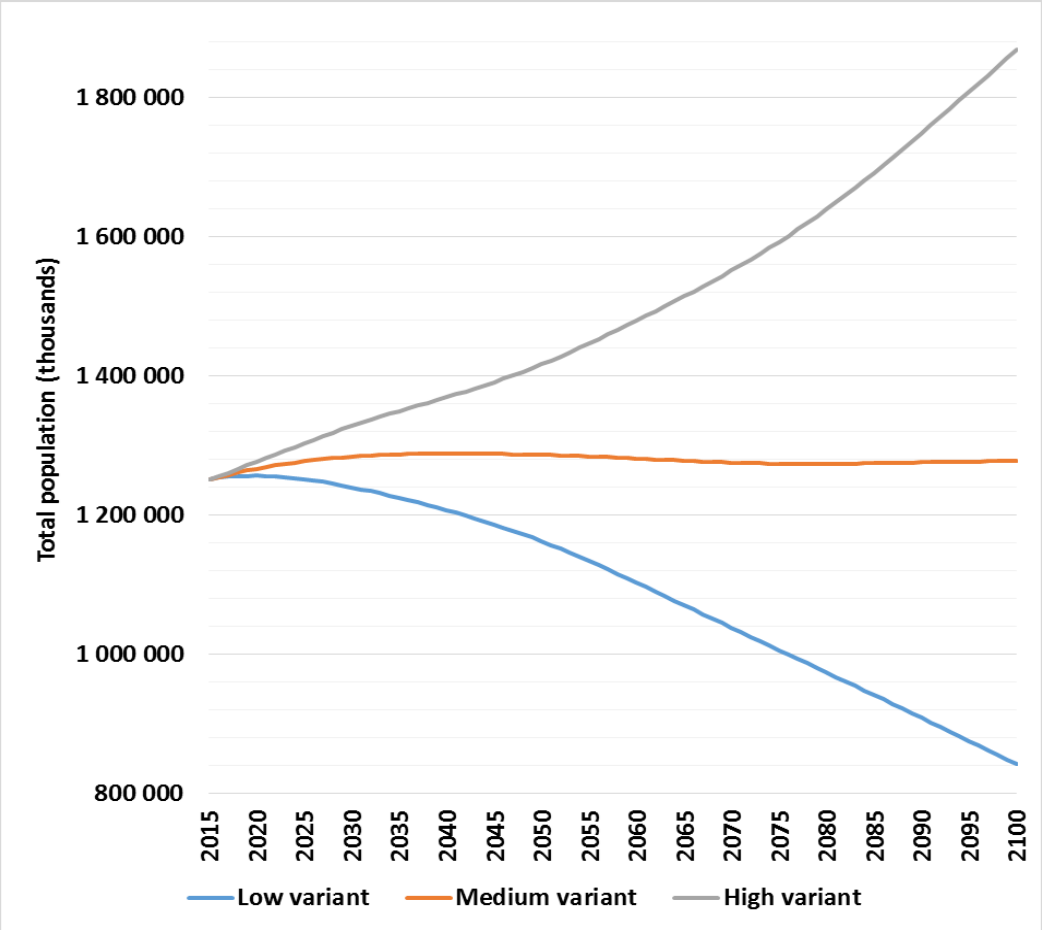
Population decline has been identified as a major future challenge that has a wide range of consequences which will impact on how countries function (Ferry & Vironen, 2011). The last century was categorised by tremendous population growth which brought the World's population to over 6 billion before the close of the Century (United Nations Population Division, 2001) and 7 billion in 2011 (United Nations, 2011). The 21st Century, on the other hand, is ushering in a new population trend - decline.

Although probabilistic projections released in July 2014 for individual countries to 2100 show little prospect of world population growth ending before the close of this century, decline in many More Developed Countries (MDC) is masked by high fertility in sub-Saharan Africa (Gerland, et al., 2014; Kunzig, 2014). Low or zero growth is becoming an issue for many advanced-economy countries (Lee, 2011). By 2008 twenty-six countries were already shrinking at national level, such as Russia, Bulgaria, Ukraine and Latvia (Pearce, 2010). Germany and Japan began shrinking during 2010 and 2011, respectively (World Bank, 2015). By 2050 the UN Population Division projects under the medium variant that 43 countries will shrink, with 11 of these countries losing more than 15 per cent of their populations between 2015 and 2050 (United Nations Department of Economic and Social Affairs/Population Division, 2015).

Figure 7 shows the low, medium, and high fertility projections from the World Population Prospects 2015 Revision for the More Developed Regions – North America, Europe, as well as Japan, Australia and New Zealand (United Nations, Department of Economic and Social Affairs, 2015). These fertility variants are based on the medium assumptions, with low fertility reducing the medium assumption by -0.5 child and high fertility adding an additional 0.5 child (Wilmoth, 2015). The World Population prospects 2015 medium projections show the More Developed Countries peaking as a group in total population in 2041 then declining around 14 Million inhabitants, before returning to slow growth after 2078. This may be partly due to the fact that the Population Division's medium

projections assume that fertility for Europe, as a whole, will increase from the estimated 1.6 children per woman in 2010-2015 to 1.8 in 2045-2050 (United Nations Department of Economic and Social Affairs/Population Division, 2015, p. 4). According to the Director of the United Nations Population Division the medium variant is the best guess for future trends but is only one of a range of possible outcomes (Wilmoth, 2015).

Figure 7: Population projections for the Most Developed Countries 2015-2100 (Low, Medium, and High)



Source: World Population Prospects Revision 2015: UN Population Division

This chapter briefly outlines the drivers of depopulation and their components, and describes how these features impact on subnational populations. Types of depopulation are explored, as well as the consequences for communities that are experiencing population decline.

3.1. Drivers of depopulation

Population shrinkage is ultimately driven by wider economic and social transformations within societies on global, national and regional levels (Martinez-Fernandez, et al., 2012b). The drivers for population shrinkage are multi-dimensional with complex and cumulative self-reinforcing patterns (Matanle & Rausch, 2011). It is at the local level that demographic change is felt most keenly (Ferry & Vironen, 2011).

The drivers that will be discussed in this thesis are listed in Table 3.1 and will be discussed further in the following sections.

Table 1: Drivers of subnational depopulation

Long-term drivers	Short-term drivers
Demographic drivers – fertility, ageing and longevity[3]	Migration flows, especially internal
Globalisation	Changing spatial trends – international and internal mobility of workers, urbanisation, concentration Political transformations and policies Economic cycles and external shocks[4]

Section 3.1.1 discusses the demographic drivers and trends, while Section 3.1.2 focuses on how globalisation impacts on the spatial distribution of population at the regional and subnational level.

3.1.1. Demographic drivers

The demographic drivers will discussed firstly at an international and national level before drilling down into their subnational ramifications.

One of the key demographic trends causing depopulation is the reduction in fertility. The ability for a population to replace each generation is expressed as a

[3] (Hospers, 2014; Matanle & Rausch, 2011)
[4] (Matanle, 2011)

Total Fertility Rate of 2.1 children per woman in countries with low mortality[5]. Across the developed world, demographic trends tend to follow a similar pattern with total fertility below population replacement levels for an extended period of time, and increasing longevity and ageing populations. A consequence of continued low fertility is structural population ageing (United Nations, 2010). As fertility declines and birth numbers reduce, the increased numbers reaching older age due to greater longevity also become an increased proportion. The extent of structural ageing is dependent on the length of time that low fertility has been occurring and the depth of the fertility decline (United Nations, 2014). There is a lag of several decades between the time when below-replacement level fertility becomes entrenched in a country and the onset of national level depopulation (United Nations, 2014).

3.1.1.1. The demographic transition

The shift to low growth or population decline for the Most Developed Countries is primarily a consequence of progressing through the demographic transition (Bloom, 2011). Classical demographic theory states that populations move through a series of stages from a state of high mortality and high fertility to a state of low mortality and low fertility (Lee, 2011, p. 569).

The first demographic transition model introduced by Notestein (1945) had three main stages. These stages have been added to over the decades by other scholars. The models of Blacker (1947), Day (1977) and Dyson (1978) have five phases; high stationary, early expanding, late expanding, low stationary and declining which will be discussed in further detail. At the beginning of the demographic transition populations are in a high stationary phase where the natural rate of increase is negligible, although there are high birth rates, due to the accompanying high death rates. Once a population moves into the early expanding phase, birth rates remain high and death rates begin to drop allowing

[5] Total fertility is the mean number of children a woman would have by age 50 if she survived to age 50 and were subject, throughout her life, to the age-specific fertility rates observed in a given year. The total fertility is expressed as the number of children per woman. Total fertility (TF) is computed as the sum of age-specific fertility rates weighted by the number of years in each age group, divided by 1,000 (United Nations, Department of Economic and Social Affairs, Population Division, 2013).

the rate of natural increase to lift slowly (Blacker, 1947; Day, 1977; Dyson, 2011; Lucas & Meyer, 1994). The reduction in death rates is understood to be due to a combination of; public health improvements, superior nutrition, vaccinations and medical advances (Bloom, 2011). By phase 3, the late expanding, transitionary growth stage, birth rates are falling but death rates are falling faster, causing a rapid increase in population, and also juvenescence (the population grows younger).

According to Galor (2012) mortality began to decline in Western European countries a century before fertility also began to drop. Triggers for reducing fertility are attributed to increases in income, education of women, access to contraceptive mechanisms, and social and economic improvements (Bloom, 2011). In phase 4 there is zero or very low rates of natural increase as death rates are very low but so are birth rates, and the population ages structurally. Finally, phase 5 is the onset of 'incipient decline'. Death rates are higher than birth rates creating a state where natural increase becomes negative, although theorised to ebb and flow between positive and negative rather than permanently declining. This state is called incipient decline (Lucas & Meyer, 1994).

At present, many countries have had below replacement fertility rates for several decades and are in Phase 4, but have not yet started decline. This is due, in part, to the momentum effect from past birth cohorts. Even if fertility falls below replacement level, in a young population the number of mothers will continue to increase for a generation, as females from the younger cohorts shift into the reproductive years (Keyfitz, 1971). Therefore, population growth rates are the generally the highest when the bulk of the population is within the childbearing years (Blue & Espenshade, 2011).

The age distribution of a population thus has a tremendous effect on the future population growth potential as it influences the crude birth and death rates (Blue & Espenshade, 2011). Continued low fertility drives structural ageing of the population. This is particularly stark when previous large cohorts are followed by

a series of much smaller cohorts. For instance, the large cohort of children born post World War II, the so called baby boomer generation, is now (as officially defined) aged 50-69 years of age. It is followed by variously sized cohorts, most of which are much smaller. This process increases the absolute numbers of older people (numerical ageing) and also leads to elderly people making up a larger proportion of the population (structural ageing).

Added to this is the fact that life expectancy has also increased over the last few decades. When birth rates stabilize at low levels, increased life expectancy begins to influence population ageing (Goldstein, 2009). Structural ageing coupled with increased longevity further swells the proportion of older people in the population (Bloom, et al., 2011). In Phase 4 of the demographic transition, the population may still be experiencing some growth, but this can mask the numerical and structural ageing of the population that will inevitably shift to decline as the greater proportion of the population is past childbearing ages and no longer contributes children. Population ageing is occurring in developed and in developing countries but currently, the countries with the highest proportion of older people are all the developed world (Bloom, et al., 2011). Countries are at different stages of the ageing process and the pace of structural ageing also differs significantly between countries (United Nations Population Division, 2002).

As outlined above, some industrialized countries have shifted into the last phase of the demographic transition – incipient decline, which may well become permanent decline if birth rates remain below replacement level. There are now 70 countries which have a TFR of below 2.0 children per woman. Thirty-nine of these low fertility countries from 2005-2010 are located in Europe, with 16 in Asia, and 12 in Latin American and the Caribbean [6] (United Nations, 2014). Below-replacement fertility has been in place for so long that there are relatively small cohorts under the age of 30, shrinking the size of the number of mothers progressively with each generation creating downwards momentum. Even if fertility returned to above replacement level, negative population momentum

[6] Low fertility can be defined as "total fertility of 2.0 children per woman or less." (United Nations, 2014)

would continue for some time (O'Neill, et al., 2001). Of note, population ageing is largely irreversible and populations are not expected to return to the young age structures of the past if longevity continues to advance and fertility remains low (Martinez-Fernandez, et al., 2012b; United Nations Population Division, 2002; United Nations, 2010).

The demographic transition resulted in a doubling of the world's population between 1960 and 2000 (Bloom, 2011), however different groups of countries are at different stages of the process. A large number of advanced economies are currently in Phase 4 with either zero or a very low rate of natural increase, with some countries already in the Phase 5 decline, with any growth occurring only from immigration. A further group is now in decline without the mitigating effects of migration gain. In 2014 twenty-five countries had a negative annual growth rate and the majority of these had been consistently declining for the last 20 years. Most of these countries are located in Europe. A further 34 countries had annual growth rates of > 0 and < 0.5, with 37 countries supporting growth rates of between > 0.5 and < 1.0 (World Bank, 2015).

In 2001 the UN Population Division stated that by 2050, 39 countries were projected to have shrunk (e.g. Germany 14 per cent smaller; Italy and Hungary 25 per cent smaller; Georgia and Ukraine between 28 to 40 per cent smaller (United Nations Population Division, 2001). Russia is projected to have 17 per cent fewer people by 2050 than 2010 and Japan 20 per cent (Ezeh, et al., 2012). This projected drop is due to reversal of the 'rule of 70' that is commonly used by demographers. The rule states that the length of time (in years) which a population takes to double in size can be measured by dividing 70 by the growth rate in per cent per year (Hinde, 2014). Therefore a country with a growth rate of 2.0 per cent per annum would take 35 years to double the population. The reverse of this is that it will take 35 years to halve population size with an annual growth rate of -2.0 per cent. This negative momentum will create significant challenges for future generations in terms of the fiscal and physical provision of

resources, facilities and services. For further information on fertility and ageing see Appendices 5 and 6.

3.1.1.2. Demographic drivers impact on subnational population

Demographic drivers have a significant impact on subnational populations (Ferry & Vironen, 2011; Jackson, 2011). Shrinking and growing processes may be seen simultaneously in many countries (Wiechmann & Pallagst, 2012). Although several European countries began to depopulate nationally in the 1990s, many more began shrinking at a subnational level during the same period (Martinez-Fernandez, et al., 2012b). Subnational decline is also clear in other industrialised countries, such as Australia, Canada, and the United States (Frey, 2014; Mackenzie, 1994; Martinez-Fernandez, et al., 2012b; Sedlacek, et al., 2009; Warkentin, 2012).

At a subnational level the diversity between areas is caused by local level mixes of the drivers of population ageing – birth rates, longevity and migration (Jackson, 2007). The impacts of these drivers on subnational populations are:

Declining birth rates: Accelerate structural ageing - the proportion of the children in the population decreases, causing the proportion at older ages to increase.

Longevity: Increasing life expectancy accelerates numerical ageing, as there are more people living longer, and also accelerates structural ageing as the additional numbers add to the proportion at older ages.

Net migration loss: Typically accelerates structural ageing, because of the age-specificity of the loss. Peripheral communities often experience net migration loss at the key reproductive ages of 20-39 years, thus reinforcing the loss as both the people themselves leave the area but also the region loses the reproductive potential of those people.

Net migration gains: The age structure of migrants is a critical factor. Net migration gain typically swells the young and middle-aged adult population. Net

migration gain can also accelerate structural ageing if the in-migrants are past the age of childbearing. Again the numbers and proportions of those in the older age brackets swell.

These factors have different mixes in different locations, but have significant impacts on the ability of subnational areas to provide services for their populations. For the most part, population change that is driving decline is likely to be incremental, but where the drivers combine, the process may be much more rapid and lead to self-reinforcing absolute decline (Jackson, et al., 2014).

3.1.2. Globalisation – a subnational focus

In addition to the underlying drivers of demographic change (births, deaths and migration), regional demographic change is often caused by factors beyond the territory and as part of the complex interplay of subnational, regional, national and international factors in the political, economic and social spheres (Matanle & Rausch, 2011).

Globalisation is a key driver in creating economic cycles, political transformations and policies and changing the spatial distribution of people and capital across countries and within countries. Although there is no consistent definition of globalisation (Rzepka, 2011), broadly in economic terms, globalisation "consists of the integration of national economies in the direction of an international trade-based economy, direct foreign investment, short-term capital flows, the international flow of workers and people in general, as well as the flow of technology" (Bhagwati, 2004, p. 3).

Global transformations have occurred in the last fifty years that have had significant impacts on depopulation at both the regional and national levels (Martinez-Fernandez, et al., 2012a). The literature suggests that the forces of globalisation and agglomeration concentrate financial capital, human capital, resources and infrastructure in globally competitive cities whilst leaving those cities, towns or regions on the periphery sucked dry of those same life-giving components (Beetz, et al., 2008; Martinez-Fernandez, et al., 2012b). Consequently, growth is unbalanced with some areas experiencing labour

surpluses while others experience prolonged shortages, particularly of skilled labour. In addition to this, empirical evidence suggests that population ageing reinforces agglomeration (Grafeneder-Weissteiner & Prettner, 2013) suggesting further concentrations as the population ages.

Globalization affects labour market mobility in more ways than international migration. Permanent long term migration is not the only issue, long-distance commuting has become common with people moving across regions and countries for work opportunities. Functional labour market areas are changing with this mobility as people live in one area but work and spend in another (Eaqub & Stephenson, 2014; Newell, 2006).

3.1.2.1. Changing spatial trends

Subnational variations in demographic change show a range of spatially differentiated impacts (Ferry & Vironen, 2011). There are a number of different patterns of spatial change that have intensified in recent decades due largely as a response to globalisation. Due to the wide scope of this thesis, the discussion is limited to only two patterns of spatial change that are experienced in many developed countries, as well as in New Zealand. These are; the rural to urban dimension and the flow of internal migrants to retirement destinations.

3.1.2.1.1. The urban-rural dimension

Subnational distribution of population is usually uneven and population is gained in or near urban centres with remote rural communities left behind (Olfert & Partridge, 2010, p. 147). These spatial changes often lead to further peripherization of more remote areas. The outcomes of this can be; a cutback of services due to decreasing local tax revenues with a flow on effect of worsening social inclusion, the inability of peripheral regions to participate in decision-making processes yet be strongly effected by external political decisions and the struggle to obtain high added value to the economy although the area is still impacted by economic cycles at a supra regional and global level (Beetz, et al., 2008).

In countries that are still growing at a national level, studies have shown that rural communities that are managing to grow even with the changing spatial redistribution are; those in close proximity to urban agglomeration economies (spill over effects), have services and have amenities (Midmore, et al., 2010). This finding is supported by OECD research which reveals that rural regions close to cities attract population, and rural regions on the periphery are the only type of region experiencing population decline (Garcilazo, 2013).

A case study of Victoria, Australia, showed that over the period 2001 – 2011 only six per cent of the population growth occurred outside of a two hour drive perimeter from central Melbourne. Peri-urban areas with strong integration with the city labour market received significant gains in population (Spiller, 2012). In New Zealand over half of New Zealand's growth between 1996 and 2013 occurred in just one region – Auckland, while Auckland and four of the remaining 66 Territorial Authorities (TAs) accounted for 76 per cent of all growth (Jackson, 2014).

The impact of depopulation drivers often has a negative effect on economic growth (Beetz, et al., 2008). For instance, between 1995 and 2000 GDP per capita in rural regions in more than half of OECD countries dropped as a percentage of the national average. According to the OECD (2006b) this weak performance is driven by factors such as, out migration and ageing, lower educational attainment, lower average labour productivity, and overall low levels of public service (p. 12). There is great disparity within rural regions though, as rural regions close to cities have been shown to be the most dynamic types of regions in terms of GDP per capita growth (Garcilazo, 2013).

The local level economy is gaining in importance to governments.

> *"Analysts and industrial, technological and regional policy makers have realised that competitiveness and innovation are primarily determined at the regional and local levels"* (Aguado, et al., 2008, p. 4).

There is a growing understanding of the interconnected nature of national competitiveness. Regional development policy has become a significant issue in the OECD countries as regional areas are increasingly recognised as crucial contributors to overall national competitiveness (OECD, 2009c, p. 17).

For many rural based primary industries, the desk-based part of the value chain is often located in cities with links to global supply chains, communication technologies and international services trade. The making and distribution part of the supply chain is often dislocated from the research and strategic management sections. For instance the Queensland mining industry shows that a third of the value chain by value of the mining industry's outputs is accounted for by Scientific, Technical and Professional services. These activities are typically located in the major centres and may be well away from the location of a mine. Neither the main centre nor the region can survive without the other (Spiller, 2012). Thus policy focus cannot be simply directed at keeping cities competitive, the local regional level needs to be included as part of the whole supply chain that fundamentally enables economic growth.

3.1.2.1.2. Retirement destinations

Another spatial pattern that is quite prevalent in wealthy developed countries is migration after people have retired from working life. There are typically three different types of retirement migration – a return to the place of origin, movement to be near to family, and movement to areas of high amenity, such as coastlines, mountains and rural landscapes (Chipeniuk, 2004; Janoschka, 2009). These trends are seen throughout Europe and many other countries (Janoschka, 2009; Williams, et al., 1997). Amenity orientated migration, the movement of people for quality of life and pleasure rather than economic reasons, is a feature of many developed countries among affluent populations and is associated mainly with retired people (Chipeniuk, 2004; Janoschka, 2009; Williams, et al., 1997). In Europe, there is a clear amenity trend to retirement migration with the warmer European countries gaining significant numbers of older people (Ferry & Vironen, 2011; Janoschka, 2009; Williams, et al., 1997). New Zealand experiences amenity retirement migration, particularly in the Bay of Plenty and Coromandel

Peninsula (Pool, et al., 2004; Statistics New Zealand, 2009). Indeed a recent New Zealand survey found that even among working age people, the primary motivator for internal migration is not jobs, but housing and amenities (Statistics New Zealand, 2007).

3.1.2.2. Political transformations

Paradigm shifts in economic theory have had a huge impact on populations over the last 40 years, with neoliberal capitalist concepts driving political policies, changing how industry and trade function with consequential effects on community dynamics (Martinez-Fernandez, et al., 2012a). Neoliberalism favours macro-economic deregulation, and privatisation of state industries and has been linked to the loss of jobs (Conradson & Pawson, 2009). Beetz, et al. (2008) emphasize that regional demographic shrinkage is closely linked to government centralisation policies. In New Zealand, when the government widely adopted neoliberal policies in the 1990s, employment dropped dramatically in peripheral areas, such as the West Coast of the South Island, which had previously been sustained by local or national state government agencies (Conradson & Pawson, 2009).

3.1.2.3. Economic cycles and shocks

Globalisation has a major interconnection with economic cycles. Economic or business cycles are defined as a fluctuation in the aggregate economic activity of nations between periods of expansion and periods of contraction (Hall & McDermott, 2014). These cycles are not standard across countries, for instance, New Zealand has a volatile GDP relative to international standards (Hall & McDermott, 2014). Cho & McDougall (1978) found that regional economic cycles may differ from national cycles. The OECD (2009b) states that although there are significant differences across regions within countries and these differences are often greater than between countries, less attention is paid to addressing regional growth than national development.

These cycles can certainly influence population movements, for example, as unemployment rises people seek jobs elsewhere. However, whether economic

cycles drive depopulation, or depopulation drives the local economy is still a matter of debate.

> *"Whether a declining economy leads people to leave or an increasing number of people leaving results in a declining economy, it is clear that as the process advances, there are consequences"* (Martinez-Fernandez, et al., 2012b, p. 21).

A further short term driver that is not necessarily linked to globalisation is external shocks. External shocks encompass unanticipated events that have large effects on population and/or economy – such as, but not limited to, natural hazard events and wars (Matanle, 2011).

When short-term drivers, such as external shocks, coincide with downward trending long term drivers, there is reduced ability for towns to recover, leading to depopulation (Matanle, 2011).

3.2. Types of depopulation

The above drivers combine to cause depopulation in subnational areas. There are several different types of decline that are expressed in demography by analysing the relationship between components of population change. There are two components of population change, natural increase/decrease and net migration. These components describe the movement of populations in and out of an area that is being studied. Natural increase/decrease is the difference between births and deaths, whereas net migration is the difference between in-migrants and out-migrants.

The Webb classification (1963) of demographic regimes provides a useful framework for understanding population decline. According to Webb there are four states of population increase and four for population decrease. Table 2 shows the relationship between natural change and migration direction to describe population increase or decrease. This thesis concentrates on the latter. The Webb classification can be further classified into old and new types of population decline which have been included in Table 2.

Table 2: Types of depopulation – modified from Webb classification

Webb Class	Natural Change	Migration Direction	Relation
Population Increase			
A	Natural Increase	Net out-migration	Birth surplus exceeds outmigration
B	Natural Increase	Net in-migration	Birth surplus exceeds in migration
C	Natural Increase	Net In-migration	In migration exceeds birth surplus
D	Natural Decrease	Net In-migration	In migration exceeds death surplus
Population Decrease			
E	Natural Decrease	Net In-migration	Death surplus exceeds in migration - new type of depopulation
F	Natural Decrease	Net Out-migration	Death surplus exceeds outmigration - new type of depopulation
G	Natural Decrease	Net Out-migration	Outmigration exceeds death surplus - old type of depopulation
H	Natural Increase	Net Out-migration	Out migration exceeds birth surplus - old type of depopulation - cumulative causation

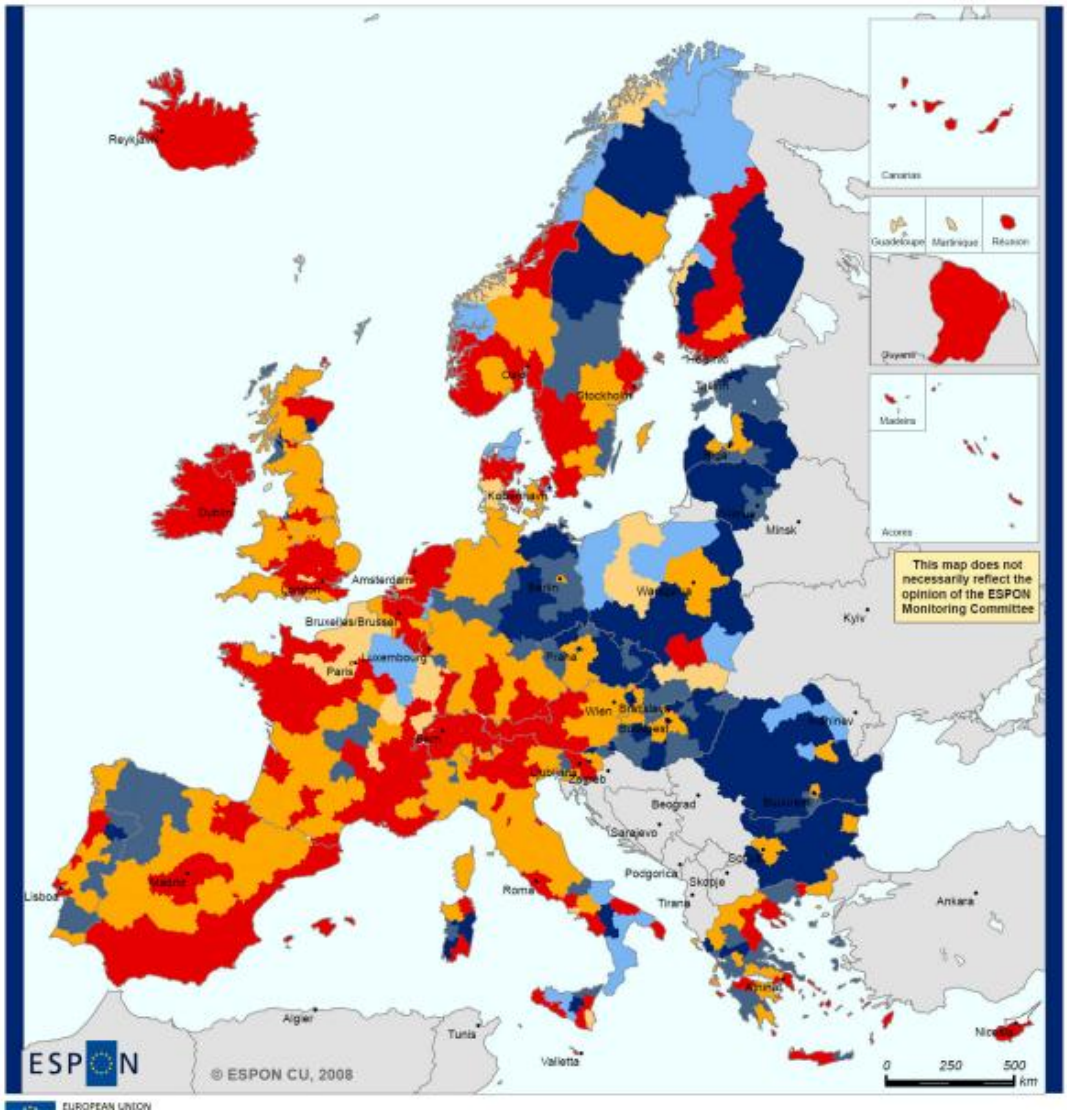
Source: (Webb, 1963)

In the past, most depopulation has been a product of the Webb classifications G and H, that is, fuelled by net migration loss typically in response to an economic or environmental shock or stagnation. Most interventions for dealing with depopulation are based on the assumption that this is the form of depopulation that they are dealing with. The Webb classifications E and F represent a type of depopulation not commonly seen until recently, where structural ageing of the population adds to the complexity of the problem and death surpluses become a key feature of the decline. In type E there is insufficient replacement migration to offset natural decline (absolute decline) (Jackson, 2011). Type F is the deepest expression of absolute decline as both out-migration and natural decline combine making this the most challenging of the depopulation types to address. Although the Webb classification may be useful tool for identifying the transition in subnational populations from the old form of decline to the new, Jackson (2014) notes that it does not allow for analysis of the age of migrants to be

considered which appears to be of particular importance to understanding the nature of subnational decline.

Figure 8 shows an example of the spatial variation of the different forms of depopulation in parts of Europe over the period 2001-2005. The red locations experience the strongest forms of population growth, yellow second strongest, with pale yellow being the weakest growth. Pale blue denotes weak decline, mid blue medium decline and dark blue the strongest form of decline. This figure suggests that sizeable parts of Sweden, Finland and Eastern Europe are already in absolute decline. More recent analysis is likely to show that this decline has deepened further.

Figure 8: Typology of population development in Europe 2001-2005



Key modified from Ferry & Vironen (2011) to reflect Webb classification

Population increase (from strong increase to weak increase):
Red – natural increase + net in-migration (Web classification C and B)
Orange – natural decrease + net in-migration (Web classification D)
Yellow – natural increase + net out-migration (Web classification A)

Population decrease (from weak decline to deep decline):
Pale Blue – natural increase + net out-migration (Web classification H)
Mid Blue – natural decrease + net in-migration (Web classification E)
Dark Blue – natural decrease + net out-migration (Web classification F)

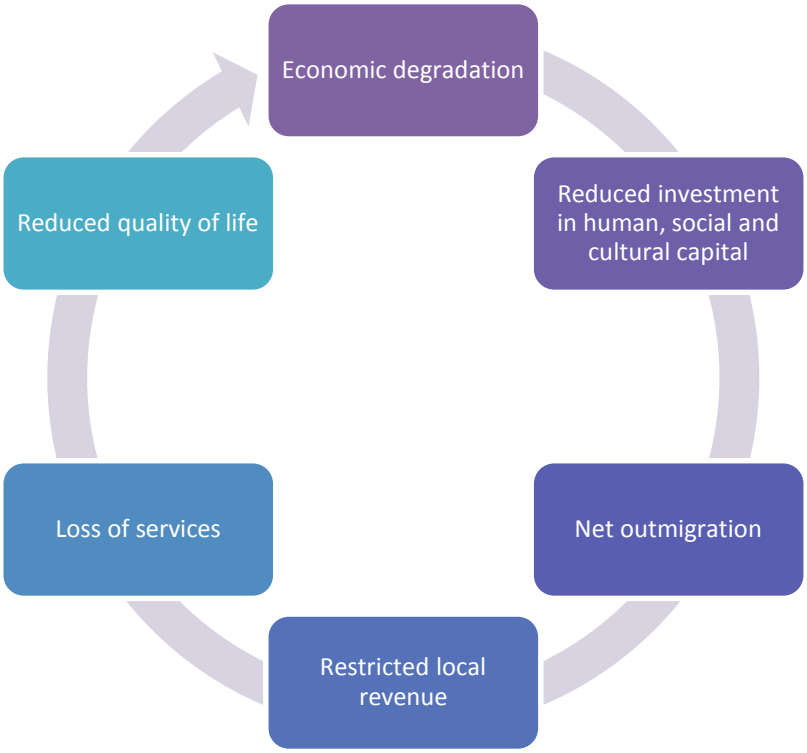
Once a region or town reaches a certain depopulation point, the onset of absolute decline, it is almost impossible to bring about significant population increase (Polese & Shearmur, 2006).

3.3. Consequences of depopulation

Depopulation is multifaceted and has major flow-on effects for the allocation of resources, the provision of services and the viability of communities isolated from the economic powerhouses (Martinez-Fernandez, et al., 2012a). Population ageing and outmigration can place pressure on labour supply, public budgets, health and welfare provisions and infrastructure for both national populations and subnational areas (Ferry & Vironen, 2011, p. 25). An example of this is a study of labour force in Europe which projects that if labour force participation rates do not change, the total size of the labour force in Europe will decline by 17 per cent by 2050, and 23 regions are projected to see their labour forces shrink by 50 per cent over the same time period (Rees, et al., 2012).

Demographic trends are becoming increasingly recognized as having significant ramifications for regional economic productivity and social cohesion (Ferry & Vironen, 2011). Population shrinkage can be self-reinforcing, creating a cycle of multiple causation, of slowing economic activity, out-migration of human capital, restricted local revenues, degradation of social and physical networks and services, and a reduced quality of life for those left behind (see Figure 9) (Australian Bureau of Statistics, 1998; Haartsen & Venhorst, 2009; Myrdal, 1957).

Figure 9: Downward cycle of population shrinkage



Abandonment of businesses and homes is the most visible evidence of the loss of population. The negative consequences that can come with these – decreased housing values, crime, health and safety issues, and environmental hazards – can create a vicious cycle, with more people leaving and less investment in the area (Martinez-Fernandez, et al., 2012a).

3.4. Summary

This chapter has outlined the drivers of depopulation, the types of depopulation and the consequences of shrinkage. Across the developed world the demographic trends that result in depopulation tend to follow a similar pattern; total fertility below population replacement levels for extended periods of time**,** increasing longevity and structural population ageing—the latter in many subnational cases accelerated by sustained net migration loss at young adult ages. Polese & Shearmur (2006) point to the demographic transition as the main driver which then combines with economic factors to create population decline.

> *"The demographic transition is a fact, and it fundamentally alters the way in which future changes in the economic geography of nations will affect some regions. Some will decline."* (Polese & Shearmur, 2006, p. 43)

The balance and interplay of drivers is unique to each country and regional context. In many countries depopulation and growth may be seen in tandem at the subnational level driven by different mixes of economic and demographic drivers. This complexity leads to a different experience of demographic change in each locality and presents considerable challenge for developing or transferring interventions from one location to another.

Some spatial patterns of change have intensified in recent decades, with retirement migration and urban-rural inter-linkages changing shape and speed with profound consequences for planning settlements, providing services and stimulating economic growth. Although each region and community is experiencing their own combination of drivers, for many the type of depopulation that they are attempting to tackle is changing form in a rapidly greying world, to one which interventions are far less likely to be able to resuscitate.

4. Policy responses to depopulation

Demographic decline and its associated problems have encouraged policy-makers across numerous countries to develop combating policies (Hospers, 2014). The aim of this chapter is to describe the spectrum of policy responses to depopulation. This chapter begins with a theoretical policy response framework developed from a synthesis of seven policy response frameworks from key literature. This is followed by a discussion of the range of responses to depopulation by governments at various levels.

As noted in Section 2.1 this thesis uses the narrow definition of a population policy to discuss central government policies for addressing national population change and subnational distribution, and focuses on specific population policy actions. By and large in developed countries these policies respond to population change, rather than seek to influence it. When drilling down into regional and local government policy action the broader definition of 'population responsive action' was adopted due to the fact that many governments at this level do not have the power to change traditional national level population-related policies to influence their regions (i.e. fertility, abortion, etc.) but rely on development type action to respond to their population situations (Lucas & Meyer, 1994).

4.1. Spectrum of policy responses

Population and development are understood to be interlinked, with population influencing development and development influenced by population (Lucas & Meyer, 1994). The link between economic development and population growth has been heavily debated for decades. There are three main schools of thought, population pessimism, population optimism and population neutralism. Population pessimists believe that high fertility and rapid population growth constrain development. Population optimists insist that rapid population growth fuels economic development by increasing market size, while those ascribing to population neutralism hold that population growth has little effect on economic growth and this conclusion is supported by numerous economic studies (Bloom, et al., 2002; European Union, 2008). Evidence from regional studies in Europe

have shown that depopulating regions were significantly poorer on average than the rest of the country that they are located in, suggesting that the reverse of population growth, population decline may well reduce economic development (European Union, 2008). However when demographic typologies of population decline and growth were superimposed over economic trends in Europe it was found that "there was no correlation between economic and demographic processes at regional level" (European Union, 2008, p. 54). This finding supports the population neutralism viewpoint.

The viewpoint that is adopted within the policy response literature is based on the optimistic paradigm that population growth fuels economic development. Regardless of the arguments between population and economic scholars of the validity of their viewpoints, there is a broad consensus amongst policy response researchers, who are primarily located in the planning field, that the optimistic interpretation (the growth paradigm) influences much of the policy response to population decline (Haase, 2008; Panagopoulos & Barreira, 2011; Rienits, 2009).

It is the opinion of the planning scholars that policy makers and planners see population growth as essential elements to support economic activity and consequently accepting depopulation can be politically unappealing for governments at all levels (Haase, 2008; Hospers & Reverda, 2015; Panagopoulos & Barreira, 2011).

According to Hospers & Reverda (2015) this attachment to the growth paradigm became entrenched in the legal and institutional framework of countries in reaction to population expansion. After hundreds of years of relatively low growth, populations in Europe began to grow more rapidly in the 18th Century, but not in a steady or cohesive manner. This rapid growth, which arose out of the demographic transition described in Chapter 3, was at first considered to be a significant problem, as it was unmanaged and had enormous social consequences. Governments and planners have by and large learnt how to manage population expansion and its social challenges. Continuous growth of population and economy became expected and also embedded in legal

processes as a necessary and essential good for the functioning of society (Hospers & Reverda, 2015).

Although the growth paradigm is being challenged by depopulation and ageing in a number of countries, on the whole numerous scholars regard growth-orientated planning still has supremacy in local government decision-making in many countries (Bernt, et al., 2014; Haase, 2008; Hollander, et al., 2009; Panagopoulos & Barreira, 2011; Schilling & Logan, 2008; Johnson, et al., 2014). Johnson, et al. (2014) states that this is because planners and policy makers do not accept depopulation is a reality or do not know how to anticipate the onset of population decline—or even know that it is on the horizon.

In the literature policy responses to depopulation have been primarily grouped into three or four major response types (Beetz, et al., 2008; Bernt, et al., 2012; Hospers, 2014; Rink, et al., 2012; Verwest, 2011). In general, the response types may be grouped by; taking no policy action through denying or ignoring that depopulation is an issue in their country or location, policies that attempt to regenerate a location (these may be explicit or implicit) and policies that accept that there is an issue of depopulation, accept that the underlying drivers are too strong to reverse and the new state of population decline must be in some form, managed.

Table 4 presents an overview of seven different policy response frameworks from selected literature. These policy responses have been observed by scholars in a range of countries and levels of government (national, regional and local) (Beetz, et al., 2008; Bernt, et al., 2012; Hospers, 2014; Rink, et al., 2012; Verwest, 2011). Most of the literature examined European local government policy responses, with the exception of Matanle and Rausch (2011) who researched Japan's responses. There are many similarities in the literature between policy response frameworks, however each focused on slightly different aspects.

The British Merseyside County Council (1979 in Rink et al. 2012) developed response categories in the 1970s and defined these as: passive decline, urban

regeneration and managed dispersal. Passive decline is a continuation of continue previous policies. Urban regeneration is an attempt to reverse the depopulation trend but at the same time deal with consequences of population decline, while managed dispersal focuses on accepting decline in some areas and investing in areas that still have growth potential.

Beetz, et al. (2008) found in their research that there were four diverging points of view for responding to depopulation. The first saw decline is an opportunity for alternative lifestyles. The second considered that building regional competitiveness was essential rather than allow regional closures. The third assumed people will leave a shrinking region to maximise their life conditions creating a state of passive restructuring. The last viewpoint believed that there should be mutual support between regions with strong and weak regions needing to be mutually supportive.

Verwest (2011) and Bernt, et al. (2012) draw on political theory as well in developing their policy responses groups. Verwest (2011) considers that 'doing nothing' is akin to political stability where the local government does not explicitly adapt its policies to deal with shrinkage. The second category, attempting to combat population decline, is shifting into the realms of conservative political action. Here the local government adapts its policies to increase population. When the decline is accepted and policy is adapted to deal with the consequences and management of shrinkage, Verwest (2011) contends that the policy action has become 'radical'.

Bernt, et al. (2012) has primary categories of conservative (growth orientated) and radical (accepting or mediating) but draws on a similar vein to Merseyside (1979) to add a spatial element. Their research in Europe revealed that it was common to have either a policy of focusing investment on declining areas, or investing only on those areas that have the best chances of growth.

Rink, et al. (2012) categorises responses as; do nothing – either denial that a problem exists or acknowledge but not respond, reverse – try to reverse the

trend and stimulate population growth or accept decline and manage the consequences. In their research Rink, et al. (2012) found that strategies could be distinguished between "western holistic explicit growth strategies dealing implicitly with consequences of shrinkage and post socialist pro-growth strategies emphasizing job - creation based on attraction of external resources… ignoring causes and consequences of shrinkage" (p 6).

Hospers (2014) has a similar framework to Rink, et al. (2012) but considers the do nothing category to be a trivialising of the depopulation where shrinkage symptoms are not accepted and no action is taken. In the countering category all policy measures are aimed at fostering growth, while accepting is much the same as Rink, et al. (2012). Hospers adds one more category in which a positive viewpoint of shrinkage is adopted and attempts are made to take advantage of it.

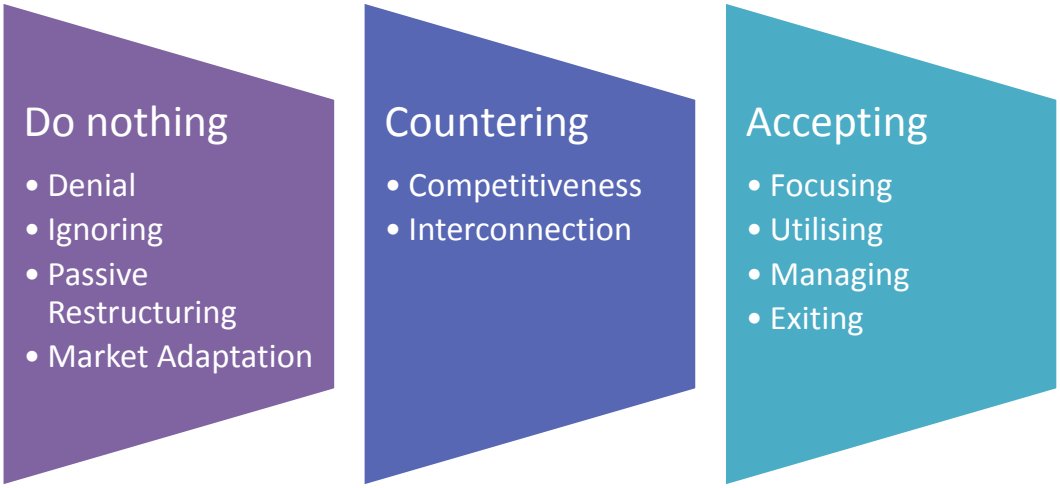
Matanle & Rausch (2011) found that there are four different types of responses in Japan to depopulating areas. In the first category of redeveloping, the central government provides fiscal transfers to regional areas and funds development, particularly construction. The central government also has been attempting to repopulate the rural areas by developing replacement migration policies drawing people from primarily within the nation, but also internationally. The last two categories, recovering and reinventing, are more local-level responses. Some communities are acknowledging current circumstances and attempting to reinvigorate their location by using local attributes, while others use innovative initiatives that focus on maximising the potential of local characteristics.

Table 3: The spectrum of policy responses to population decline

Beetz et al 2008	Bernt et al 2012	Hospers 2014	Matanle & Rausch 2011	Merseyside County Council 1979	Rink et al 2012	Verwest 2011
Europe	**Europe**	**Europe**	**Japan**	**Britain**	**Europe**	**Europe**
Decline is an opportunity for **alternative lifestyles**	**Conservative** (growth orientated)	**Trivialising:** shrinkage symptoms are not accepted and no action is taken	**Redeveloping:** central govt. provides fiscal transfers to regional areas and funds development, particularly construction	**Passive decline:** continue previous policies	**Do nothing:** Either denial that a problem exists or acknowledge but not respond	**Do nothing (political stability):** local govt. does not explicitly adapt its policies to deal with shrinkage
Need to build regional competitiveness rather than allow regional closures	**Radical** (accepting or mediating)	**Countering:** all policy measures are aimed at fostering growth	**Repopulating:** replacement migration policies from within the nation and internationally	**Urban regeneration:** try to reverse the depopulation trend but also deal with consequences	**Reverse:** Try to reverse the trend and stimulate population growth	**Conservative local policy changes (combat):** local govt. adapts its policies to increase population
Passive restructuring: people will leave a shrinking region to maximise their life conditions	**Focused investment in areas of decline**	**Accepting:** adapting the content of policies to mitigate the negative effects of shrinkage	**Recovering:** acknowledging current circumstances and attempting to reinvigorate by using local attributes	**Managed dispersal:** accept decline in some areas and invest in those areas with growth potential	**Accept:** Accept decline and manage the consequences	**Radical local policy changes:** when local govt. accepts shrinkage and adapts accordingly
Mutual support: welfare is an indispensable good. Strong and weak regions need to be mutually supportive	**Focused investment in areas of the best growth potential**	**Utilising:** looking at the positives of shrinkage and taking advantage of it.	**Reinventing:** Using innovative initiatives that focus on maximising the potential of local characteristics			

As can be seen there is great variety in the above response frameworks, but merit in many aspects of all. An attempt has been made here to synthesize all the concepts and categories from the seven frameworks into a new policy response framework that has three main categories entitled, 'do nothing' non-intervention, 'countering' or strategic intervention, or 'accepting' with further subgroups or policy positions. Figure 10 provides a summary of the accompanying policy responses.

Figure 10: Summary of policy responses



The categories and subgroups shown in Figure 10 are more fully developed in the following tables.

Table 4 covers the non-intervention policy responses which range from passive non-intervention, such as ignoring or denial (Hospers, 2014; Rink, et al., 2012), to active non-intervention with two different expectations of the outcomes of market forces on a location – either the market will decide which towns survive, or the market will provide new opportunities and create a new equilibrium (Beetz, et al., 2008).

The responses in Table 5 are active intervention choices to counter depopulation but they come from very different motivations. These responses related to different ends of the spectrum of regional economic development.

‘Competitiveness’ attempts to manipulate market forces by stimulating the economies of regions and attract migrants (Beetz, et al., 2008). This approach argues that growth should be promoted in all regions, as all regions have growth potential and focus should be on developing competitive advantages by utilising local assets (OECD, 2009b). Conversely, ‘interconnection’ is based on regional development theory that strong and weak regions should provide mutual support and redistributive welfare is classed as an indispensable good (Beetz, et al., 2008).

Table 6 covers a wide range of responses which accept that depopulation is occurring and attempt to deal with the consequences. ‘Focusing’ is the least radical of the accepting policy positions, accepting decline but targeting investment in growth potential areas.

Population ageing driving the end of growth is a significant new aspect of population decline, especially for New Zealand which is still growing strongly at national level (Jackson, 2007). The ‘utilising’ response focuses on finding innovative solutions and opportunities to provide for this ageing dynamic or maximising the potential of local characteristics.

‘Managing’ strategies try to slow the rate of decline, retain the current population and manage the consequences of depopulation.

Finally, ‘exiting’ strategies (i.e. the development of exit strategies) are the most radical of all the policy responses. This is primarily a theoretical proposition, as although three potential exit strategies were located during the course of this study, two of these examples were prior to the 1960s and implemented under emergency conditions. A further, more recent example, was implemented in response to very specific social-economic circumstances and as such is unlikely to be able to be translated generally to other communities. These examples will be discussed in further detail in Section 5.3.3. This policy position might be used for communities that have reached terminal decline and look for strategies to withdraw communities that are no longer viable.

Table 4: Spectrum of policy responses – Do nothing/Non-Intervention

Response: Do nothing/Non-intervention			
Policy position	**Explanation**	**Action**	**Political position** (Verwest, 2011)
Denial	Denying that a problem exists (Hospers, 2014; Rink, et al., 2012).	None	**Stability**
Ignoring	Knowing the problem is there but not actively considering it (Rink, et al. 2012).	None	
Passive restructuring	Actively choosing not to intervene. Allowing the free market to choose which towns survive (Beetz, et al., 2008).	None	
Adaptation	Actively choosing not to intervene with the expectation that the free market environment will create a new equilibrium and provide opportunities for alternative lifestyles in areas that can no longer function as a traditional economic unit. The local economy can adapt and provide new avenues to create value. Civil society can provide support functions where government services can no longer function (Beetz, et al., 2008).	None	

Table 5: Spectrum of policy responses – Countering/Intervention

Response: Countering/Intervention			
Policy position	**Explanation**	**Action**	**Political position** (Verwest, 2011)
Competitiveness	Active intervention. Regional closure is a disadvantage leading to innovation blockages and competitiveness should be accentuated. The region should be integrated into supra-regional and global economic activities (Beetz, et al., 2008).	Policy measures aimed at fostering growth (Hospers, 2014). Focus should be on product specialisation, deregulated working conditions and low workforce costs (Beetz, et al., 2008).	**Conservative Growth Orientated Combat**
Interconnection	Active intervention based on the theory that free markets have no self-balancing mechanisms and the intrinsic value of weak regions. Redistributing welfare to weak regions is a necessity and an indispensable good. To reduce economic inequalities, regions that are strong and those that are weak should be mutually supportive (Beetz, et al., 2008).	Focused investment in areas of decline (Bernt, et al. 2012)	

Table 6: Spectrum of policy – Accepting/Intervention

Response: Accepting/Intervention			
Policy position	**Explanation**	**Action**	**Political position** (Verwest, 2011)
Focusing	Accepting decline in some areas and investing in those areas with growth potential (Bernt, et al 2012; Merseyside County Council 1976)	Focused investment in areas of the best growth potential (Bernt, et al. 2012)	**Radical**
Utilising	Shrinkage is accepted but opportunities and advantages to the situation are actively pursued (Hospers, 2014).	Using innovative initiatives that focus on maximising the potential of local characteristics (Matanle & Rausch, 2011).	
Managing	Shrinkage is accepted and policies are adapted to slow the rate of decline and manage the consequences of depopulation (Rink, et al. 2012; Verwest 2011).	Focus is on how to retain the current population, provide services and maintain/enhance quality of life (Rink, et al. 2012; Verwest, 2011).	
Exiting	Exit strategies: ranking communities and retiring those communities that are no longer viable (Matanle & Rausch, 2011).	This is currently a theoretical position – few actions were located.	

The way in which decision makers recognize the issues related to depopulation differs greatly between regions and the particular problems that the area faces (Bernt, et al., 2014). Ultimately, what policy response is decided on fundamentally shapes the political and planning framework for action on depopulation in a region (Beetz, et al., 2008). The type of action that is chosen is likely to depend on the issues of the area, the range of actors that are part of the decision making process (government, business, community) and the type of policy making process that the location uses (Bernt, et al., 2014). These policy response categories are useful for policy makers working on the issues of population decline to analyse their viewpoint and action choice as a guide to the next step of choosing what interventions to adopt.

The following subsections will explore central government responses to depopulation at national level and subnational level, and outline regional policy approaches that are used to deal with subnational variation. This is followed by a discussion of regional and local level government responses.

4.2. Central government population policies

This section presents an outline of the policy positions (views and policy developments) that the seven OECD countries referred to in Chapter 2, along with New Zealand, have adopted for dealing with national population change (United Nations Population Policy Division, 2013). Key demographic indicators are used to show how these population policies relate to the country's level of population change.

The World Population Policy Division surveys governments biennially, about their views on aspects of population change, and the related policy positions they adopt. Table 7 shows selected central government population-related policies and demographic indicators from Australia, Canada, Germany, Japan, the Netherlands, New Zealand, the United Kingdom and the United States. The population-related policies included in Table 7 are: policy on growth, policy on fertility level, measures to address population ageing, and policy on immigration. In the 2013 World Population Policies survey there is no information logged with respect to these eight countries views on growth, fertility or immigration and

therefore these questions were not included in the table. These countries did respond to the question 'level of concern about ageing of the population', and this was included. There were only three possible responses to 'measures to address population ageing'. These were: 1. Change in statutory retirement age; 2. Reform in the pension system; or Neither. For further information on definitions of the policy variables see Appendix 4.

The demographic indicators selected to explore how these policies relate to the country's level of population change were: total fertility rate, rate of natural increase, proportion of the population that is 65+, proportion of the population 0-14, net migration for 2010-2014, annual growth rate and the year that national population decline began, if indeed it did.

In general, how countries respond to national population change relates to the depth and length of time that the country has been experiencing negative demographic indicators (or indicators that are showing very low fertility and slowing growth). For instance, Germany has had a TFR below replacement level since the early 1970s and the RNI has been negative since 1974 (Figure 4). The youth population rate dropped below 15 per cent of the total population in the early 2000s (Figure 3) and the structural ageing of the population is progressing with over 20 per cent of the population over the age of 65 since 2008. However, due to net migration gains the country only shifted into national population decline in 2011 (Table 7). The demographic indicators suggest that the levels of migration required to attempt to shift the country back into growth are likely to become unsupportable as natural decrease becomes entrenched.

Table 7 shows that Germany responds to this situation with policies of raising fertility and changing the statutory age of retirement. Interestingly, the country is maintaining the policy on immigration, perhaps due to political reasons as increases in migration flows may be unappealing to the polity of the country.

Japan had a slower drop below replacement fertility than Germany but has aged more rapidly than Germany and in fact than any other country in this group, shifting from just over 5 per cent of the population over 65 years in 1960 to more than 25 per cent by 2013 (Figure 4). Japan's RNI only shifted into decline in 2010

in the same year that the country dropped into national population decline (Table 7). Japan has responded with fertility and ageing policies but has not changed its migration policies. The types of policy actions that countries choose may relate to their historical context. For instance, Japan has had historically restrictive migration policies that, even in the face of severe population ageing and future shrinkage, it is reluctant to relax (Soble, 2014). As a consequence, migration is low on its agenda for slowing population decline.

At the other end of the scale, New Zealand and the US have the strongest demographic indicators of growth (relatively high fertility and very high net migration gains per capita) and although these countries express concern about the ageing of their populations, this has not been backed by related action.

The relationship between demographic indicators and policy action is not always clear. For instance, Australia's demographic indicators are also still relatively strong, yet the country has an explicit policy to raise fertility levels and is reforming its pension system in terms of age of access. Canada, with weaker demographic indicators and below replacement level fertility since the 1970s (Figure 2), and with a smaller rate of natural increase (3.7) and an annual growth rate of 1 per cent, does not have any interventions for fertility or growth.

The fertility and migration policies that are being actioned in these countries could be considered countering responses to forthcoming depopulation as they are attempting to boost the total population through demographic (and migratory) measures. The measures to address population ageing could be considered to be an accepting response as these are adapting to the changing age structures and attempting to spread the fiscal load.

Table 7: Key country population policies and key demographic indicators

	Australia	Canada	Germany	Japan	Netherlands	NZ	UK	US
Type of depopulation	Regional	Regional	National	National	Regional	Regional	Regional	Regional
Demographic indicators								
Total population 2013/millions	23.3	35.2	82.7	127.1	16.8	4.5	63.1	320.1
Total Fertility Rate 2013	1.9	1.7	1.4	1.4	1.8	2.1	1.9	2.0
Rate of Natural Increase /1000 (2010)	6.9	3.7	-2.0	-0.1	3.1	8.1	3.1	5.8
Elderly pop (65+) % of total pop 2013	14	15	21	25	17	14	17	14
Youth pop (0-14) % of total pop 2013	19	16	13	13	17	20	18	20
Net migration 2010-2014 (000s)	750	1,100	550	350	50	75	900	5,000
Annual growth rate (%) 2013	1.31	1.00	-0.11	-0.08	0.27	1.02	0.57	0.81
National population decline began	N/A	N/A	2011	2010	N/A	N/A	N/A	N/A
Population size and growth								
Policy on growth*	No intervention	No intervention	Raise	Raise	No intervention	No intervention	Lower	No intervention
Fertility								
Policy on fertility level*	Raise	No intervention	Raise	Raise	No intervention	Maintain	No intervention	No intervention
Population age structure								
Level of concern about ageing of the population*	Major concern	Major concern	Major concern	Major concern	Major concern	Major concern	Major concern	Major concern
Measures to address population ageing**	2	Neither	1	1,2	1,2	Neither	1,2	Neither
International migration								
Policy on immigration*	Maintain	Maintain	Maintain	Maintain	Lower	Maintain	Lower	Maintain

Sources: Total population, Total Fertility Rate (children per woman), Annual growth rate: World Population Policies 2013 database
Net migration: is the net total of PLT migrations during the period. Data are five year estimates 2010-2014.
Elderly population and youth population 2013: Source: World Bank (2015) indicator database
RNI: World Population Prospects 2012 database
*All policy: World Population Policies 2013 survey database.
**Measures adopted to address population ageing: 1. Change in statutory retirement age 2. Reform in the pension system; Neither
For further info on definitions of policy variables see definitions in Appendix 4

4.3. Central government policy response to subnational depopulation/spatial distribution

All of the countries analysed in this thesis are experiencing regional depopulation of varying degrees but are responding to it in a range of different ways.

Table 8 lists key regional demographic indicators and central government spatial redistribution policies. The annual urban population and rural growth rates were used to give an indication of whether the rural areas were depopulating in each country.

Table 8 shows that for most of the countries there is positive growth in the urban areas combined with decline in rural populations which supports the theory of rural to urban drift. Only Germany is losing population both in rural and urban areas. Although Table 8 does not show the subnational spatial variation, literature makes it clear that Canada and New Zealand also are experiencing subnational population decline in specific peripheral locations in their respective countries.

The biggest drop in the annual rural population growth rate is in Japan which shows a marked -7 per cent drop just in one year, indicating significant losses. The outmigration from rural areas may have been extenuated by the ongoing effects of external shocks, such as the Fukushima nuclear disaster and East Japan earthquake and tsunami that have devastated economies in those areas affected (Matanle, 2011).

The World Population Policy Division also surveys governments about their views on the spatial distribution of their countries, and a range of policies that they implement to change the spatial distribution. Only the policy on migration from rural to urban places was included in Table 8 out of the range of possible policy choices as this was the only policy question that any country implemented in the spatial distribution dataset.

All of the countries, with the exception of the US, expressed concern with the spatial distribution of their populations. However, just because countries see a need for a minor change to their spatial distribution, they don't necessarily back

it up with action. For instance Australia, Canada, Netherlands, New Zealand and the UK all desire change but only Australia and Canada have policies to lower migration from rural to urban places. Germany and Japan desire major change to their spatial distribution and have adopted policies to lower migration from rural to urban places.

These spatial distribution policies suggest that Australia, Canada, Germany and Japan 'accept' that they are experiencing rural outmigration and depopulation and are using 'countering' strategies to attempt to change the situation. Although Canada does not have overall rural outmigration in 2013, a deeper analysis would show that the country has been suffering depopulation at a subnational level (Polese & Shearmur, 2006; Warkentin, 2012).

It is not clear whether the Netherlands and the UK accept that there is a need to deal with rural outmigration. The World Population Policy Division does not record any policies to combat rural depopulation from these countries.

Finally, the response of the US suggests that the country does not accept that depopulation is an issue or that there is a need to intervene in the spatial distribution of the country. Further discussion on this point is in Section 4.5.

Table 8: Key spatial distribution indicators and central government policies with national level regional policy approaches

	Australia	Canada	Germany	Japan	Netherlands	NZ	UK	US
Demographic indicators – spatial distribution and internal migration 2013								
Population density (per sq km)	3	4	232	336	404	17	260	33
Urban population (%)	89	81	74	93	84	86	80	83
Annual urban population growth rate (%)	1.49	1.06	-0.03	0.57	0.74	1.09	0.76	1.14
Annual rural population growth rate (%)	-0.05	0.36	-0.70	-7.61	-2.08	0.70	-0.03	-0.55
Spatial distribution and internal migration policies 2013								
View on spatial distribution	Minor change desired	Minor change desired	Major change desired	Major change desired	Minor change desired	Minor change desired	Minor change desired	Satisfactory
Policy on migration from rural to urban places	Lower	Lower	Lower	Lower	No intervention	No intervention	No intervention	No intervention

Source: Demographic indicators – United Nation World Population Policies 2013 http://esa.un.org/poppolicy/wpp_datasets.aspx

4.4. Regional policy trends and subnational policy approaches

As shown in Section 4.2 many countries do not have explicit population policies for dealing with subnational depopulation. The policy approaches that central governments use to address subnational population issues are often indirect policies that fall into the broader definition of 'population responsive action' and primarily focus on a development agenda (Lucas & Meyer, 1994).

Regional development policy has climbed to the top of the international policy agenda with the acknowledgement of the interconnectedness of national competitiveness for regional areas within countries (OECD, 2009a). Governments have attempted to reduce regional disparities over many decades but increasing globalisation, decentralisation and fiscal constraints have put pressure on redistribution policies (OECD, 2010b). National governments have shifted policy towards encouraging regional growth by adapting to the requirements of individual regions and building on their regional potential. In light of this, the top-down subsidy approach is being superseded by a growing trend of decentralisation to the regional level and the devolution of tasks to local governments (OECD, 2010b).

Since the 1980s there has been a general shift in regional policy, across the OECD countries, away from financial redistribution to regional areas. Rural development was previously focused on farm subsidies to stimulate rural regions in many OECD countries. There has been recognition that financial redistribution and focusing on agriculture is not enough to encourage development of rural places (OECD, 2006c; OECD, 2007b).

How rural economies were sustained in the past has changed dramatically. There has been a dramatic reduction in the need for farm labour. Rural regions now rely on a different set of economic engines to stimulate growth (OECD, 2006c; OECD, 2007b). According to the OECD (2006a, 2007b) globalisation has provided new opportunities for prosperity in rural regions. The "future prosperity of rural regions will be determined by drivers such as human capital, entrepreneurship,

innovation, renewable energy, technology, creative industries and competitive farming" (OECD, 2006a, p. 8).

Three main factors are changing the face of regional policy development across OECD countries:

- an increased focus on places and their amenities
- reformation of agricultural policy from subsidies to specific sectors
- decentralisation and movement away from regional redistribution of financial support towards broader policies to improve regional competitiveness.

This approach requires strong coordination across sectors, across levels of government, and between public and private actors (OECD, 2006c). There is a broad trend away from top-down approaches that focus on single sectors. Policies are shifting to cooperative, multi-actor approaches that deal with place-based issues (OECD, 2007a). The place-based approach asserts that the social, cultural and institutional context of location is important (Barca, et al., 2012).

Table 9 outlines the features of the new rural paradigm approach.

Table 9: The new rural paradigm

	Old Approach	New Approach
Objectives	Equalisation, farm income, farm competitiveness	Competitiveness of rural areas, valorisation of local assets, exploitation of unused resources
Key target sector	Agriculture	Various sectors of rural economies (i.e. rural tourism, manufacturing, ICT industry, etc.
Main tools	Subsidies	Investments
Key actors	National governments, farmers	All levels of governments (supra-national, national, regional and local), various local stakeholders (public, private, NGOs)

Source: (OECD, 2006c)

This rural paradigm shift is being adopted by a range of OECD countries, which are developing their own multi-sectoral, place-based approaches that aim to identify and exploit the varied development potential of rural areas (OECD, 2006c). The historical 'one size fits all' model of intervention is acknowledged as failing to recognize those inherent linkages between people and the places that they live (McIntyre, et al., 2006). Place-based challenges require place-based responses (Ferry & Vironen, 2011).

4.4.1. Subnational policy approaches

There are wide disparities between countries, evidenced by their regional policy approaches. Table 10 outlines the central government regional policy approaches for the seven OECD countries focused on in this thesis, as well as New Zealand.

What type of intervention pathway is chosen for responding to depopulation is likely to be influenced by the political framework of the country. Previous studies have found that countries which follow neoliberal policies more closely tend towards an expectation of self-help for local communities (Chesire, 2006).

Countries have a number of strategies to deal with countering population decline, with some favouring active management of the situation while others prefer to let market forces dictate. Some countries have state-directed responses, driven from central government with countries forcing a 'top down' approach where policy is formed at a national level and the regions are instructed to comply. Other countries have a 'bottom up' approach where the policy agenda is facilitated by the state, giving the responsibility for developing regional development plans to their regions.

Some countries have a constitutional commitment to regional balance, such as Germany. Other countries, like the Netherlands, are emphasizing growth orientated policies to drive competitiveness in their regions. New Zealand and the United Kingdom are also following this pathway. Another concept, endogenous development, is gaining popularity in countries such as Australia

and Norway. This concept aims to combine competitiveness with the potential of regions along with social and environmental sustainability (OECD, 2010b).

All countries, with the exception of Germany, accede to a 'competitiveness' policy position. Canada also adopts an 'interconnection' paradigm which is facilitated by the Federation, rather than directed, while the UK is quite state directive. The US has an assortment of responses and policies, with low intervention and driven by the local level with some input from regional level funding bodies (OECD, 2014).

The policies countries choose are also dependent on the economic development goals and objectives of countries. These may be numerous and potentially conflicting, for instance, regional policy in the UK aims "to contribute to high and stable levels of growth and employment nationwide by ensuring that each region is achieving its full potential," whereas the European Union regional policy objectives are to "support cohesion, competitiveness and employment, and cross-border co-operation (EC 1083/2006) (OECD, 2009a, p. 34)."

More in-depth country profiles can be found in Appendix 1. These discuss the role that central government plays in the regions of each country and recent policy developments. These profiles have been developed from the OECD Regional Outlook (2014) as well as relevant literature.

Table 10: Central government regional policy approaches

	Australia	Canada	Germany	Japan	Netherlands	NZ	UK	US
Policy position	Competitiveness, Interconnection	Competitiveness, Interconnection	Focusing, utilising, managing	Competitiveness, interconnection, Utilising	Competitiveness, interconnection	Ignoring, Competitiveness	Competitiveness	Passive restructuring, adaptation, competitiveness
Facilitation of regional policy approaches	Regionally driven – some federal facilitation	Federation facilitation	Regionally driven	Mixed, national and local	Regionally driven	Nationally driven	State driven and state directed	Regionally or local level driven

Source: OECD (2014), selected literature – see Country Profiles (Appendix 1)

4.5. Regional and local government policy responses

Strategies at the regional level, especially for shrinking city regions in the Western democratic countries of the European Union, have commonly been a mix of economic stimulation and accepting strategies for dealing with the negative consequences of decline (Bernt, et al., 2012). These strategies are a combination of old and new responses, promoting growth but accepting:

- concepts of sustainability
- the need for policy adaptation to decline and mediation of consequences
- the need for state intervention combined with market and civil society to achieve results (Bernt, et al., 2012).

There is often a divide between the national level response to depopulation and regional or local response (Ferry & Vironen, 2011). In general, countries that are part of the European Union, as well as Japan, have national level support for dealing with depopulation, whereas policy responses in the United States have been primarily at the local level (Editorial, 2013). The US is the only country that considers the spatial distribution of the country to be satisfactory, however the local response is vastly different with a large number of local governments experimenting with interventions to attempt to either counter or accept depopulation in their area (Hollander, et al., 2009; Johnson, et al., 2014). In the Netherlands, although the country does not have internal migration interventions, in some shrinking regions of the country attempts are being made to reduce the housing stock (Dreijerink, et al., 2012).

As well, the choices that governments make about population policies at national level, particularly for highly centralised governments can impact on the ability for regional or local level governments to initiate their own actions (Panagopoulos & Barreira, 2011). The local level response may be constrained by the national political framework (Ferry & Vironen, 2011). In a study of government responses to depopulation in four different cities from four different countries in Europe, Bernt, et al. (2014) found that the degree of local autonomy in decision making

varied greatly between the locations due to the political framework of the host country. For instance, in the UK the local governments are controlled by the central government, whereas in Germany a considerable amount of power is devolved to the local level.

4.6. Summary

This chapter has outlined three main theoretical policy responses to depopulation: do nothing, countering and accepting strategies, and has showed how the range of responses varies by level of government. The literature suggests that national governments around the world are still in the early stages of developing policies to manage age-driven population decline. This is at least in part because it differs fundamentally from past periods of decline, so old approaches no longer work.

There is a wide range of responses to depopulation and these vary significantly from country to country. The analysis of different levels of government response to population decline has shown that some countries are further ahead than others in accepting population decline and acting accordingly. There is a strong relationship between depth and length of depopulation and the response to depopulation. There is often a divide between central government and local government attention and efforts to address depopulation and in some cases this can restrict local level action.

The growth paradigm on the whole appears to dominate over the governmental response to depopulation, however, there does not seem to be a systematic agenda within countries to counter or accept decline –rather a mix of population policies and responsive policies are adopted at any level deemed appropriate to attempt to change the demographic future. The synthesized policy response framework presented in this chapter could be useful for policy makers working on the issues of population decline to analyse their viewpoint and action choice as a guide to the next step of choosing what interventions to adopt.

5. Interventions

This thesis investigates a wide range of interventions or strategies by countries or regions that are attempting to either regenerate or mitigate the consequences of population decline in their nations, regions and local communities. This chapter drills down into the type of interventions or strategies that a range of countries are implementing at national, regional and local level and outlines those strategies and related issues. A broad range of literature has been canvassed and the findings are presented here, but this work is by no means exhaustive.

5.1. Intervention framework

In the context of depopulation, interventions are the tools that are used to influence behaviour, whether it is people or capital, so that the consequences of depopulation are either countered or managed. However not all strategies are successful.

Some initiatives are focused entirely on a premise of countering the effects of population decline and seek to stimulate regeneration, while others acknowledge the underlying drivers are too strong in their area and accept the decline, focusing on maintaining their current population and enhancing quality of life. Some countries have adopted a mixed response where depopulation and the role of population ageing are acknowledged and measures put into place to deal with the consequences, at the same time as advancing a policy of economic stimulation. Many strategies can be adopted by either a general countering or accepting response while others are very specific. Some initiatives do not explicitly focus on demographic change, but do so indirectly.

Policies for dealing with population decline share substantial similarities due to the universal nature of the causal forces; low fertility and increasing longevity, population ageing and economic geographic mobility processes of concentration and urbanisation. However, there is great variation at the implementation level (Galjaard, et al., 2012).

Studies have shown that regions adopt a variety of different interventions or mix of strategies that are targeted at particular policy sectors or areas. The term 'sector' is sometimes associated with 'industry', however in this thesis it has a general meaning of political strategy focus on a substantive area or policy topic of interest (Lehmbruch, n.d.). The interventions in this section have been grouped by the policy sector that they target. Five main policy sectors were identified; governance, planning, economic, promotion and social.

Strategies may be activated at national, regional or local level or form a comprehensive strategy covering all levels, policy sectors and actors (Rink, et al., 2012). A comprehensive strategy may combine a range of individual tools to form a complete strategy, for instance, an economic development strategy may have tax incentives, industrial zones, and public-private financial schemes. As well, according to Rink, et al. (2012), a development strategy needs to include both short term and long term objectives.

Interventions are actioned at national, regional or local level and are driven from the top down or bottom up depending on the country's political stance (see Appendix 1). The interrelationships are very complex. For instance, Matanle & Rausch (2011) note that in Japan where there is a range of policy agendas being implemented in shrinking regions, each policy that is formulated has an underlying institutional foundation with its value set. The national context strongly influences the regional responses, which are in turn, influenced by the regional context (Galjaard, et al., 2012). However, local government policymakers and planners are very limited in their ability to influence their local populations as these are overshadowed by national forces (Johnson, et al., 2014).

It is no surprise then, that studies have shown that there are strong linkages between national level policies and regional policies, with the more successful regional policies being supported by strong national policies (Galjaard, et al., 2012). Consequently, governing regional development is a complex task and is characterised by horizontal and vertical inter-dependencies between levels of government and associated departments, relationships with stakeholders in

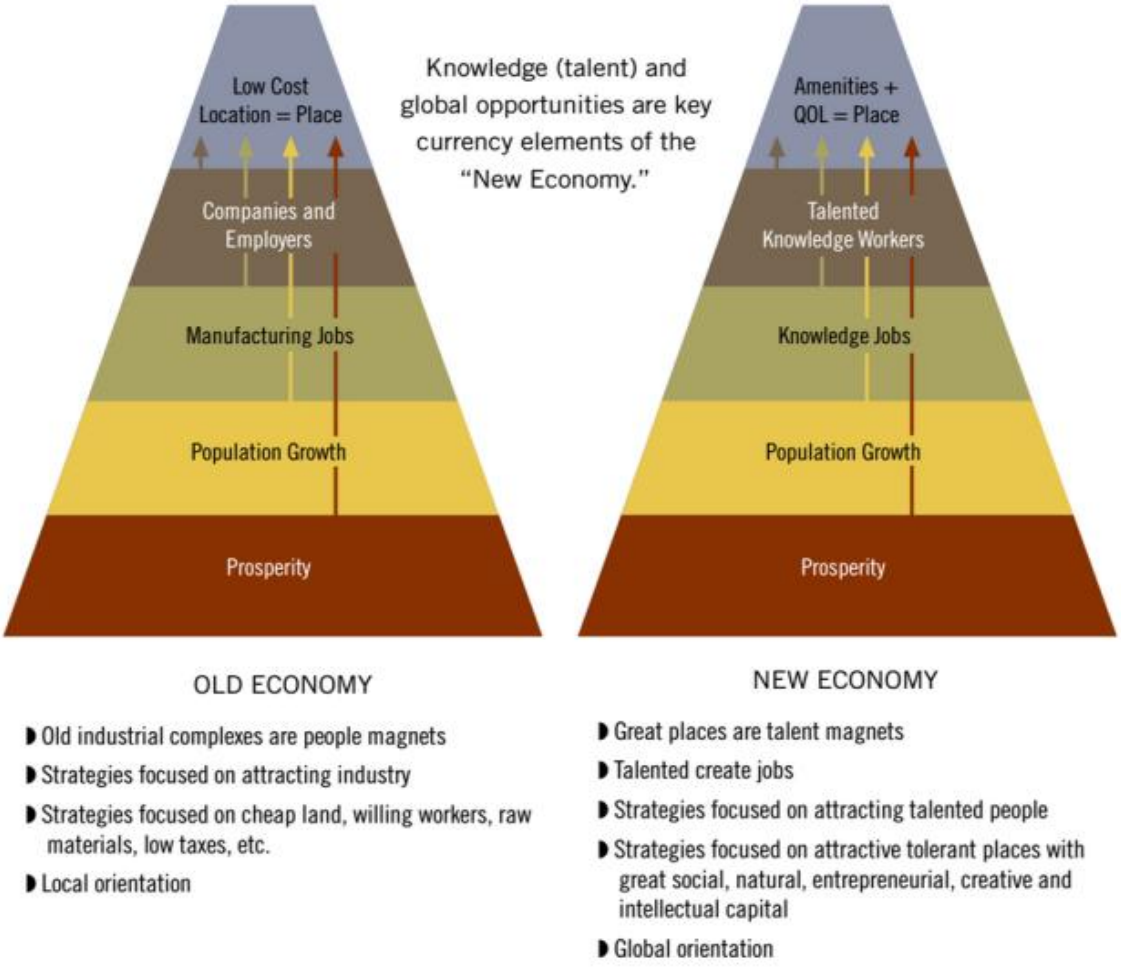
many private and public sectors, and requires participation and partnership between public and private actors (OECD, 2009a).

Interventions to depopulation primarily attempt to influence the behaviour of people or the flow of capital. People, as accumulations of human capital, and capital flows (finance), move between countries, regions and towns (OECD, 2011). People often move to where they can capitalize on economic opportunities or a better quality of life, while capital flows to areas with the least costs and greatest opportunity to increase (White, 2015, p. 6). These elements tend to cluster in particular locations, which in turn attracts more capital inflows through increased efficiencies, innovation and productivity (White, 2015, p. 6). This thesis has grouped the interventions firstly under their type of response (countering or accepting) and secondly by the objective of the intervention, whether to influence people (described as attracting human capital) or capital flows.

5.1.1. Old Economy versus New Economy

There has been a paradigm shift in economic thought in recent years. Adelaja, et al. (2009), suggest that new drivers of growth have emerged challenging previous understanding of how growth and prosperity operate. The Old Economy placed great emphasis on drawing in big industries to create manufacturing jobs. The New Economy concentrates on knowledge based jobs and workers. Place making, in terms of amenities and quality of life, is emerging as a key component of attraction to locations and retention for these knowledge workers (see Figure 11) (Adelaja, et al., 2009; Knight Foundation, 2010). Many locations that are losing population were developed within, and still hold to, an Old Economy model in peripheral areas.

Figure 11: Place and placemaking in the New Economy



Source: Adelaja, et al. (2009). Chasing the past or investing in our future

Numerous strategies located through the environmental scan of the literature are based on the old economy theory model. If the economy has indeed shifted focus to match the 'New economy' model then many interventions may not be successful if they continue to follow the old model.

The following sections discuss countering or regeneration strategies in terms of:

- Attracting human capital
- Attracting capital flows

Accepting strategies:

- Maintaining and retaining human capital
- Maintaining and retaining investment and infrastructure

and Exit strategies:

There also comes a point when some communities are no longer viable. Solutions may need to be found to enable shutting down of the town and community without significant loss of capital or quality of life. This is the ultimate challenge.

5.2. Countering interventions

Countering interventions or regeneration are the most common strategies where the growth paradigm remains dominant (Hospers, 2013). The Scottish Government (2011) defines 'regeneration' as "the holistic process of reversing the economic, physical and social decline of places where market forces alone won't suffice" (p. 2). Most communities focus on regeneration without giving sufficient credence to the underlying population indicators and economic drivers. These interventions attempt to change the behaviour of people or capital.

5.2.1. Attracting human capital

Positive net migration is often labelled as the ultimate measure of success for a region or town that has been suffering from depopulation (Midmore, et al., 2010). As will be discussed in this chapter the reasons that people move to a location are a matter of great debate, however what is clear through a variety of studies is that people are motivated by a variety of needs – social, economic and environmental (location, amenity) among others (Connell & McManus, 2011; Katz & Stark, 1986; Kenyon, et al., 2001; Martinez-Fernandez, 2010; Mendola, 2006; Midmore, et al., 2010; Rosenzweig, 1988; Statistics New Zealand, 2007; Todaro, 1976). Human capital countering strategies attempt to utilise some of these requirements to attract people to the location.

Table 11 lists some typical strategies for attracting human capital from the planning, economic and promotion policy sectors.

These interventions aim to draw people in and retain them by:

- creating physically appealing places to live in
- promoting the location as an appealing place to live
- promoting economic opportunities

Table 11: Strategies for attracting human capital

Policy sector	Strategy
Planning	Urban regeneration: Redevelopment of existing built environment and amenities • Refurbishment of houses to attract people • Historic preservation • Ecological restoration • Public space improvements • Landscape beautification Development of new built environment to attract immigrants • Building more social infrastructure – swimming pools etc. • Developing house lots • Building attractions
Economic & Social	Targeting skill and job shortages • Education and skills training • Industry experience centres Youth initiatives • Youth Councils • Pastoral care • Guaranteed job paths • Scholarships • Youth transport options • Internships
Promotion	Migration policies • Quality of migrants rather than quantity • Provincial programmes • Overseas recruitment workshops • Actively integrating migrants into the community Place promotion • Re-branding locations • Incentives to move – subsidies, raffles, lump sum payments • Promoting lifestyle attractions

5.2.1.1. Planning

Attempting to reverse depopulation by using planning techniques, such as 'urban regeneration', has been a common strategy amongst OECD countries (Hospers, 2013; Mak & Stouten, 2014; Martinez-Fernandez, et al., 2012b; Tennyson, 2015). Urban regeneration has been defined as "comprehensive and integrated vision and action aimed at the resolution of urban problems and seeking to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subjected to change" (Roberts, 2000, p. 17).

Urban regeneration strategies have shifted in or out of fashion depending on the prevailing thinking of the era. For instance, in Britain urban regeneration interventions began as a reaction to the decline of the manufacturing industries from the 1960s onwards, with the central aim to combat the social consequences of de-industralisation. Therefore the urban regeneration strategies of the 1960s and 70s were predominantly welfare based.

With the adoption of free market concepts in the 1980s regeneration strategies shifted to promotion of towns or regions through marketing campaigns, while the late 1990s moved towards community participation (Ortiz-Moya, 2015). The central premise through all these stages was to improve conditions in the city and encourage a 'sense of place' that will draw in people. There has been a strong focus on physical transformation with the expectation that economic problems will work themselves out (Ortiz-Moya, 2015).

Manchester, in the United Kingdom, is an example of a city in which urban regeneration was used to some success. Manchester suffered significant population loss, and was rebranded by the Manchester City Council to break from its manufacturing antecedents and shift towards a cultural and service industry city; it has since experienced population growth (Ortiz-Moya, 2015). One component of urban regeneration is the restructuring and upgrading of the existing built environment (Mak & Stouten, 2014). Manchester City Council initiated collaboration with private sectors partners and trialled a range of 'flagship' development projects, such as stadiums, museums and media centres,

creating distinct character sections within the city, in the hope that one of the projects would achieve regeneration success (Ortiz-Moya, 2015). Although there have been a few success stories, there have been just as many, if not more, failures. In Britain a number of declining towns were propped up with government money in which various attractions like museums, art centres and sculptures were built to draw tourists (The Economist, 2013; Tennyson, 2015). According to *The Economist*, this strategy has not succeeded and many of the towns that received government welfare are still experiencing population decline (The Economist, 2013).

Although Manchester is touted as model of success, in that it achieved population growth after a lengthy period of decline, it has come at a cost of a polarised labour market and social exclusion and failed to address pre-existing social inequalities (Ortiz-Moya, 2015).

This issue of underlying social structures is described by an urban process called 'gentrification' which relates the effect of urban regeneration on communities (Freeman & Cheyne, 2008; Mak & Stouten, 2014). Gentrification is a well-researched process of urban change and is a highly contested concept. An early definition of gentrification by Glass (1964, in Freeman & Cheyne 2008: 34) defines the concept as a "process of succession and displacement in areas broadly characterised by working-class and unskilled households."

The central component of gentrification is progressive upgrading of neighbourhoods (Freeman & Cheyne, 2008). Gentrification has both positive and negative outcomes, with the potential for improvement of the economic conditions of the location but comes at the cost of social equity (Freeman & Cheyne, 2008). The literature contends that gentrification is effectively a class struggle between working class and more affluent socio-economic groups that seek to enhance the location (Fol, 2012; Freeman & Cheyne, 2008; Smith, 1996). Certainly, research has shown that when these regeneration strategies work they can cause worse social problems, as when the built environment is gentrified and newcomers are drawn in to the improved location, the most vulnerable people

may be forced out of the area, into poor quality housing, or more crowded conditions, through higher rents (Fol, 2012).

Another planning intervention that has been commonly used is building new infrastructure, housing and civic attractions to encourage people to relocate to an area. There is a fundamental assumption that if the houses, attraction or town is built then the people will come. This strategy has had its own set of problems compared to those of urban regeneration. The key here seems to be a lack of understanding how social structures work.

In China, instead of regenerating the built environment, an entire new town was built – a miniature Paris, complete with a scaled down Eiffel tower and European style boulevards as a drawcard. However, the Chinese public wasn't so keen on moving to a location that was just buildings with no established community or business base (Journeyman Pictures, 2013). Burma also used this idea, where a whole city was built in anticipation of an influx of people that never arrived[7]. In the Netherlands the local government of a declining region decided to invest in developing 1500 housing lots in the hope that people choosing to live in their region would also stimulate the job market. Twelve years later only 150 were sold (da Costa & Meyer, 2013).

On the whole strategies that focus on new housing, tourism and related campaigns have limited success (Hospers & Reverda, 2015). A measure of success was achieved in Ireland with its Rural Renewal Scheme, under which financial incentives were used by the government to encourage construction of new housing and businesses and renovation of existing properties. The scheme stemmed population decline and increased housing output but had unintended consequences of excessive housing output with accompanying high vacancy rates (Gkartzios & Norris, 2011).

Although certain success stories are touted, on the whole, there is little indication that developing the built environment to attract people works and can,

[7] Top Gear episode – Burma Special: Supersize Burmese Drag Race - Top Gear - Series 21 - BBC https://www.youtube.com/watch?v=8uwTnP8ioiU

in many cases, leave the local community in a worse financial situation (Beckham, 2015).

5.2.1.2. Economic – skills and jobs

Generally job creation is likely to bring people into an area, though this connection is very complex (Mendola, 2006). Much of economic migration literature considers that people move based on an income maximisation objective and therefore will move where they will get the greatest income (Mendola, 2006; Todaro, 1976). This concept fails to account for other influences on a potential migrant's choices and research has shown that movement of people does not always correlate with expected incomes (Katz & Stark, 1986; Rosenzweig, 1988).

Interpersonal relationships and family connections are also strong motivators for moving (Mendola, 2006). According to Massey, et al. (1993), the costs and risks of moving are lowered due to this form of social capital. This viewpoint is supported by a survey of dynamics studying motivations for migration in New Zealand which found that the main reason for people to move from their previous residence across all age groups was social motivation, followed closely by environmental reasons. Economic reasons for moving held third place (Statistics New Zealand, 2007).

The finding that jobs are not always the primary reason for moving is supported by the fact that in many locations in New Zealand there is a mismatch between jobs and workers, with some areas having plenty of jobs available but limited workers and others many potential workers but few jobs. For instance, Southland has low unemployment due to employers' labour requirements expanding at a greater rate than the pool of labour (Department of Labour, 2007). Although there have been a large number of initiatives activated to encourage in-migration to fill the skill shortages, the numbers of newcomers have not kept pace with employer' requirements. The Southland economic development agency, Venture Southland, projects that the labour force will

require an additional 12,000 workers over the next 15 years (New Zealand Immigration, 2015; Venture Southland, 2014).

The challenge is not just attracting human capital to an area but also strengthening the skill base of the population which is already in the location as "human capital is the most important ingredient for long-run regional economic prosperity" (Singer, 2012, p. 8). Education and skills training is named as a critical pathway for improving productivity toward economic growth. Developing human capital helps to advance innovation and technology uptake (Kwon, 2009a; Singer, 2012).

A common problem for towns in peripheral areas is the loss of youth who leave for training and employment opportunities in urban centres, contributing to a shortage of skills (Martinez-Fernandez, 2010). Martinez-Fernandez (2010) found that employment alone cannot stop emigration, especially in the youth age groups due to their desire to experience other lifestyles and opportunities. Of more importance than employment for retention of population is the demand for services in health, education, environment, housing, and entertainment (Martinez-Fernandez, 2010, p. 63).

Even so, some towns are attempting to reduce the outmigration of this age group by adopting strategies that particularly target youth. The Regional Council in Kalmar County in Sweden sees the youth age groups as a resource for sustainable economic development (Johnsen & Perjo, 2014). With this viewpoint, the Regional Council has formed at Regional Development Strategy that prioritises youth and is adopting a range of initiatives to engage youth to combat outmigration of this age group. The expectation is that youth are more likely to stay or return to an area that they feel they can have an influence on. In particular, the initiatives focus on youth councils and influence in schools, employment and safety. Internships in healthcare are being created and part time opportunities in local businesses. There is no data yet available to show whether the initiatives have had any effect on retention of the youth population in Sweden (Johnsen & Perjo, 2014).

Kenyon, et al. (2001) found that a key attribute of successful small town regeneration in Australia was the use of youth initiatives - attention being given to the key issues affecting the retention of young men and women, including employment diversity, education options, transport, accommodation, lifestyle, image and participation.

Otorohanga, in New Zealand, has also seen the benefits of a wide range of youth interventions. Although unemployment was low in the community and businesses were not able to fill positions, young people were leaving for training and generally for lifestyle elsewhere. Under the leadership of a former Mayor, Dale Williams, the local council, business and community groups convinced a trade training centre to open in the town to supply the needs of local businesses. A range of other initiatives, such as; pastoral care of apprentices, keeping in contact with youth from schooling into work, scholarships and guaranteed job paths have helped to create a significant success story. In Otorohanga, since the initiatives began in 2005, youth crime has plummeted and there is zero registered unemployment for people under age 25 since November 2006 (Ministry of Social Development, 2010).

Groningen, a declining region in the Netherlands, is similarly attempting to pre-empt massive skill shortages in their industries within the near future by also focusing on youth. To that effect the local government has joined forces with industry sectors and education providers to develop a student experience centre in the town of Delfzijl which is designed to inspire youth to follow technical careers by introducing them to opportunities in the technical sector. Students from 10 to 25 years old can visit the centre (da Costa & Meyer, 2013).

5.2.1.3. Promotion – migration interventions

Increased immigration is the only explicit demographic policy intervention routinely used by most developed countries at national level to sustain their population levels (Galjaard, et al., 2012). Immigration interventions may be place-neutral or place-based and operationalised at the national or local level. Immigration is used by many countries as an answer to their low fertility crises.

For some countries, where fertility hovers around or just under replacement level (2.1 births per woman), the level of immigration (or net migration gain) required to maintain population size is not substantial. For other countries, the volume of migration that is required to offset population loss is enormous. Of more importance is the fact that "the numbers of migrants needed to offset declines in the working-age are significantly larger than those needed to offset total population decline" (United Nations, 2000, p. 417). The average annual net number of migrants required to maintain the size of the working age population at its 2000 level was over 6,000 migrants per million inhabitants for Italy and 6,000 for Germany. Japan required 5,000 migrants per million inhabitants, while as a whole, Europe needed over 4,000 (United Nations, 2000, p. 417).

According to the United Nations (2000) the ability for countries to attract and absorb such large volumes of migrants depends on "the social, economic and political circumstances of the particular country or region" (p. 417). It is also only a medium-term measure, as globally population growth and migrant supply is projected to peak around the end of the present century (Lutz, et al., 2004).

Some countries, such as the US, have in the past focused more on quantity (of legal migrants) than quality (Singer, 2012, p. 4). Policy discourse in the US is now shifting to attracting the 'right sort' of immigrants rather than volume. Several programmes for integration of migrants and enabling transference of skills to the US market are being developed (Singer, 2012, p. 4). Integration strategies that enable immigrants to assimilate into the community have had greater success than simply attracting newcomers.

In many countries, immigration is administered by the central government, however some countries are encouraging their regional governments to have a greater hand in responding to their migration needs. The Canadian federal government has shifted from a general points system for immigration to enabling the provinces to run their own 'Provincial Nominee Programmes.' Different provinces have different workforce requirements which they are

struggling to fill. People wanting to move to Canada must now make an application through the Provincial Nominee Programme (CanadaVisa.com, 2015).

A broad body of research shows that immigrants tend to relocate to urban centres where there are already large immigrant populations (Aslund, 2005), and are less likely to move to the regional areas. Some local communities are creating their own initiatives to encourage migrants to their towns.

In Canada, the town of Morden runs a successful recruitment campaign through their own community driven immigration initiative to fill gaps in their job market. The community only accepts applications from candidates that fall into target occupations and actively integrates the newcomers into the community. The initiative accesses support from a province level immigration programme where the programme employees travel overseas to recruit possible candidates. The success of the intervention is proven through the high retention rate (see Appendix 3.4 for more details). This intervention is only able to be achieved due to the Canadian government changing its governance structures to enable this to occur (CanadaVisa.com, 2015).

Finland has also achieved a measure of success with a strong inflow of immigrants attracted to and integrated into the community. However, the Finnish community has had to acknowledge that even with the positive inflows, migrants are not able combat the structural ageing of the population and are merely a buffering measure (Johnsen & Perjo, 2014; United Nations, 2000).

Immigration can be a tool to slow the onset and/or speed of decline but ultimately will not resolve the negative effects of population and labour force ageing (Bijak, et al., 2007). In the short term migration can mitigate the effects of an ageing population and increase the working-age population (United Nations, 2014). In the long term, the pool of skilled workers from which to draw migrants in OECD countries will shrink from 2020 as the Most Developed Countries move pass peak population as a whole making it much hard to attract the types of migrants that developed countries desire (United Nations Population Division,

2015). Although migration is one of the most popular government interventions, net migration gain only partially offsets population ageing (Ferry & Vironen, 2011; United Nations, 2000). The age structure of the population will still age and the community and government will need to adapt to the older population.

Migrant strategies have been most successful when coupled with integration/settlement policies. They can slow decline but are highly unlikely to stop it in areas with severe structural ageing (Johnsen & Perjo, 2014).

5.2.1.4. Promotion – place marketing

In this section, promotion of place as a location for permanent migration, rather than simply to visit, is discussed. A discussion on tourism is found in Section 5.2.2.

Branding locations to encourage in-migration is a common strategy (Ortiz-Moya, 2015). Interventions are as wide ranging as giving away free plots of land to outsiders on the condition that the newcomers are planning on starting a family in the location, raffling building plots, advertising at emigration fairs, paying the parents of new born babies a lump sum on the condition that they stay in the location for an extended period, and providing subsidies for students (Haase, et al., 2012).

There is some disagreement among researchers about what will encourage people to migrate to an area, however it is clear that there are many factors that influence the choice of home location (Connell & McManus, 2011; Katz & Stark, 1986; Kenyon, et al., 2001; Martinez-Fernandez, 2010; Mendola, 2006; Midmore, et al., 2010; Rosenzweig, 1988; Statistics New Zealand, 2007; Todaro, 1976).

In Australia, councils used tourism type promotions of lifestyle attractions but recently identified that lifestyle was not the key motivation for encouraging migration. Instead, they identified that employment opportunities, housing, education and health facilities were of high importance, accompanied with attractive local features (Connell & McManus, 2011). This contradicts a New Zealand study referred to in Section 5.2.1.2 which stated that social motivation was the main driver of choice. However, the other motivators were much the

same, such as environmental motivations (amenity and natural features), followed by economic reasons in third place (Statistics New Zealand, 2007).

Martinez-Fernandez (2010), as mentioned previously, found that employment opportunities were not strong enough to keep people in a location. All the other factors had to be part of the mix, housing, education, quality of life. Adelaja, et al. (2009) states that place making in terms of quality of life and amenities draws people to locations, while Galjaard, et al. (2012) states that countering interventions are more effective in areas with the higher amenities or that have higher potential opportunities.

What is clear is that place promotion and the reasons people chose one location over another is a challenging conundrum that has changed over time as people's expectations of living change (Adelaja, et al., 2009; Knight Foundation, 2010).

5.2.2. Attracting capital flows

Using economic development strategies to stimulate the local economy, create jobs and draw in people is a time honoured tradition for community regeneration. Many local governments have some form of economic regeneration strategy. These are particularly prevalent in the UK (The Scottish Government, 2011). Although economic regeneration strategies are not expressly focused on population, they have been the tool of choice for transforming locations and can be considered in the broader definition of population policies - 'population responsive action' that is primarily focus on a development agenda (Lucas & Meyer, 1994) within the paradigm of growth.

Economic regeneration strategies usually aim to bring more capital into the location and enable job creation by either:

- Attracting businesses i.e. factories, businesses
- Attracting spending i.e. tourism

Table 12 only touches on some of the possible strategies and tools for economic countering as this topic has an extensive literature and a huge range of strategies.

Table 12: Strategies for attracting capital flows

Policy sector	Strategy
Economic	Building competitive regions • Real estate based projects – science parks, industrial parks • Competitive clusters • Linking research and industry • Smart specialisation • Innovation
Economic and promotion	Small town redevelopment • Preservation • Revitalization • Economic activation
Economic	Developing the green economy • Alternative energy production • Green procurement • Green consumerism • Industrial ecology • Extended producer responsibility • Socially responsible investment • Integrated waste management • Green labelling • Eco-technologies • Eco-industrial clusters
Economic and promotion	Tourism

As outlined earlier, many of these strategies can be utilised under either a countering or accepting strategy. However, these strategies will have only a limited success in a town where the underlying economic and demographic drivers are too strong, as will be discussed in Section 5.2.3.

What strategies and tools governments and local governments choose to use is often dependent on their expressed aims, which relates to whether the institutional bodies adopt a competitive response, an interconnection policy

response, or a combination (see Section 4.1). For instance, the Scottish Government draws particularly on an interconnection response:

> *"Much of the regional/economic regeneration policy in the past has been applied to depressed and marginalised areas. What is required now is the need for a balance of investment in all areas – both weak and strong – aimed at promoting overall sustainable economic growth."* (The Scottish Government, 2011, p. 11)

The following sections will explore the range of strategies for attracting capital flows from Table 12.

5.2.2.1. Attracting business

Economic regeneration strategies aim to bring more financial capital into the location and enable job creation. Development policies under the Old Economy have often focused on infrastructure provision and government investment strategies to attract large companies to areas that do not have a strong industry mix. Ongoing research is showing that large infrastructure projects often have unintended consequences with greater economic agglomeration, further regional polarization, and to an increasing economic marginalization of many peripheral regions where significant infrastructure investments have taken place (Barca, et al., 2012, p. 137).

In attempting to prop up depopulating and economic declining areas, government industrial investment strategies have also, in places, ended up wasting resources on declining industries and defunct white elephants. In general, these policies have struggled to cope with the new economic realities of globalisation (Barca, et al., 2012).

5.2.2.1.1. Building competitive regions

Governments commonly encourage their regions to become 'competitive'. Globalisation has created one giant worldwide market that requires countries, regions, cities and towns to compete against all the rest for a share of consumers, in the form of investors, tourists, students, migrants etc. (Anholt, 2007).

Reputation and perceptions become important tools for guiding consumers to a product from a given location or the location itself (Anholt, 2007).

There are three main policy measures that are used for building competitive regions; real estate based projects (science parks, industrial parks), cluster type policies (clustering together collective services or joint initiatives for marking purposes) and linking research and industry (providing linkages between knowledge producers and knowledge users) (OECD, 2005).

Competitive clusters are a particularly prominent strategy being used across the OECD countries to guide regional competitiveness (OECD, 2007a). A range of competitive regional cluster programmes from selected OECD countries is listed below (Table 13-15):

Table 13: National level programmes in Germany - Competitive Regional Clusters

Programme/ policy	Year started	Programme/ policy period	Brief description
BioRegio	1995 selection	8 years 1996-2003	BioRegio serves to concentrate research funds in a limited number of regions to support biotechnology, a sector of strategic national interest.
InnoRegio	1999	7 years through 2006, next phase planned	InnoRegio seeks to improve the innovation capacity of the lagging new Länder in Eastern Germany with support from EU structural funds.
GA-network initiative (Joint Task)	2005	On-going	The purpose of this funding negotiation tool between the federal level and lagging Länder is to provide funding for projects that improve collaboration among regional actors with a strong research focus.

Source: (OECD, 2007a)

Table 14: National level programmes in Japan - Competitive Regional Clusters

Programme/ policy	Year started	Programme/ policy period	Brief description
MEXT Knowledge Clusters	2001	5 years, to 2005	These Japanese knowledge clusters are centred around key universities and seek to promote greater university-industry collaboration.
METI Industrial Clusters	2001	5 years to 2005; Phase 2 2006-10	The Industrial Cluster Programme supports SMEs and research links in a range of regional area types with a strong focus on the triple helix relationship (i.e., effective relationships among industry, university and government), business incubation and support services.

Source: (OECD, 2007a)

Table 15: National level programmes in the Netherlands - Competitive Regional Clusters

Programme/ policy	Year started	Programme/ policy period	Brief description
Peaks in the Delta	2005	Undefined (minimum 5 years)	This nationally sponsored programme seeks to support region-specific opportunities of national significance by reorienting public policy to build on the nation's strengths (peaks). Regions covering most of the country identify a spatial economic development strategy, including their own priority clusters for support.
Key Innovation Areas	2005	Undefined (minimum 5 years)	The Netherlands innovation strategy seeks to focus resources on key innovation areas that have internationally strong performance and commitment of stakeholders.

Source: (OECD, 2007a)

There is evidence that industry specialised areas with appropriate clusters enable business to out-perform competitors in regions that are not so strong. However, the lack of diversification is a concern with over-reliance on key businesses and industries that are vulnerable to rapid global market place changes (OECD, 2007a).

Another competitive regional strategy that is rapidly becoming accepted among European regions is smart specialisation (Midtkandal & Sorvik, 2012) and this too may suffer from a lack of diversification (Cho & McDougall, 1978). The central strategy is to enable targeted support for research and development of the knowledge economy (Midtkandal & Sorvik, 2012). Regions go through a process of establishing a vision for their area, identifying the locations within their region that have the highest strategic potential for development, reforming their governance arrangements to allow for multi-stakeholder governance, setting strategic priorities and implementing a range of tailor made policy actions that serve to strengthen the knowledge based development potential of the region (Midtkandal & Sorvik, 2012).

Cho & McDougall (1978), call into question specialisation of regional areas. In a study of cyclical behaviour during the 1950s to 1970s it was found that diversified regions mirrored the national economic cycles whereas specialized regions had much more volatile cycles. This is an interesting supposition that may have changed with globalisation. Unless cyclical behaviour has changed considerably this research suggests that such smart specialisation may have only a short lived timeframe and not be the answer to the regions challenges after all.

Policy makers are also focusing on innovation, ICT, place-based policies, identifying unused potential, enabling structures, and amenities to enhance competitiveness (OECD, 2005). Innovation has become of particular interest over the last decades. According to the OECD (2005), knowledge based strategies that promote innovation stand out as the most appropriate way to build competitiveness in such a globalised world, however, the instruments seem to work best in advanced regions. Innovation is a contested concept that has

considerable policy implications. Often associated with scientific or technical research of development activities, innovation has much wider considerations and can be linked, not just to new products, but also to new ways of thinking about dealing with traditional processes in more productive ways. Innovation is "strongly linked with social processes such as the creation of networks, the strengthening of local identities, and the creation and dissemination of knowledge" (OECD, 2006b, p. 3).

An example of a competitive programme that draws on many of the above strategies is found in the Netherlands, where they have developed a rural-urban partnership called the 'BrabantStad: the five cities programme' as an integrated approach to economic competitiveness. The objectives of the programme are to strengthen economic resilience through knowledge, innovation and upskilling the workforce, increase the appeal of the region to the international community, increase accessibility through transport infrastructure, develop spatial linkages for greater ease of business operation and to encourage in-migration of skilled workers and to promote collaboration between sectors to create spillover effects. The underlying assumption is that international workers can solve the problem of an ageing population and outward migration from villages (OECD, 2013).

The programme was supposed to support linkages to the rural areas. However, the rural areas are not directly involved and there is a strong focus on the urban areas. The five cities lead the strategic decision process and represent their regions and rural places, although partners from the local rural level are included (OECD, 2013).

5.2.2.1.2. Small town redevelopment

Town centre or downtown redevelopment is a very common strategy for depopulating towns and aims to encourage customers into a town and support business growth (National Main Street Center, 2015). In the United States the National Trust for Historic Preservation runs the US National Trust Main Street revitalization programme. A number of towns have experienced revitalization through the programme. The programme provides education, training, resources and seed money for preservation projects to enable communities to implement long term, comprehensive change in their towns (National Main Street Center, 2015).

The programme has a framework of eight guiding principles: comprehensive, incremental, self-help, partnership, identifying and capitalizing on existing assets, quality, change, and implementation. These principles support the four point strategy of organization, promotion, design and economic restructuring. Statistics collected on the preservation, revitalization and economic activities produced by the programme present an attractive picture of what can be achieved. From 1980 – 2014 $61.7 billion was reinvested in physical improvements from public and private sources, 251,838 buildings were rehabilitated, there has been a net gain of 528,557 jobs and a net gain of 120,510 businesses (National Main Street Center, 2015).

However, an issue with these statistics is that the economic impacts may be not only attributed to the programme, and other less tangible factors and impacts are not measured. What these statistics also mask is the failure rate of this strategy. Gates (2005), in a representative sample of main street communities undertaking the programme, found that many communities dropped out of the programme early or became inactive. In Oklahoma, 34 per cent of the communities that started a programme became inactive, while in Pennyslvania the figure was 42 per cent.

The five main reasons that the programmes failed were consistent across the 178 communities. These were: “structure, funding, programme flexibility,

commitment and unattainable expectations" (Gates, 2005, p. 78). Another study evaluating Main Street Programmes in Pennsylvania found that continuity of leadership was an essential element to create momentum, establish rapport, and begin building deep partnerships that sustain such programmes. The programme requires the appointment of a Main Street Manager, however the average turnover rate of such managers is 1.5 years making it very difficult to achieve stability (Kimmel & Schoening, 2011).

The programmes also appear to pay no attention to the underlying demographic drivers. It is not clear without further research if the programme had any impact on attracting population or capital to the towns.

5.2.2.1.3. Green economy

In the last decade there has been increased focus on coupling economic activity with environmental considerations in what has called the 'green economy' (The Royal Society of New Zealand, 2014). The United National Environment Programme defines a green economy as "one that results in improved human well-being and social equity while significantly reducing environmental risks and ecology scarcities" (United Nations Environment Programme, 2015). In areas with declining populations, attention has paid to whether developing the green economy might also be an answer to stimulating the local economy (Mazurkewich, 2010).

Developing the green economy has been seen as a saviour for areas that have declining traditional industries, as a way to create employment (Mazurkewich, 2010). A number of towns with declining industries have turned to alternative energy production as a new source of employment (Mazurkewich, 2010). However, alternative energy production has been shown to be susceptible to economic downturns. In 2006 the town of Pipestone, in the US, attracted a wind blade plant that created 320 jobs. During 2009 the workforce was reduced by half due to economic conditions (Mazurkewich, 2010). New functions are often untested in the marketplace and may not be the saviour that is expected, i.e.

factories building green technologies can be susceptible to economic downturns (Mazurkewich, 2010).

Another green model is eco-towns. In Japan, an 'eco-town' concept was being promoted which aimed to 'reduce, reuse, recycle', as well as take into account the region's local attributes. The 'eco-town' concept had a broad range of initiatives - green procurement, green consumerism, industrial ecology, extended producer responsibility, socially responsible investment, integrated waste management, green labelling, global reporting initiative, and corporate social responsibility (Global Environmental Centre, 2005, p. 1). The Japanese government supported the eco-town concept by providing a subsidy system to enable facilities to be built (Global Environmental Centre, 2005).

Another green strategy that is being promoted by a number of countries is eco-industrial clusters. Japan and the United Kingdom are just two of many countries that are adopting an approach that are attempting to integrate economic competitiveness with environmental concerns that also have a social conscience element (Anbumozhi, 2008).

The eco-industrial clusters are built from collaboration with business and government and seek to enable cleaner production, reduce waste and pollution, improve living conditions for communities, while also increasing business competitiveness. When successful, these clusters can be sources of productivity gains and cost benefits such as; effective use of raw and waste materials, access to knowledge and technology, employment generation and complementary eco-product development. However there are major constraints to developing these clusters. Eco-industrial clusters need to be supported by integrated policy, have availability of human capital, enabling technologies and tap into eco-market forces. Research has shown that for small businesses to develop into competitive forces within eco-industrial clusters they require linkages to large firms, as well as to external market agents and support from local institutions (Anbumozhi, 2008).

5.2.2.2. Attracting spending

Tourism is a major growth industry and is one of the world's largest industries (Creaco & Querini, 2003, p. 1). Tourism is seen as one of the main economic instruments for stimulating regional economies (Creaco & Querini, 2003). Although tourism does in many cases have a positive economic impact, it can come with many negative effects, such as the environment being degraded, affecting the very basis that the tourism is often built upon (Creaco & Querini, 2003). Using tourism as a community development tool is thus not always successful. Beeton (2010) found that rural tourism programmes failed due to a lack of understanding by the community of the complexities of tourism and its relationship with public resources (p. 129).

Another key element of utilising tourism as an economic development intervention is understanding the tourism lifecycle and how this will affect the long term sustainability of the industry in that location. The hypothetical tourist life cycle begins with 'exploitation' of an unspoiled natural, cultural or environmental resource. Next the community gets 'involved' and infrastructure and facilities are built. By the 'development' phase the area is undergoing a dynamic period of growth and the destination is well known and developed (Creaco & Querini, 2003). In the 'consolidation' phase tourist numbers are still increasing but not at such a great rate and tourism is a main economic instrument for the regional economy. The 'stagnation' phase sees tourists losing interest as the location becomes less fashionable and significant publicity is required to maintain visitor numbers. Finally, a 'post-stagnation' phase can either see the tourist attraction shifting into 'decline' or 'rejuvenation' where the attraction but must change form and seek new markets.

This cycle has been well documented in numerous resorts and tourist attractions (Creaco & Querini, 2003). Communities seeking to capitalise on tourism as an economic stimulus tool need to understand that there is a finite timeframe for the benefits of the tourism.

Attempting to resuscitate some declining tourist towns has led to some extreme examples of publicity stunts to encourage interest in locations. For instance, a television show created a fake sea creature, the 'Skegness sea monster', to spur tourism (Murray, 2013). A flurry of tourism activity accompanied the sighting of the creature and the public appears to have rediscovered the benefits of the seaside town although the stunt was declared a fake (Gilbey, 2015). Whether the town maintains its visitor numbers remains to be seen.

5.2.3. The limits of countering interventions

Polese and Shearmur (2006) argue that when national population is stable population decline is inevitable for peripheral areas, assuming that population movements follow the spatial distribution of economic opportunities. This viewpoint is shared by Midmore, et al. (2010) and backed up by later research which confirms that population decline in peripheral regions is far harder to address than in those close to economically strong centres (Galjaard, et al., 2012, p. 293).

In countries that are still growing on a national level, studies have shown that rural towns that are managing to grow even with the changing spatial redistribution are those in close proximity to urban agglomeration economies (spill over effects), and have services and amenities (Midmore, et al., 2010). There is a significant body of research shows that there are considerable economic benefits to massing business, jobs and people in centres or hubs, often called 'agglomeration' (COAG Reform Council, 2012). Small regional towns do not typically have these agglomeration economies.

According to Terluin (2003), empirical evidence does support several successful theoretical approaches to regional development:

- An active role of local actors in internal and external networks stimulates employment growth
- Community-led rural development – a well-developed self-help capacity of communities stimulates employment growth
- Exploitation of social and cultural capital stimulates employment growth

- Exploitation of rural amenities and cultural capital stimulates employment growth in tourism

However, these approaches were only successful given the availability of labour and capital, which areas on the periphery are often short of. From research in Canadian peripheral towns, Polese & Shearmur (2006) developed a list of pre-conditions for regional population decline, based on a combination of economic and demographic drivers. Over time, locations with the full set of attributes will undergo relative, and eventually absolute, population and employment decline. These pre-conditions are categorised in national attributes and regional attributes. Not all attributes need to be present for decline to occur.

National attributes:

a) A geographically large nation, with inhabited locations more than one hour drive from a major urban centre
b) A nation in the last stage of the demographic transition

Regional attributes:

a) The town or village is located more than one hour drive from a major urban centre (over 100,000 in the Canadian context)
b) Not on a major transport route
c) A resource exploitation or primary processing economic base
d) Economic base of industries where the primary input is more costly to transport than the transformed product – i.e. raw logs, fresh fish
e) A resource base whose limits of profitable exploitation have been reached
f) Climatic and geographical conditions limit year round tourism (Polese & Shearmur, 2006, p. 42).

Countering strategies for towns have been shown to work in some cases, but this is very specific to context and in places where the underlying economic and demographic drivers are too strong, population decline is unbeatable (Hollander,

2011). Polese & Shearmur (2006) argue that the only places that have managed to regenerate did not have the full list of the above pre-conditions.

According to Hospers (2013) it is doubtful whether any countering strategies that aim to attract people or businesses are truly successful. Hospers accounts this to the failure of many cities to differentiate themselves from each other, with most towns promoting themselves with the same set of attributes - diverse, creative, innovative or liveable. Although some locations have managed to create positive outcomes for their towns, the issue of competition between several towns or regions that are attempting to attract the same dollars and people is still present (Chesire, 2006). As subnational decline spreads, regional competitiveness will come at the expense of other regions, as they fight over the same diminishing pool of people (Jackson, et al., 2014). Not all towns will win (Chesire, 2006).

Research from Europe has identified that shrinking cities in Eastern Germany that are growing again are doing so only at the expense of the region surrounding them, as the only newcomers are from these areas (Haartsen & Van Wissen, 2012). Even when places have experienced regeneration, the newcomers do not occupy the same niche as the pre-existing society (Matanle, 2011, p. 89). They have different spending and living patterns and will not necessarily provide the economic opportunities that the community is seeking (Stockdale, et al., 2000).

Polese & Shearmur (2006) argue that the broad structural trends of the ending of the demographic transition accompanied with changing economic behaviours cannot be easily altered by interventions. They claim that it is unreasonable to expect economic development strategies to halt demographic decline. Moreover, concentrating on economic stimulation without allowing for declining demographic indicators can lead to severe oversupply of housing and infrastructure (Bernt, et al., 2012; Rink, et al., 2012).

The key finding is that countering strategies were able to slow population decline but this was dependent on the location, economic and demographic context of each community. Population decline is unbeatable in places where the underlying economic and demographic drivers are too strong.

Case studies have shown that in the regions it is easier to achieve improved quality of life than slowing population decline (Galjaard, et al., 2012). The OECD (2006b) states that, with regards to rural economies, the "future prosperity of rural regions will be determined by drivers such as human capital, entrepreneurship, innovation, renewable energy, technology, creative industries and competitive farming" (p. 8).

5.3. Accepting interventions

Accepting strategies can be disaggregated into hoping to maintain the current population, trying to slow population loss, to pragmatically managing the decline. The first stage of an accepting strategy is to try to maintain and retain the financial and human capital that is already in place in an effort to slow further flight from the location (Hospers, 2013). In cases where the underlying population structure and drivers are too strong, there needs to be a shift to managing the decline of human capital and financial capital if population decline continues.

Accepting strategies are very often aimed at upgrading the quality of life through renovation or removal of the existing infrastructure. Hospers (2013) states that there also needs to be a greater focus on social strategies and the socio-demographic characteristics of the area.

5.3.1. Maintaining and retaining human capital

Whether the emphasis is on retaining the existing population or on managing the consequences of depopulation for communities, the focus of interventions in this section is on providing a better quality of life, enabling social inclusion, and adapting to an ageing population.

5.3.1.1. Social

The reasons people stay in a location are complex. For instance, New Zealand data shows that people who own their own home are less likely to move (Statistics New Zealand, n.d.). International literature shows that this is not the case for some other countries, such as the Netherlands, where a strong increase in home ownership did not led to a decrease in migration (Helderman, et al., 2006).

Studies show that attachment to 'place' is very important for supporting the economic health of locations. Social 'place making' has a different trajectory than physically changing the built environment. Recent research found that there is a significant connection between economic growth and peoples' emotional attachment to the community they live in (Knight Foundation, 2010, p. 2). In a

three year study of 26 cities in the US with almost 43,000 participants, it was found that those communities that experience the highest levels of attachment also showed the highest rates of GDP growth (Knight Foundation, 2010, p. 4). In addition social offerings, openness and aesthetics and education were named as the top reasons people felt attached to communities and locations, not the expected drivers - jobs, the economy and safety (Knight Foundation, 2010, p. 4). This finding supports the New Zealand study of migration motivations (Statistics New Zealand, 2007) but contradicts other studies that list economic motivations as the top priority (Connell & McManus, 2011).

Residents that are strongly attached to their community are more likely to want to stay in their location (Knight Foundation, 2010, p. 4). This finding is reiterated by other studies that see quality of life as an emerging key economic driver rather than previous economic models, such as attracting large companies (Project for Public Spaces, n.d.). Social inclusion is an important aspect of maintaining human capital. When people feel catered for and included they are more likely to choose to stay in the location (Kenyon, et al., 2001).

In a community that is depopulating, maintaining quality of life can be challenging. There is some contention that the link between depopulation and quality of life is not always negative. Hollander (2011) researched the link between happiness and the 'opinion of neighbourhood quality' in 38 growing and declining cities in the United States. Hollander found that neighbourhood quality scores did not show a significant decline during the time that the city was shrinking. Contrary to expectations, the opinion scores increased slightly even though the population and occupancy rates were declining. Hollander suggests that negative factors in growing cities, such as congestion and traffic may be a factor in this equation. This finding suggests expectations of negative social consequences of decline may be overrated in some locations or at any rate the perceptions negative social consequences.

There have also been some examples of success interventions that have improved quality of life (Hollander, 2011). Pittsburg in the US provides a high

quality of life in the face of population decline, after a series of measures to improve social conditions, such as; preservation of historic buildings, diversification of the economy, and mixed use/pedestrian-friendly redevelopment (Hollander, et al., 2009, p. 230).

Research into small towns that survived external shocks found that although quality of life declined after such an event those towns that were resilient had strong social connections (Besser, 2013).

As outlined earlier, shrinking regions are typically also ageing, and in many cases – and will increasingly be the case -- this is what is causing the shrinkage (more deaths than births) (Jackson, 2013a). The proportion of the population that is in the over 65 age group is increasing in all the countries that were examined. Strategies for dealing with the ageing population are crucial to community development (Kresl & Ietri, 2010). There is a need for local government to actively seek ways to engage and keep older people in areas where the market or cultural conditions do not actually provide these opportunities (Kresl & Ietri, 2010).

Strategies for adapting to an ageing society will support social inclusion and will encourage retention of the existing population. Although some strategies are aimed at older people they may benefit other parts of society, such as wider footpaths for mobility scooters would also support families with baby buggies or walking with children.

Providing lifelong learning opportunities that are both informal and formal for older people has been shown to have positive impacts “on the attractiveness, competitiveness and vitality” of areas (Kresl & Ietri, 2010, pp. 167-8). A major benefit for providing these opportunities is reducing the social isolation of seniors.

Providing social services is an important part of retaining current population. In Germany, where two-thirds of rural communities are affected by shrinking populations, it is acknowledged that there is a limit to the services that the

government can finance (Kuhn & Klingholz, 2013). Both private and government facilitated projects are exploring community based solutions where the community can at least partially fill the gap. Some solutions that are being used are; a volunteer coordination centre, pensioners babysitting children for working parents, volunteers teaching arts and crafts to elderly rest home residents, local high school students setting up businesses to provide services to older people, teaching computer classes, volunteer-run art galleries, and 'adopt a plant' initiatives to improve the landscape (Lupieri, 2013).

Another essential element for improving accessibility and encouraging social inclusion, is transport. Kresl & Ietri (2010) consider effective transportation as the most important factor for older people. Public transportation in a declining location can take the form of citizen buses, collective call taxis and call buses (Dremel, 2013). As well as older people, youth often require transport solutions. In Germany an initiative in a rural region linked youth with available rides. The government provided the framework for the initiative, but the youth were obliged to participate and solve their own problems (Dremel, 2013). This initiative required the cooperation of both the government and the community to succeed. According to Khun & Klingholz (2013) although civic engagement is useful it will not stop depopulation in peripheral areas.

5.3.1.2. Promotion - cultural regeneration

Cultural regeneration is strategy that can be used to promote a location but can also meet the needs of seniors (Hollander, et al., 2009; Kresl & Ietri, 2010). In Japan, the island of Sado which is slowing depopulation, has developed their cultural aspects to attract tourists but also to encourage their own community focus and engagement (Matanle, 2015). In the US, UK and Austria, several cities cultural institutions have been working with local government to create linkages and provide opportunities for older people to enjoy the arts and culture of their region (Kresl & Ietri, 2010).

5.3.1.3. Planning

An accepting strategy that a number of cities have adopted is redeveloping the residential core of the city centre with a focus on making it liveable and attractive for senior citizens to relocate (Kresl & Ietri, 2010). In the US as areas have declined there is more space available to allow construction of homes that are attractive for seniors. Several US cities have focused on making the city centres attractive for older people i.e. Atlanta, Nashville, Philadelphia, Milwaukee, Charlottesville. These cities have accepted their ageing populations and are catering for them. In locations such as the United States this strategy has been successful.

The ageing interventions in the EU and US have had strong leadership and support from city officials with a clear view of the benefits to urban vitality and economic competitiveness that result from having large numbers of actively engaged older people in their city centres (Kresl & Ietri, 2010, p. 165). Redeveloping for older people includes redesigning or upgrading homes to cater for this demographic, providing more public seating, adapting pedestrian zones to allow for mobility scooters and improving kerbs (Ministry of Social Development, 2007-2008).

In some areas of Europe, senior clubs have been established in locations where the market or cultural conditions do not support the movement of seniors to city centres and these have been found to help regenerate neighbourhoods (Kresl & Ietri, 2010). However, there is a caution for locations that are shrinking and ageing at a greater rate, as creating communities especially for the elderly has not been very successful in places like Belgium and Finland (Haase, et al., 2012).

5.3.1.4. Economic and social - employment

The disappearance of skills and knowledge is a feature of declining populations (Martinez-Fernandez, et al., 2012a). Depopulation is often a selective migration process, leaving the most disadvantaged and unskilled behind (Fol, 2012). A declining area is often a patchwork of different levels of disadvantage and unemployment. Consequently, designing skills and employment interventions

requires tailored strategies that acknowledge the multi-dimensional challenges of depopulation and the local context. For instance, depopulating places that are located near a thriving urban hub will required a different strategy mix to those that are in broader peripheral declining areas (Martinez-Fernandez, et al., 2012a).

There is a global trend towards greater labour mobility (Kukutai, et al., 2014). People are turning to long distance commuting (LDC) to enable them to carry on living in their home community but access distance employment opportunities. Studies in Australia, Canada and New Zealand show that workers are tapping into opportunities in the resources sector to earn a living. Fly in fly out (FIFO) resource work is providing alternative employment prospects for some struggling communities, such as in Labrador in Canada, and Western Australia. LDC enables workers to maintain their home base and their family's social connectedness while bringing money back into their communities (CBC News, 2014; Fitzpatrick, 2012; Kukutai, et al., 2014). Further enabling LDC by supplying transport options may be a solution to struggling communities, especially ones that are located in high amenity areas.

For many accepting strategies in this section there is a clear relationship between retention, inclusion, quality of life and adapting to an ageing society. Table 16 outlines this relationship between a wide range of maintaining human capital strategies and tools and these social factors. This shows that when an intervention is adopted it may be able to support more than one group of people and achieve more than one social goal.

Table 16: Relationship between maintaining human capital strategies and tools

Policy sector	Strategy	Intervention	Retention	Inclusion	QOL	Adaptation to ageing society
Promotion, planning, social	Built environment	Redeveloping city centres for older people	X		X	X
Planning, social	Improving accessibility	Mixed-use/pedestrian friendly redevelopments Transport initiatives	X	X	X	X
Economic and Social	Employment	Providing silver learning opportunities	X	X	X	X
Economic and Social	Employment	Promoting quality employment for older people	X	X	X	X
Economic and Social	Employment	Access to jobs, training and education	X	X	X	
Economic	Employment	Utilising the increasing mobility of workers to bring money into an area i.e. FIFO or DIDO	X		X	
Social	Supporting community	Supporting community organisations	X	X	X	X
Social	Supporting community	Senior clubs	X	X	X	X
Promotion, social	Supporting community	Cultural regeneration	X	X	X	

5.3.2. Maintaining and retaining investment and infrastructure

Maintaining financial capital of the public and private sectors is a key consideration for governments, communities and industries in a declining area. Affordability of government services and infrastructure is a major problem for central and local governments with rising costs and shrinking tax bases (Aziz, et al., 2012; Ball & Creedy, 2012). Maintaining housing values and retaining businesses and jobs are also significant challenges in a declining area.

Table 17 outlines some typical interventions that are being used to retain or maintain investment, or provide services and infrastructure from the seven OECD countries in this study. These strategies have been grouped by their policy sector; governance, planning and economic and social, for ease of discussion. The following subsections provide further details about interventions within each policy sector grouping. There is extensive literature on each of the policy sectors, however these are only able to be discussed in a cursory manner due to the volume of material and the wide scope of this thesis.

Table 17: Strategies for maintaining and retaining investment and infrastructure

Policy sector	Strategy
Governance	Territorial authority mergers
Governance	Service and technical infrastructure provision reform • Aggregating demand • Developing alternative delivery mechanisms • Utilising different types of providers • Creating completely new services • Improving quality and marketing
Planning	Pragmatic downsizing • Redevelopment of housing stock – demolish poor efficiency buildings, renovate appropriate dwellings to improve efficiency (The Government of the Netherlands, 2015) • Improve accessibility of necessary facilities Smart shrinkage • Right sizing infrastructure • Green infrastructure • Landscape beautification-brownfield site regeneration • Temporary use strategies • Land banking • Housing market rebalance
Economic and social	Developing the silver economy • Smart homes for older people • Service robots • Health and medical services and devices • Entertainment • Transport • Financial products • Innovative living concepts • Recreation provision

5.3.2.1. Governance accepting strategies

Governance strategies focus on how governments can provide services and funding in declining areas. In this thesis governance interventions have been defined as those that focus on making resources and funding stretch across all the service areas rather than specifically on encouraging financial and human capital to flow into an area. It is about doing more for less.

There is a range of strategies that governments are adopting in an effort to service communities, such as amalgamation of local government authorities to encourage economies of scale, devolution to civil society in declining regions for service provision, use of public-private partnerships, providing services through on-line portals (e-government).

5.3.2.1.1. Territorial authority mergers

One of the most prevalent strategies for dealing with governmental financial constraints is restructuring governance arrangements, such as merging territorial authorities. Redefining local areas is not only driven by the need to achieve economies of scale but also due to more mobile populations and changing functional areas. The new boundaries of territories are aligned along factors such as, shared economic characteristics, natural resources and common features (OECD, 2010b).

Many countries are restructuring their regional or local governments, for example; Australia, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, and Japan (OECD, 2014). For instance, the national government in Japan encouraged the merger of municipalities by using incentives. Over the period 1999 to 2008, the number of local governments dropped from 3,232 to 1795. The Japanese government was particularly motivated by the need to address the ageing of the population, fiscal constraints and a desire to promote decentralisation (OECD, 2010b).

There is much debate about the costs and benefits of this option, with consistency of processes, efficiencies and savings on the one hand and loss of

local voice on local issues on the other (Joint Working Party, 2013; Palmer, et al., 2012).

Table 18 provides a comparison of the numbers of Territorial Authorities to the population between the seven OECD countries and New Zealand. New Zealand has the smallest number of municipal governments and third to lowest average number of municipalities per 100,000 of population. New Zealand has an average number of 64,550 inhabitants per municipality, though there is a wide range of absolute numbers in each municipality, from 1.4 million in Auckland to just a few thousand inhabitants in peripheral areas (Statistics NZ 2013). Only the UK and Japan have a greater average number of inhabitants per municipality than New Zealand, and both of these countries have populations that exceed New Zealand's by multipliers of 14 and 29, respectively.

The salient point here is that with countries that have a very large number of municipalities (i.e. Germany 11,327) for their geographical and population size, amalgamation may be a legitimate intervention for approaching fiscal challenges of depopulation. In contrast, countries, such as Australia, Canada and New Zealand which have vast rural municipalities and strong geographical constraints may experience loss of community cohesion and local voice (Joint Working Party, 2013; Palmer, et al., 2012) from amalgamating their large territories. These are issues that are likely to be debated in New Zealand and elsewhere, as communities age and face depopulation.

Table 18: Territorial authorities and governance

	NZ	Australia	Canada	Germany	Japan	Netherlands	UK	US
No. of municipal governments (2012)*	67	565	4,147	11,327	1,719	408	406	35,879
Area (km^2)	269,652	7,692,024	9,984,670	357,027	377,955	41,528	243,820	9,831,513
Inhabitants (per thousands)	4,325	22,647	34,181	81,212	127,498	16,778	63,244	316,266
Avg. no. of inhabitants per municipality	64,550	40,085	8,240	7,170	74,170	41,125	155,775	8,815
Avg. no. of municipalities/100000 inhabitants	1.5	2.5	12.1	13.9	1.3	2.4	0.6	11.3

OECD (2013). Subnational Governments in OECD Countries: Key Data. OECD Publishing. (2012 figures unless stated)

5.3.2.1.2. Service and technical infrastructure provision

Service and technical infrastructure provision is very challenging for central and local governments in areas with sparse or declining populations, due to the large distances that service users and service providers must travel and the lower density of the population that reduces economies of scale. Consequentially, service provision is more expensive in low density and peripheral areas than urban centres (OECD, 2010a).

In addition, an ageing population structure puts further pressure on service delivery in peripheral areas (OECD, 2010a). The cost of caring for seniors increases as their needs become greater as they age, and thus increased proportions of older people in the population puts further pressure on service provision. Another contributing factor is retirement destination urban-rural drift that can occur in some peripheral areas and further increase proportions of older people requiring additional services. There can be issues with attracting service workers to peripheral locations and careers that provide services for older people. This can added to costs of services these areas, as higher wages have to be used to attract workers than for their counterparts in urban areas (OECD, 2010a).

Service and technical infrastructure provision may cover:

- Water supply
- Wastewater
- Stormwater
- Roading
- Electricity
- Communications
- Rubbish
- Libraries
- Healthcare
- Transport
- Education
- Welfare services
- Emergency services
- Retail

Financing fixed infrastructure, such as, electricity, water, gas, and sewerage, is particularly challenging with operating expenses the same regardless of the numbers of users (Kuhn & Klingholz, 2013). For example, water pipes which are

fixed infrastructure have fixed costs, and, in Germany this can amount to 80 per cent of total costs. In some depopulating cities within Germany residents are experiencing rising costs for drinking water due to this problem (Hospers, 2013). New Zealand research shows that replacement of infrastructure is also cyclical, occurring every 20 or 30 years depending on the type of infrastructure and facility (Office of the Auditor General, 2014). This requirement can be expected to place councils facing both replacement and population decline in financial difficulties. Social infrastructure (hospitals, schools, libraries and supermarkets), on the other hand, can be closed down if the number of customers fall below a certain volume, though the social cost of doing so is very high (Kuhn & Klingholz, 2013).

Against this background of financial constraints is the challenge that infrastructure development is classed as an essential basic element for providing quality of life and which also enables increases in economic value in locations. Disparities in infrastructure can lead to social polarization. Finding adaptive and flexible infrastructure options will be necessary for countries, from national down to local levels to deal with population decline and its associated social and economic change (Beetz, et al., 2008, p. 304).

Broad policy strategies for providing services in peripheral areas are aggregating demand, developing alternative delivery mechanisms, utilising different types of providers, creating completely new services, and improving quality and marketing (OECD, 2010a). Aggregating demand attempts to increase the customer demand by consolidation of services into one location, or co-locating multiple services into one facility, or merging services (OECD, 2010a). Co-locating has been used in Scotland with the 3Rs project: reorganize, renovate and rebuild. Schools may offer space to other users – libraries, social work or police (Galjaard, et al., 2012). Australia has a variant of this scheme, the Rural Transaction Centres (RTC) programme which enables small rural communities to provide new services or bring back past services in by supporting the establishment of self-funded and community run centres (OECD, 2010a).

Alternative delivery mechanisms cover altering delivery by changing the time of availability for the service to fit peak need, bringing services to users and utilising the internet to provide services. A common strategy for bringing services to users is adopting mobile services, such as mobile libraries and dentistry, health care clinics and training facilities. Canada has mobile training labs that support skill training to fill gaps in the rural economy (i.e. carpentry, electrical, plumbing etc.) (OECD, 2010a). Governments have been exploring the use of information and communication technology (ICT) as a response to the global economic crisis of 2008 and the constraints that this has brought to their fiscal budgets (e.Estonia, 2013; Haug & Buscher, 2000; OECD, 2007c; OECD, 2009d). The use of e-government service delivery is particularly pertinent for areas which are challenging for governments to service, such as peripheral areas and those that are depopulating.

Although the majority of the e-government provision is concentrated on central government services, technology is also providing new prospects for delivering crucial services, such as healthcare (OECD, 2007c). Provision of healthcare is a major problem with fewer workers and increasing demand in many developed nations. Research in the US, shows that 640 counties across the country do not have access to an acute care hospital (Williams, 2013). Health provision is turning to telecare as an option to provide for ageing populations in peripheral areas, with examples in Denmark, the Netherlands, Scotland, and the US (Brink, 2013; Healthcare IT news, 2013; Johnsen & Perjo, 2014; OECD, 2007c).

Use of ICT has improved government service delivery but has not achieve the success that was hoped for due to poor user uptake of services (OECD, 2009d). There is a significant difference in the use of e-government services between OECD countries as well as a large gap in supply and use of e-government services in many OECD countries. From research it is clear that improving user uptake is required to fundamentally improve public sector service delivery (OECD, 2009d).

User uptake in peripheral areas and in an ageing population is likely to be challenging, with many older people having little to no access to the electronic

infrastructure that is necessary for use. A strong focus on e-government may also be socially polarising as lower socio-economic groups may become further disenchanted (OECD, 2009d).

Another shift that is occurring in service delivery is the changing relationship between government entities, business provision through market forces and civil society. Civil society, in some countries, is taking the place of government services, especially in severely depopulating areas (Dremel, 2013).

In Germany a study of eight examples of service and technical infrastructure provision in rural areas found that modern strategies for dealing with service delivery could include: coordination and cooperation across municipalities and sectors, public-private partnerships, support and assistance for voluntary community work and non-profit organisations, mobile service units and the use of ICT for service delivery (Dremel, 2013). Three of the eight case studies showed that civil society could function as a source of finance when business and state entities were not able or willing to provide the necessary funding for local level projects. In other cases the state would provide the funding or just start-up funding for a project then run by communities (Dremel, 2013). The case studies showed that which actor was predominant was dependent on the type of infrastructure that was required. For instance:

- Technical infrastructure – state involvement is necessary for logistics, standard requirements and legal reasons
- Retail infrastructure – projects were initiated by civil society – required partnership with community and business.
- Social infrastructure – the state is the most important actor in healthcare provision but other forms can use civil society
- Cultural infrastructure – civil society is the predominant actor. State and market are important but participation of civil society is essential for initiatives to work (Dremel, 2013).

In all cases, civil society played a role in the success of the local solution, requiring active partnership with the government and business entities (Dremel, 2013).

There are many innovative initiatives to improve service provision for communities, however the cost of such initiatives is often prohibitive. A case study in Germany of a bioenergy village project showed the vast amount of technical expertise and funding was required to make a difference at local level (Appendix 3.1) (Dremel, 2013). Although the project was successful and met the needs of the village it would not have been possible without significant outside help. If a cost benefit analysis was conducted on the enterprise it may be that the project should not have gone ahead.

5.3.2.2. Planning accepting strategies

A large volume of research focuses on how to measure and respond to shrinking cities. A 'shrinking city' is defined as "a densely populated urban areas with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of a structural crisis" (Johnson, et al., 2014, p. 152). This phenomenon is widespread in cities of the US and Europe. Well known examples of shrinking cities are the industrial Rust Belt cities, such as Detroit, which suffered substantial loss of population due to economic restructuring (Schilling & Logan, 2008).

The trend in the US is now extending beyond the rust belt into the lifestyle Sun Belt cities which experienced significant growth during the 1990s and early 2000s. Many European cities are also suffering the same fate; Taranto, Porto, Aberdeen, Frankfurt, Oder, Tallin, and Leipzig (Johnson, et al., 2014, p. 152). In some cities local authorities have accepted that they will not be able to replenish their populations and have been responding with strategies to reduce their cities' infrastructures (Martinez-Fernandez, et al., 2012b; Schilling & Logan, 2008).

Planners have been grappling with the expense of ageing infrastructure and under-utilised infrastructure in declining regions and cities and the cost of

maintaining or upgrading these. Planning strategies focus on shrinking the built infrastructure to match the smaller population in an effort to maintain housing values and improve the quality of the environment (Schilling & Logan, 2008; Rhodes & Russo, 2013; Rienits, 2009; Rink, et al., 2009). 'Smart shrinkage' is a term coined by a number of regions and cities that are focusing on reducing surplus infrastructure and buildings to match the smaller population size (Hollander, 2011; Martinez-Fernandez, et al., 2012a; Shrink Smart, 2014).

There is a strong social element to depopulation as abandoned buildings can reduce quality of life by leading to high rates of crime, health and safety issues and cause environmental hazards. Property values can drop and investment in the area follows suit (Martinez-Fernandez, et al., 2012a). Smart shrinkage encompasses both reducing size of the infrastructure and housing but also adopting alternative land uses for vacant land in an attempt to reduce the negative social consequences of depopulation (Johnson, 2014). According to Johnson, et al (2014), there are opportunities to improve quality of life for the citizens that remain. The underlying assumption of the 'smart shrinkage' proponents is that "it is possible for a place to lose population while ensuring a high quality of life and enhanced aggregate social value" (Johnson, et al., 2014, p. 151).

The city of Youngstown, Ohio in the US lost over 90,000 people between 1960 - 2000. The city is attempting to embrace shrinkage with a city wide planning project that focuses on reducing the infrastructure to fit the smaller community size. The programme began in 2001 funded by Community Development Block Grants (Boardman, 2008; Hollander, 2011) and a citywide Youngstown 2010 Plan was launched in 2005. A key feature of the plan is the acknowledgement that the city cannot expect to return to its former size (Rhodes & Russo, 2013). The city is broken into districts which are assessed on their current conditions and improvements are considered. The smart decline project focuses on tearing down abandoned buildings, transforming abandoned building lots into green space and buying out residents of minimally populated areas to allow for a

reduction in city services. As most approaches to redevelopment are bound to the growth paradigm this intervention was significant as it reversed well established conventions (Rhodes & Russo, 2013). Several US cities have adopted the right sizing approach, such as, Buffalo and Rochester, New York; Detroit, Michigan; Dayton, Ohio; and St. Louis, Missouri (Rhodes & Russo, 2013). The Youngstown initiative has been touted as a great success by some while others have reservations. Rhodes & Russo (2013) analysed the Youngstown 2010 Plan and found although the redevelopment programme improved the image of the city, it neglected many neighbourhoods that required strengthening.

The municipalities of Heerlen, Kerkrade and Sittard-Gellen in the Netherlands have plans to use decline as an opportunity to improve their government owned housing stocks. The quality of the homes in these areas is low. The programme particularly aims to demolish the worst performing houses, merge small homes to create larger ones and improve noise and energy performances for homes that are not demolished (Dreijerink, et al., 2012).

In the city of Leipiz in East Germany a large scale demolition programme began in 2001 to remove vacant residential houses. The focus of the programme is not so much on improving the quality of the housing stock, or removal of unsightly buildings for social purposes but is an attempt to regain housing market equilibrium (Shrink Smart, 2014). When Leipiz first experienced population decline after the reunification of East and West Germany, the city responded by creating a building boom in an attempt to attract people. This strategy resulted in a severe oversupply of apartments and the demolition programme is seeking to redress this housing supply issue (Shrink Smart, 2014). The adjacent East German cities of Halle and Halle-Neustadt removed a total of 11,746 apartments between 2002 and 2009 (European Commission, 2010). Demolition is contentious. In the case of Halle-Neustadt in Germany, the general public in fought against the decision to remove buildings. On the whole the population of Halle has responded positively to redevelopment public projects and has generated private investment (European Commission, 2010). Halle experienced

tremendous population loss through 1997 – 2002. The population may be beginning to stabilize as from 2004-2008 although Halle is still has net migration loss each year the numbers have reduced from thousands to only hundreds (European Commission, 2010).

Rebalancing the housing market is also of concern in the US. In the US a combination of urban deindustrialization, federal policy supporting suburbanization and the subprime mortgage crisis has led to over four million homes lost to foreclosure. The impact of these forces led to 30 cities with populations of over 500,000 losing 8.61 per cent of their populations on average. Traditional remedies for these issues have been investing in housing, employment and physical infrastructure. Johnson (2014) proposes that alternative land uses could be used to rebalance the housing market, such as, allowing the land to be used for urban agriculture, environmental remediation, recreation and land banking to save the property for future development when markets rebound (Johnson, 2014).

Vacant land can be in surplus in declining locations, particularly those that have adopted a smart shrinkage policy, with land that has never been developed or newly vacant land from removing buildings (Johnson, et al., 2014). There is an opportunity to create more green spaces called 'green infrastructure' within cities and towns that are shrinking. Green infrastructure can be created from areas that were never developed, public and private conservation lands, and land made available by demolition of houses or old industrial sites. These spaces can be used for urban farming, parklands and walkways. In some locations they have been linked together to make extended green spaces (Hollander, et al., 2009). Authorities have also created pocket parks on land between buildings and demolished housing blocks. These new green spaces that have been created are then available for recreation. This technique has been used in the Netherlands, Germany and the US. Studies have shown that these parks are popular (Haase, et al., 2012) and can increase property values in adjacent housing (Hollander, et al., 2009).

Landscape beautification is part of the greening process whereby derelict structures are removed and fencing or planting is added. The focus is on creating the appearance of control for land that cannot be redeveloped immediately. The property is less likely to become a neighbourhood dumping ground. This technique seeks to change the perception of declining areas, maintaining market value for future investors by regular maintenance (Hollander, et al., 2009). As mentioned in Section 5.2.1 the danger in gentrifying or landscape beautification is the impact on those that may be displaced by higher property values which accompany such measures. Even small increases in rents can pressure people on low incomes to leave the area that has been improved (Fol, 2012). Consequently, any strategy that improves housing values must be considered with much caution.

Temporary use strategies for vacant land that has been cleared or for abandoned buildings are another technique that is being used to improve perceptions and as a low cost holding strategy, that also has economic and social benefits. These strategies are wide ranging and only constrained by imagination; temporary market places, venues for extreme sports and cultural events, outdoor art installations, gardens, agricultural sites, community gathering places. Although these ideas have merit they are inhibited by local regulations, liability concerns and landowner objections (Hollander, et al., 2009).

Another tool that planners are using in the US is land banking. Traditional land banking is a tool where landbanking institutions are given special authority to enable them to purchase abandoned properties. The titles are then legally transferred to developers for redevelopment. Land banking institutions may take the initial risk of preparing land for redevelopment in areas of fluctuating real estate markets. The expectation is that private investment is more likely to be attracted and momentum may be created towards revitalization (Hollander, et al., 2009). The objective is community and economic redevelopment.

Case study analysis has not shown smart shrinkage to be successful in terms of reducing depopulation. Regional case studies in Appendices 2.1-2.3 clearly show

that population decline has not been stopped by the measures even though they are innovative and creative solutions. On a local level, the declining city of Youngstown in the US attempted a strong vision of smart shrinkage and still struggled to stem the tide (Rhodes & Russo, 2013). The suggestion is that if population decline is emphasized to the public then it will become a self-fulfilling prophecy (Hospers & Reverda, 2015). These places have however, had some success in improving quality of life (Hollander, 2011).

Demolishing the built environment needs to be handled with great care. Strategies for demolishing redundant infrastructure are the hallmark of Germany's response to demographic decline. However, when it comes to homes, it is not just about bricks and mortar, houses have far greater value that simply an economic one. People have emotional, cultural, social and historical connections to their homes. The cultivated environment has too much built 'surplus' to simply remove it all (Hospers & Reverda, 2015, p. 25). According to Hospers & Reverda (2015) removing the built environment that appears to be redundant, would in fact destroy the social and cultural dimensions of areas.

Planning for growth and planning for decline can also be defined by the way we think about people and space. Planners segregate functions in a growth area so that living, working and recreation are separated from each other. This is essential and necessary in a growth area, nevertheless in a declining area this can become a problem. Hospers & Reverda (2015), state that to maintain quality of life in a shrinking area, it is important to group activities.

> *"Population decline invites mixed use and concentration instead of segregation and separation. Demographic decline demands multifunctional building in a certain compactness to prevent dissolution."* (p. 26)

To keep people together and to keep services viable the development of centres or bundles of services in multi-functional buildings may provide a solution. A paradigm shift needs to be taken within the planning community to develop

plans for consolidation of activities rather than separation (Hospers & Reverda, 2015).

Planning strategies that reduce infrastructure may improve a location in terms of quality of life but instead may lead to further decline as depopulation is emphasized (Hospers, 2014; Rhodes & Russo, 2013). A positive outcome from planning strategies is the ability to demolish poor housing which can physically improve the district (Dreijerink, et al., 2012). Galjaard, et al. (2012) found that integrated policies of urban renewal in conjunction with social policies were more effective than physical upgrading.

5.3.2.3. Economic accepting strategies

A growth society is typically based on scarcity whereas a declining one on surplus, although the balance of scarcity and surplus changes as the society shifts phases. For instance, in a growing town there is often scarcity of open space, but a surplus of customers for products. In a declining town, there is a surplus of open space, but a scarcity of customers for products (Hospers & Reverda, 2015). For declining and ageing communities the key for potential economic gain is to look for the opportunities in the changing growth or surplus. For instance, with an ageing society there will be a surplus of customers for a scarcity of products designed for older people.

The silver economy is defined by the European Commission as "the economic opportunities arising from the public and consumer expenditure related to population ageing and the specific needs of the population over 50" (European Commission, 2015, p. 4). Opportunities arise in catering for the three groups of older people; active, fragile and dependant, which each have their own requirements and needs (European Commission, 2015).

The development of new consumer markets and the need to created sustainable services for ageing populations is driving the silver economy. The current silver economy is estimated to be worth $7 trillion per year globally, with the private spending power of older people expected to rise to $15 trillion by 2020

(European Commission, 2015). In 2012, a silver economy initiative was launched by the OECD.

Many sectors have opportunities in the silver economy: “cosmetics and fashion, tourism, smart homes supporting independent living, service robotics, health (including medical devices, pharmaceuticals and eHealth) and wellness, safety, culture, education and skills, entertainment, personal and autonomous transport, banking and relevant financial products” (European Commission, 2015, p. 10). Innovative living concepts and recreational opportunities for older people are also targets in the silver economy (Hospers & Reverda, 2015; Martinez-Fernandez, et al., 2012b).

A range of initiatives are being trialled and several large companies are actively pursuing the development of products tailored for the older age groups, such as Google and Apple (European Commission, 2015). The Japanese are developing healthcare robots to take the place of healthcare workers in the care of older and disabled people, in a country that is suffering a severe shortage of such workers (SBS Australia, 2013).

Although many of the strategies are place-neutral (providing products for older people), some localities are attempting to take advantage of this rising demographic and attract business through providing such facilities as ‘care hotels’, where older people who require continuing healthcare can enjoy a holiday with their families away from their usual residence (Hospers & Reverda, 2015). Also, as mentioned previously, technology is being harnessed as a place-based approach to provide for health care provision for older people with telecare being used to cater for ageing populations in peripheral areas (Brink, 2013; Healthcare IT news, 2013; Johnsen & Perjo, 2014). New technologies are also changing the way location and business interplay with broadband blurring the line between urban and rural, allowing businesses to relocate to lower density environments.

Developing economic opportunities through providing services, activities and opportunities for older people have been successful in some locations. Questions remain about whether such strategies are sustainable in the long term. How large is the market for care hotels? Will younger people and families want to live in locations that are marketed for older people? Will there be too many locations that are trying to attract the same older people as retirement destinations? (Hospers & Reverda, 2015). What happens when those people move from the active to the fragile and dependant, and then require higher levels of care than previously?

5.3.3. To retire towns or not to retire – that is the question!

At the extreme end of the countering scale is the policy response of 'exiting' (i.e., exit strategies. Abandonment of towns is widespread across many countries, even those which are not experiencing national population decline. Many towns across the industrialised world are simply ceasing to exist in any meaningful way. In Japan, a report released in 1999 stated that 191 villages disappeared in the previous 10 years. Another Japanese government report in 2006 specified that 7878 communities had more than 50 per cent of their population over the age of 65 and 423 of these communities are likely to disappear by 2016. Many of these communities are in terminal decline, having 'reached their limits (Matanle & Rausch, 2011, p. 26). Several isolated Scottish and Irish Isles were abandoned during through the 1900s (Cross & Nutley, 1999; Stockdale, 2004).

Russia has experienced severe decline of regional areas. Over the period 2002-2010, 8500 villages ceased to exist (RT News, 2012). Regions of the United States, such as North Dakota, are dotted with crumbling towns. Buildings are burnt down at times to ease the burden and suicides are common, attributed to financial worries and loneliness. The young and mobile have left the area for opportunities elsewhere. Those people who don't have the resources to change their situation are left behind. Often the elderly people left behind end up living in substandard buildings until they pass away. The built environment is left where it is (Bowden, 2008).

There is great debate in the literature about whether the government should intervene in declining towns. Forth (2000) sees the decline and ultimate demise of many smaller country towns as part of an inevitable historical process and believes it should be accepted as such. Another viewpoint is that it is a waste of resources to prop up declining regions (The Economist, 2013). Matanle & Rausch (2011) count the cost of these declining communities on the national level.

> *"These communities typically lag behind the rest of the country in virtually all indicators, particularly economic; this ultimately exacts a cost nationally because financial resources are redistributed from metropolitan regions to these areas to compensate for local shortfalls"* (p. 26).

The opposite viewpoint is that building thriving regions is important for national competitiveness and all areas can contribute (OECD, 2009c). There is also an ecological argument which sees 'exiting' as good for the environment, in that it reduces pressure on the environment and allows it to recover. However, studies have shown that depopulation doesn't necessarily lead to sustainability (Dreijerink, et al., 2012), and declining areas can instead become ecological disasters (Matanle, 2015).

Research shows that the most vulnerable residents can become trapped in a cycle of lowering house prices and loss of jobs in depopulating communities (Bowden, 2008; Domhardt & Troeger-Weib, 2009; Martinez-Fernandez, et al., 2012b). There are arguments that the government has a social responsibility to provide for the residents in a declining town. This question is being debated in places that are suffering advanced population decline. For instance, in Germany, planning centred on a concept of equivalent living conditions, however, in the face of depopulation a new debate has emerged in German political and academic circles about whether the old concept of equivalent living conditions in depopulating areas should be replaced with a minimum standard of living (Beetz, et al., 2008, p. 296).

There are also a number of suggestions in the literature with regard to actions that governments could undertake to deal with terminal decline. For instance, governments could provide commuting services to allow people to work outside of their community so that the town doesn't need to be shut down, subsidies could be provided to encourage people to move to larger regional centres (The Economist, 2013), or governments could relocate towns, such as those that are flood prone or expensive to service (Kenyon, et al., 2001). Not all residents want to be so-guided, as it has been found that people refuse finance to move to busier locations (Boardman, 2008). People have strong social, emotional and historical connections to their homes (Hospers & Reverda, 2015). Historical preservationists also challenge such measures (Boardman, 2008). Finally, Hospers & Reverda (2015) state that it is impossible to remove a district or city in one single try as there is too much built environment.

There are few examples of governments actively intervening in communities that are suffering terminal decline. In some cases, the community instigated the evacuation by applying to the government and in other cases the government was the initiator (Egan, 2014; Rix, 2012). Two European examples of evacuating communities that were in terminal decline were located in the literature. The first case provides an example of government intervention that did not support the community, while the second protected the social connectedness of the islanders that had been transplanted to the mainland.

In 1930 the last 36 inhabitants of the Scottish Island of St Kilda requested the Scottish Office to evacuate their community to the mainland due to isolation and unviable community size. The islanders were allocated jobs by the Scottish Office in the Forestry Commission, which did not necessarily suit the islanders who came from an island without trees. The families were also separated from one another and housed in unsuitable properties (Rix, 2012).

In contrast, the Irish Blasket Islands were also evacuated in 1953 but in a more socially acceptable manner. The Blasket Island group was inhabited for centuries but peak population was only 175 residents. When the community shrunk to 22

and was cut off from community and emergency assistance, the Irish Government decided to evacuate it. The islanders acknowledged the challenges of staying, and accepted the lack of a viable future on the island. The islanders signed the government's forms and were shifted into a group of newly built homes on the mainland with three acres of arable land each (Egan, 2014).

Although islands are special cases due to their extreme isolation (Cross & Nutley, 1999), they still provide lessons on how communities may be 'exited' in a manner that sustains the social connectedness of the community.

A recent example of government initiated intervention that lead to poor outcomes is in Australia. The isolated Aboriginal town of Oombulgurri in Western Australia was closed in 2011 after it was declared by the Western Australian government to be unviable. The government closed the health service, shop, school, and police station over a period of time before shutting off the electricity and water. Most of the population drifted away during that period, however the last 10 residents were given two days' notice of the town closure and were relocated to Wyndham, with only a few possessions (Solonec, 2014). According to Solonec (2014) many residents are now homeless. Martin (2014) found that although some residents would choose to return, the State Government has tendered for the demolition of around 60 buildings in the community. There is concern in Australia that the Western Australian government is focusing on economic viability and social problems at the expense of historical, traditional and social connections, as the WA government announced in November 2014 that it intends on closing up to 150 remote, and primarily Aboriginal, communities (Davidson, 2014; McInerney, 2015).

As greater numbers of communities shift into terminal decline these debates will become more pertinent and possible exit strategies will need to be assessed. In some countries the legal framework needs to be change to allow for exit strategies. At present in Germany, the 'equivalent living conditions' entitlement, that was written into Germany's constitution in post war West Germany to reduce disparate living conditions between the urban and rural populations, now

presents a problem for withdrawal from areas that are facing terminal decline (Kuhn & Klingholz, 2013).

Any interventions will need to be careful about protecting social connectedness, providing appropriate employment and adequate housing for transferred residents.

5.3.4. The limits of accepting interventions

The key finding is that none of the accepting strategies that were identified were able to stop population decline; rather many supported and improved quality of life. It is easier to achieve a better quality of life than to slow population decline (Dreijerink, et al., 2012; Galjaard, et al., 2012). In Germany, the government redevelopment programme has been operating for 20 years in the former East Germany. Despite vast subsidies and extensive interventions, it has "proven impossible to stabilise areas on the periphery (Kuhn & Klingholz, 2013, p. 2)." Reducing infrastructure to match a smaller population can improve the financial situation of the local council but can also lead to further outmigration, as was found in the city of Youngstown in the US.

With that in mind, the need for exit strategies may become more pertinent in the future as many More Developed Countries fall into decline. Policies ended up affecting liveability in the regions rather than population decline (Galjaard, et al., 2012).

In light of the finding that countering interventions are unlikely to change the demographic future, particularly in peripheral areas, the next question is whether depopulation is a problem to be solved or whether it would be better to consider what opportunities and outcomes could be achieved through accepting population decline?

5.4. Summary

This chapter has outlined a range of policy interventions drawn from a broad literature review, and organised under two types of policy strategy, countering and accepting.

A key finding is that countering strategies were able to slow down or reverse population decline but this was dependent on the location, economic and demographic context of each community. Those communities that did experience growth after a period of population decline are unlikely to have the full set of preconditions for decline. Attention needs to be given to the underlying demographic and economic indicators, as pursuing economic stimulation without giving timely credence to these can lead to severe oversupply of housing and infrastructure. Particularly in peripheral locations, the underlying drivers appear to be too strong for any meaningful reversal. Sobering perhaps, in the context of general belief in a growth paradigm, the best that can be hoped for is to slow down the decline.

The second key finding is that none of the accepting strategies that were identified were able to stop population decline. These strategies served to support quality of life and social connectedness rather than reduce decline. In fact, there was evidence that care needed to be taken by local governments, in that adopting accepting strategies, emphasis should not be unduly put on population decline as this may lead to further outmigration.

The next chapter will discuss the salient themes that were found during a thematic analysis of case studies and selected literature.

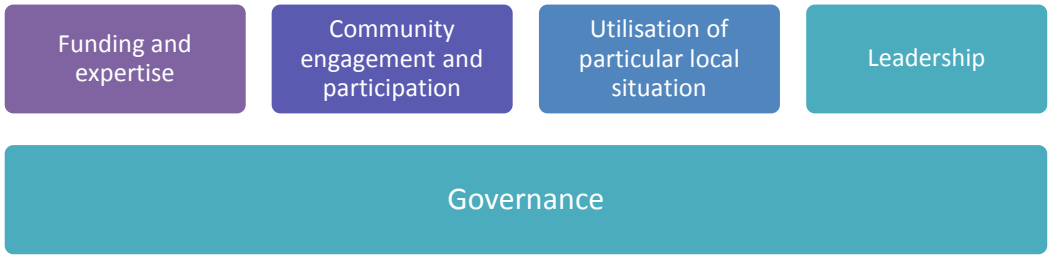
6. Key themes

Over 40 case studies and selected literature from OECD countries were analysed for their key themes. This chapter discusses themes for success that were identified across most interventions before discussing other salient themes that arose during the thematic analysis.

6.1. Key themes for success

Similarities between case studies emerged with themes that were common regardless of circumstances or whether they were countering or accepting strategies. Figure 12 shows these were: governance, funding and expertise, community engagement and participation, utilisation of a particular local situation and leadership. Reforming governance arrangements to enable adaptive practices appears to be of greater importance than any other theme (Beetz, et al., 2008). These themes will be discussed in more detail in the following sections.

Figure 12: Key themes for success



6.1.1. Governance

Governance emerged as the central theme for all interventions, either enabling or inhibiting the ability of strategies to achieve their purpose. Many policy sectors, such as health, welfare, and migration are typically the responsibility of the national government, while the function and implementation of those policies are felt and operationalised at the regional or local level (Ferry & Vironen, 2011). A difficulty is that stakeholders at various levels of responsibility have often vastly different concepts of the demographic challenges and ways to combat them (Ferry & Vironen, 2011). Case studies have shown that the

successful regional policies were supported by national policies (Galjaard, et al., 2012, p. 293). An example of this is, the shrink smart programme for housing rebalance in Leipzig in East Germany, which was supported by a federal programme (Shrink Smart, 2014).

There was a strong theme regarding the need for governments to change their legal structures to enable adaptation, allow innovative solutions for the delivery of services and to provide for the consolidation of activities (Beetz, et al., 2008; Ferry & Vironen, 2011). Laws and policies need to be in place to allow local and regional level solutions. Putting resources into removing barriers and increasing subnational level capacity and capability will improve service delivery and encourage more effective investment (OECD, 2014, p. 4).

Some policies and strategies will only be able to be implemented if the national level policy is reformed to allow the freedom and adaptability to undertake a task at regional or local level (Beetz, et al., 2008, p. 307). For instance, to be able to translate the idea of off-grid towns from Germany to New Zealand, there needs to be acceptance and an appropriate legal framework at central government level to facilitate and support such an endeavour. However, Hall & Stern (2009) contend that the government response should not be translated into a top down response, as when higher level governments take a strong role in regional government action outcomes are not likely to favour areas that are already struggling with depopulation. Instead, governing regional development requires cooperation and integration between different levels of government, stakeholders in many business sectors, and civil society, and requires cross policy sector strategies that acknowledge the role that the new economy has on the flow of people and capital (Dremel, 2013; OECD, 2009a).

Canada's immigration strategy is a good example of this level of cooperation and adaptation of governance frameworks. The Canadian government changed its immigration policies to enable the provinces to develop their own plans to suit their particular regional scenarios (CanadaVisa.com, 2015). Without such

multilevel governance frameworks it is unlikely that future challenges will be able to be met (OECD, 2014).

6.1.2. Funding and expertise

The OECD (2014), states that effective public investment is a key to unlocking growth in any region, but it requires considerable cooperation and coordination across all levels of government (OECD, 2014, p. 4). This position was supported by the findings of this study. Many successful strategies at local level required utilizing regional, national or even supra regional funding programmes, as well as sources of expertise. Numerous redevelopment strategies in Europe receive operational funding from the European Structural Funds (European Commission, 2010). For example, the Welsh Government utilises the European Regional Development programme to support a range of interventions aimed at regeneration (Welsh Government, 2013).

National level programmes also feature strongly. In the United States a main street revitalization programme that is implemented at local level is run and funded by the National Trust for Historic Preservation (National Main Street Center, 2015). In New Zealand a series of cycle trails have been built to encourage eco-tourism. A central fund was created to support the construction of the 'great rides' across the country. It was found that although many trails were built from local initiatives, most trails would not have been built without receiving funding from the New Zealand Cycle Trail Project (Ministry of Business, Innovation and Employment, 2014b). In Canada the local level immigration initiative in the town of Morden in Canada taps into a provincial level programme (CanadaVisa.com, 2015).

The ability to source expertise and develop strong linkages with business, government and community was a salient theme in many case studies (Lambe, 2008). In an Australian study of 14 successful small towns it was found that "all the communities have been successful in cultivating allies, actively seeking information, networking with outside supporters and securing outside funding" (Kenyon, et al., 2001, p. 26). In Germany, a successful energy production

initiative that enabled a small village to provide for its own energy needs was supported and built with expertise from the local university (Dremel, 2013). A bottom up, youth initiative begun in the small New Zealand town of Otorohanga required the community initiators to convince an education operator to provide an education facility in their location for the intervention to achieve its purpose (Ministry of Social Development, 2010). This initiative has now been taken up nationally by the nation's local government Mayors, in a highly successful 'Mayoral taskforce' (Mayors Taskforce For Jobs, 2014).

6.1.3. Community engagement and participation

Overwhelmingly, the literature identified that successful strategies required harnessing the participation of the local business, community and local government. International literature has shown that social capital (the community) is essential for success (Besser, 2013; Dremel, 2013; Johnsen & Perjo, 2014; Kenyon, et al., 2001; Lambe, 2008). According to Lambe (2008) people are the vital ingredient to successful development. An example of this is the New Zealand Cycle Trail Project which required community engagement through volunteering to be successful (Ministry of Business, Innovation and Employment, 2014b). Dremel (2013) also found that civil society was a key element in successful implementation of alternative infrastructure provision in Germany. Local communities were taking on new roles for providing infrastructure provision and increasing the innovation of those initiatives.

Local vision is equally important in the task of regeneration, which encourages engagement and participation (Lambe, 2008). Lambe (2008) found in a study of 45 successful small towns with populations less than 10,000 in the US, that the towns which experienced the most dramatic outcomes "tend to be proactive and future-orientated; they embrace change and assume risk" (p. 4). Kenyon, et al. (2001), states that local communities are more likely to participate if they feel that their contribution is valued, if it will improve the situation and if projects have been successful in the past, elsewhere.

6.1.4. Utilisation of particular local situation

Utilising the local situation to build competitive advantage is essential for success for many communities. However, assets are not always obvious. For instance, a small town in Brevard proved that the community's pensioners could be an economic development asset (Lambe, 2008). Assets can be as wide ranging as; mountains, beaches, lakes, rivers, individual people, businesses, farms, parks, landfills (biomass), public services, museums, schools and architecture; even the size of the town can be an asset (Lambe, 2008).

The small New Zealand town of Waihi is an example of a location that has used their history, industry and location to competitive advantage. Waihi is experiencing a resurgence of economic activity due to several factors. It has utilised a central government initiative for building a cycleway bringing local and international tourists into the area, their position as a cross roads to attractive seaside communities and their heritage as a past and present gold mining town (Morrow, 2011). In Australia, the town of Balingup in Western Australia located in a picturesque valley, experienced significant population decline in the 1960s as the economic base activities of the area became unviable. The local community chose to utilise their location, historic values and natural amenities to support a range of promotion activities that have drawn in new settlers. By 2001 the town had a diversified economic base with a strong creative class of residents (Kenyon, et al., 2001).

6.1.5. Leadership

American and Australian research found that success of regional development was dependent on committed quality business and community leadership that is continually renewed (Kenyon, et al., 2001; Lambe, 2008; McKinsey & Company, 1994). Strong leadership supports the community's attitude to creating change.

> *"Communities that resist change, ignore new opportunities, focus on threats and refuse to take any risks are in serious trouble"* (Kenyon, et al., 2001, p. 22).

Strong mayoral leadership helped drive interventions in Scotland Neck and Etowah in the US (Lambe, 2008). The success of the Otorohanga youth interventions in New Zealand was aided greatly by the drive of the former Mayor of the town (Ministry of Social Development, 2010).

The McKinsey Report of Regional Development in Australia made the statement that:

> *"Given the task of rejuvenating a region and the choice of $50 million, or $2 million and 20 committed local leaders, we would chose the smaller amount of money and the committed leaders"* (McKinsey & Company, 1994, p. 4).

Strong leadership is necessary but requires strong support from the community as well.

6.1.6. Success discussion

Declining areas that have the potential for retention of population and positive growth are those that have significant factors that can support their community's regeneration plans. Studies have shown that those towns that decide to take action before they have passed too many negative demographic indicators are sometimes able to regenerate (Kenyon, et al., 2001). Table 19 provides a synopsis of the range of factors that support community regeneration, gathered from case studies and literature.

Table 19: Range of factors that support community regeneration

Socio-demographic
• Few negative demographic indicators • Few negative socio-economic factors
Location
• Are on major transport routes • Have high amenity values • Have good services • Are close to vibrant urban hubs
Community – social capital
• Attitudes of optimism, empowerment and interdependence • Viewing challenges as opportunities instead of seeing themselves as victims • Have a community that has strong leadership, optimism, problem solving skills, self-reliance and community ownership • Organisational arrangements that foster community participation • Leadership - shared community-wide leadership and skilled individual leaders • Have active local actors in internal and external networks • Have a well-developed self-help capacity to stimulate employment growth
Resources and economy
• Have the ability to exploit social and cultural capital to stimulate employment growth • Have the ability to change functions to match the global marketplace • Have the ability to exploit rural amenities and cultural capital to stimulate employment growth in tourism

Compiled from Besser (2013); Dremel (2013); Garcilazo (2013); Johnsen & Perjo (2014); Kenyon, et al. (2001); Lambe (2008); Martinez-Fernandez (2010); Midmore, et al. (2010); Polese & Shearmur (2006); Spiller (2012); Terluin (2003).

These success themes are describing an almost a perfect scenario which is often not achievable in reality. The communities that do not have these factors are likely to suffer continued depopulation that will be very challenging to combat. Coupled together with the list of pre-conditions for decline from Section 5.2.3, the future does not look so promising for many of the small towns that are already or projected to experience population decline.

6.2. Other salient themes

Several other themes emerged during the research that are not focused primarily on 'success' as such, but are still pertinent to the topic of attempting to alter the depopulation future.

6.2.1. Social policies

Depopulation is essentially felt as 'social impacts' – abandonment of homes, increased crime, withdrawal of services, worsening social inclusion etc. (Beetz, et al., 2008; Ferry & Vironen, 2011; Martinez-Fernandez, et al., 2012a; Matanle & Rausch, 2011). It is no surprise, therefore, that the social aspect of interventions emerged as one of the most significant themes. For instance, social 'place making' was a key aspect of economic development that draws people to locations (Knight Foundation, 2010). Galjaard, et al. (2012) noted that urban renewal policies were more effective when combined with social policies.

The Welsh Government undertook a review of the history of regeneration in the UK and found that most successful programmes appeared to be a combination of people or 'social' approaches and place-based approaches (Welsh Government, 2013). Social focused youth initiatives led to success of small towns in Australia (Kenyon, et al., 2001). Strong attachment to communities was found to retain people; retention of migrants was also more successful when coupled with social integration policies (City of Morden, 2015; Johnsen & Perjo, 2014), thus feeding into the need for social inclusion (Kenyon, et al., 2001).

Strong social capital enables towns to survive external shocks (Besser, 2013) and have been shown to advance successful and fast recovery of communities in the aftermath of disasters (Nakagawa & Shaw, 2004).

Although social policies are successful in that they build quality of life, social inclusion, retain people in communities and in some cases draw people to locations, it is easier to achieve improved quality of life than slow population decline in peripheral locations (Galjaard, et al., 2012). Social policies should be considered in any countering or accepting strategy as appropriate tools to improve local communities. However it needs to be acknowledged that the repopulation or stabilising outcomes that decision makers may seek are unlikely to be able to be achieved in places that have passed too many negative demographic indicators and are shifting into natural decline.

6.2.2. Integration of policies

Another theme was the need for an integrated approach to countering or accepting. Cross sector approaches across several policy sectors showed more potential for success than single policies with single solutions (Johnsen & Perjo, 2014). Lambe (2008) found that a single intervention approach was not successful - small towns require multifaceted comprehensive packages that cover a range of strategies and tools that focus on the specific context of the area and the opportunities that could arise from their core assets (Lambe, 2008). The OECD noted that the most interesting examples of interventions are those in which "horizontal and vertical integration have been combined, and smart, sustainable and inclusive growth dimensions are intertwined" (OECD, 2014, p. 207).

6.2.3. Sustainability

There is a hope that one positive outcome of depopulation is improved sustainability. Unfortunately, preliminary conclusions from assessments of sustainability in depopulating locations suggest that shrinking populations do not necessarily make districts more sustainable (Dreijerink, et al., 2012). The assumption of 'fewer people = less destruction' has not come to fruition. For

instance, research has shown that low density areas still require maintenance of roading systems and water pipes even though fewer people are using them (Kuhn & Klingholz, 2013, p. 3); and vacant green spaces are not necessarily a positive improvement, the space may become a rubbish site, be too small for any other purpose or have soil contamination from a previous use (Dreijerink, et al., 2012; Haase, 2008).

The most positive outcome in a Netherlands study of sustainability was that demolishing poor housing can physically improve the district (Dreijerink, et al., 2012). Another issue for improving sustainability is that costs involved in green infrastructure provision (Dremel, 2013) and green downsizing solutions can be prohibitive (Dreijerink, et al., 2012).

Creating a sustainable local environment in a shrinking area appears to be a more challenging and a different process than the same task in a growing area (Dreijerink, et al., 2012; Matanle, 2015).

6.3. Summary

This chapter summarised key themes that were found from a thematic analysis of over 40 case studies and selected literature from OECD countries. This chapter discusses key themes for success that were identified across most interventions and other salient themes that arose during the research.

To achieve success in building attractive places to live with a strong community spirit there needs to be access to funding and expertise, strong social capital which enables communities to capitalise on utilise assets in the location, combined with strong leadership and enabling governance structures. Social strategies are also emerging as key elements in the success of interventions.

Even when a community succeeds in returning to population growth for a period, they have not arrived at their destination as fluctuations of population can occur and the underlying drivers may still encourage depopulation. An Australian study of 14 small communities that experienced regeneration noted that none of the

communities felt that they could 'rest on their laurels'. The journey needs to be a continuous one.

Not all communities have the elements necessary to succeed in the New Economy, especially those that have already passed a number of negative demographic indicators. The communities that do not have these success factors are likely to suffer continued depopulation that will be very challenging to combat. The future does not look so promising for many of the small towns that are already declining or projected to experience population decline.

There is evidence that economies no longer operate in the same way as the past. Globalisation and all its associated attributes have changed the behaviour of human and financial capital flows. Research suggests that human and creative capital drive economic growth rather than being a result of such growth. Strategies that were used in the past to regenerate communities may no longer be successful. What is emerging is the rise of an expectation of quality of life and this appears to be driving rather than following economic development. People now expect to enjoy the place that they live in, not live there just for employment.

Addressing depopulation with policy interventions is very challenging, particularly in peripheral locations as the structural demographic and economic trends encourage outmigration. The research showed that in the context of zero or low growth national population growth such communities are unlikely to gain population. Outmigration is even more significant in peripheral communities in nationally declining countries.

Due to the fact that demographic change affects most aspects of society and how it functions, comprehensive integrated initiatives are likely to have greater success than single initiatives which target just one policy sector. The most appropriate response to declining populations appears to be the adoption of a mix of countering and accepting interventions across the policy sectors.

7. Case study - New Zealand and the Waikato Region

The purpose of this thesis was to examine the range of strategic interventions that may be applied to New Zealand so that New Zealand is well placed to respond to depopulation that is projected to occur. The findings from the previous chapters were applied to a case study of New Zealand, with a particular focus on the Waikato Region of New Zealand.

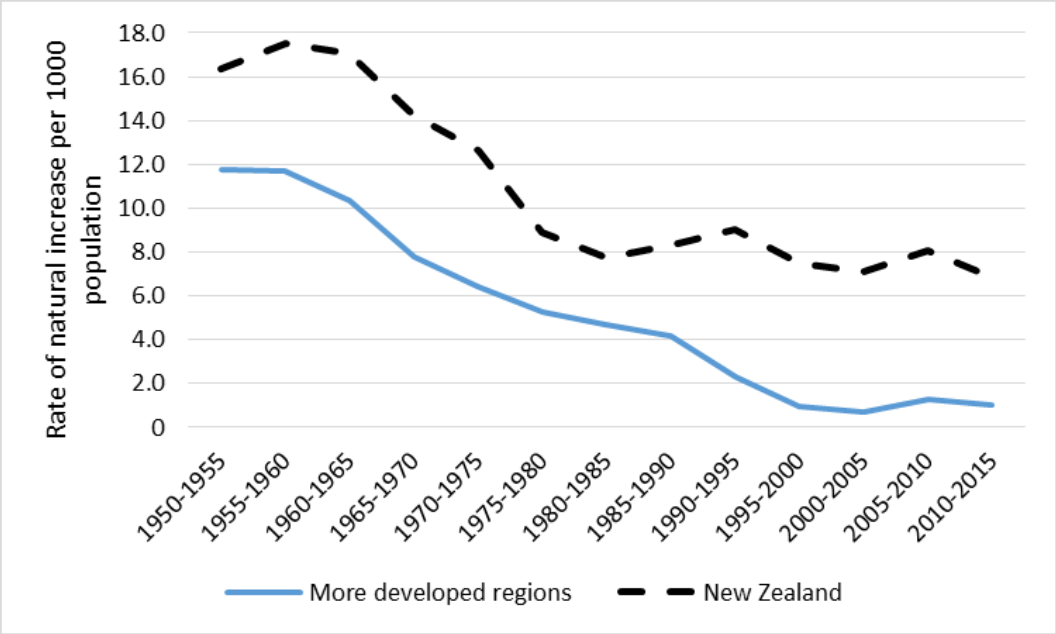
This chapter begins by describing the demographic context of New Zealand and the spatial distribution of population in the Waikato. This demographic context builds the case for the need to find strategic interventions to demographic change for subnational areas of New Zealand. The following section discusses the drivers of population change at Territorial Authority (TA) level and how these may impact on possible intervention choices. Due to the time constraints these drivers are limited to the demographic components of change (natural increase/decrease and net migration) and the effect of distance from urban agglomerations in the Waikato Region. Finally, the chapter concludes by briefly exploring the challenges of transferring interventions from other countries to the New Zealand governance framework. These governance considerations affect what can be transferred to the local level to effect change for depopulating areas.

Despite currently being a region of high population growth, the Waikato Region of New Zealand was chosen as a case study, as several of its 10 Territorial Authorities (TAs) are already experiencing a number of negative demographic indicators and are well on the way to natural decline (Cameron, et al., 2014). In that sense, the Waikato Region is typical of many regions of New Zealand that are growing whilst simultaneously heading for decline, and is a good example of the vast spatial variation that can exist within a region.

7.1. Building a case for intervention – New Zealand

New Zealand has a small population in proportion to its land mass. The estimated resident population of New Zealand was 4,578,900 at the 31 March 2015 and is continuing to grow (Statistics NZ 2015). New Zealand's Rate of Natural Increase (RNI, births minus deaths) is still high in comparison to other OECD countries (Figure 13), supported by one of the highest fertility rates out of the More Developed Regions (Jackson, 2011).

Figure 13: Rate of Natural Increase for New Zealand and other more developed regions 1955-2015



Source: World Population Prospects 2015 Revision: UN Population Division

As noted in section 4.5.3, although New Zealand's total fertility rate is higher than most other developed countries it has recently dropped to 1.92 births per woman.

New Zealand's population is also impacted by migration flows (Labour & Immigration Research Centre, 2012). New Zealand has often been a migrant-receiving nation with relatively high net international migration gains (United Nations, 2013). The importance of migration to New Zealand's history and its

current population is evident in the fact that by 2015, more than 25 per cent of the population was foreign born (Statistics New Zealand, 2015b). Bedford, et al. (2001) states that migration is likely to have a greater impact on New Zealand's future than many other countries due to the size of the receiving population and the mobility of the people. Since the 1960s a cyclical pattern of permanent long term (PLT) migration has emerged with net losses followed by a period of net gains (Labour & Immigration Research Centre, 2012). This fluctuation is clearly shown by the fact that for the year to June 2011, New Zealand had the weakest net migration (+3,900 PLT) for a decade, which has since swung back to extremely strong net migration, with a seasonally adjusted net gain of 53,800 PLT for the January 2015 year (Statistics New Zealand, 2015a).

Although the national demographic picture does not support a need to explore interventions to respond to depopulation, the story is very different at subnational level. The national demographic context in New Zealand can mask the problems of population maldistribution and/or depopulation at the subnational level (Jackson, 2014). Over 75 per cent of the population is located in the North Island, primarily in urban centres (Statistics New Zealand, 2015b). The Auckland region accounts for a two-thirds of the population of New Zealand. Three quarters of the population growth that New Zealand experienced between 2006 and 2013 was concentrated in 11 of New Zealand's 12 cities, with the remainder spread across 30 Territorial Authorities (TA) (Jackson, 2013a). Of these, only five TAs each gained more than 2 per cent of growth. Twenty of New Zealand's 67 TAs failed to grow or declined (Cameron, et al., 2014; Jackson, 2013a).

As well, New Zealand is facing structural ageing of the population with a shift to more elderly than children and more deaths than births. This trend is expected to end growth and usher in permanent population decline (Jackson, 2013b). The structural ageing of New Zealand is likely to change every aspect of society - living arrangements, living requirements, and transportation, to name a few (Clark, 2004). Ageing and its implications are felt more strongly at the sub-

national level, with the internal migration of the youth population from rural areas to urban areas. This net loss of young people from rural areas results in accelerating structural ageing of regional areas (Jackson, 2011).

These future problems are also likely to impact on New Zealand's trading base. Although the majority of the population of New Zealand is located in urban areas, the economy is primarily land or environmental resource based with export earnings strongly linked to primary production from the regions. In 2014 New Zealand was still earning 47 per cent of its export earnings from primary production (a drop from 88 per cent in 1964), while tourism, which also makes use of regional areas, makes up a further 12 per cent (Nana, 2014).

There is a strong symbiotic relationship between the cities and the rural areas which add value to industry production chains by providing the desk based specialised services that enable New Zealand to sell to the world (Spiller, 2012, p. 4). On the other hand these services would not exist without the primary production to support them. Of note, New Zealand's heartland areas provide over 26 per cent of the nation's tradable sector GDP (Nana, 2014). This is only possible with economically healthy regional areas. With so much of New Zealand's tradable sector located in the heartlands and often peripheral areas that are experiencing a shift towards depopulation, it is important to have solutions to respond to the challenges of declining areas.

7.1.1. Waikato Region – demographic past and present

The Waikato Region is indicative of many regions in New Zealand that are experiencing both growth and decline within their TA's. This section presents the Waikato Region as an example of the spatial variation of subnational population that is common amongst regions of New Zealand. This section makes a case for adopting strategies to manage depopulation in peripheral towns within regions of New Zealand that are experiencing or are likely to soon experience subnational depopulation.

The Waikato Region is the fourth largest of New Zealand's 16 regions, covering 25,000km^2 and has 1,138km of coastline. The region includes the extent of the

Waikato River catchment and reaches from the West Coast of New Zealand to the East Coast. The landscape is varied with flat farming land, rolling hill country, mountains, beaches, lakes and rivers (Waikato Regional Council, 2015). The Waikato Region is made up of 10 Territorial Authorities (TAs), as well as part of the Rotorua TA (Internal Affairs, 2011). The Waikato Region is the closest major region to the international gateway city of Auckland and thus experiences spillover effects to the north of the Region (Waikato Regional Council, 2015).

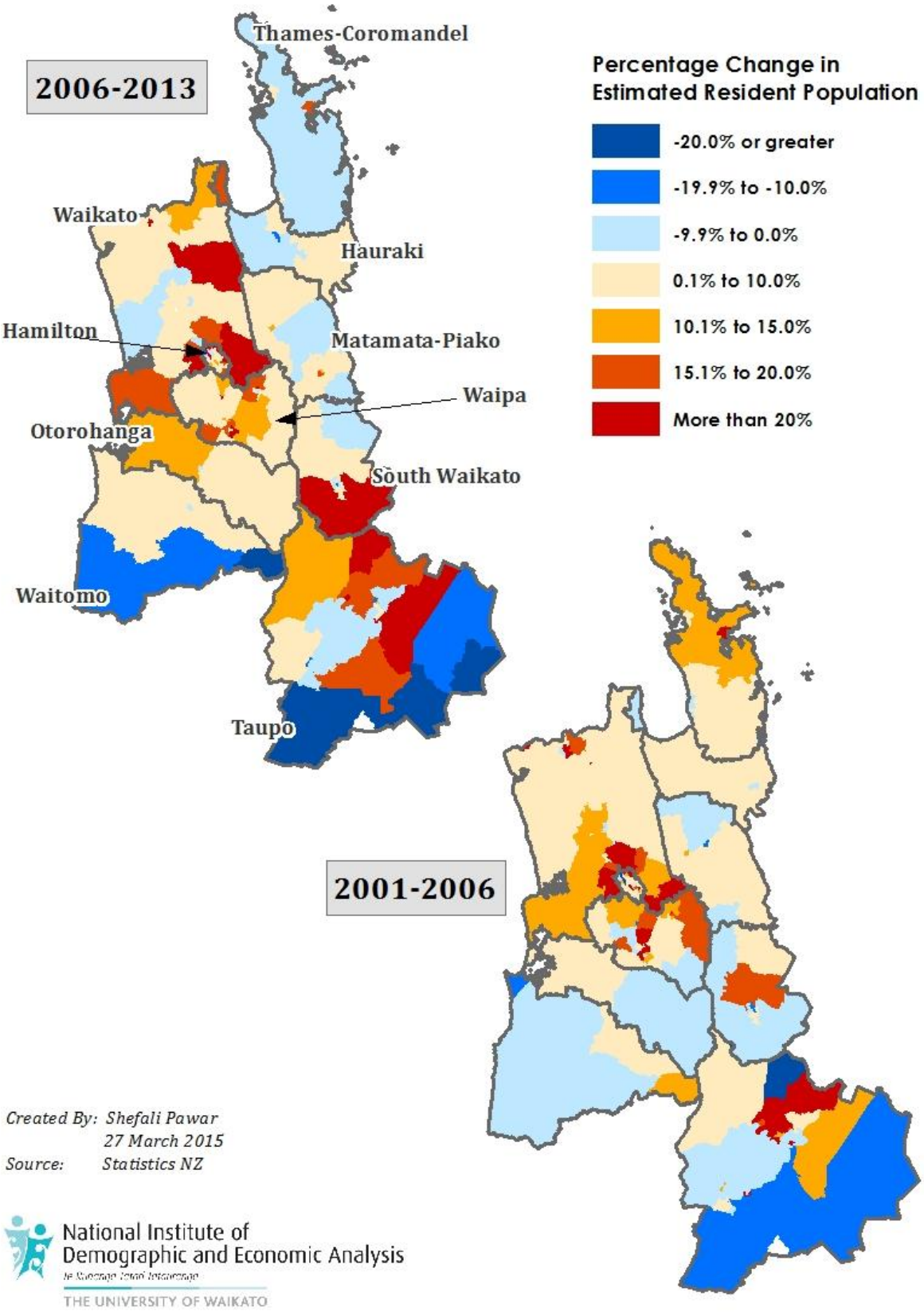
The Waikato Region's population was estimated as 403,638 at the 2013 Census, with the main city of Hamilton containing over 36 per cent of this (147,290). The population of the Waikato Region increased by 6 per cent between 2006 – 2013 (+22,815) (Statistics New Zealand, 2014).

The Waikato region is a medium-size economy and on the whole is thriving and growing in both population and economy. Around 9.4 per cent of New Zealand's population lives in the region, and the region provides 9.1 per cent of national employment (Ministry of Business, Innovation and Employment, 2014a). The region's economy increased by 23.8 per cent between 2009 and 2014, driven primarily by agriculture and manufacturing (Statistics New Zealand, 2015d).

At a sub-regional level, the picture is not so robust. Growth is disparate and centred around the main urban hub of the region's major city, Hamilton (Jackson, 2013b). The Waikato Region contains both the second youngest (Hamilton City) and the second-oldest Territorial Authorities (Thames-Coromandel District) in the country in terms of structural ageing (Cameron, et al., 2014). Hamilton City has dominated growth, with the city's population increasing by 55.4 per cent over the period 1986-2012, contributing to 58.0 per cent of the region's overall growth over the same period. The Waikato District, which borders the Auckland region, experienced the strongest growth (77.4 per cent), contributing to 31.0 per cent of the region's overall growth. South Waikato and Waitomo experienced decline of 19.7 and 9.3 per cent respectively, over the same period (Cameron, et al., 2014; Jackson, 2013b).

Figure 14 shows the disparate pattern of growth and decline of Waikato TAs from 2001-2013. This figure clearly indicates deepening decline in some areas and stronger growth in others. Some areas, such as the Thames-Coromandel District, grew in the 2001-2006 period before losing population between 2006 and 2013. Other areas that experienced weak decline over the period 2001-2006 began to grow again during 2006-2013 (Cameron, et al., 2014). Figure 14 also shows that even within TAs there can be great difference between which census areas units (CAUs) are growing or declining. This occurrence supports Hospers' & Reverda's (2015) assertion that population decline does not occur in a uniform manner at the local level and is therefore challenging for local governments to address.

Figure 14: Percentage change in the Estimated Resident Population of Census Area Units (CAU), 2001-2006 and 2006-2013: Waikato Region (Source: Shefali Pawar 2015)



7.1.2. Waikato Region – future state

The population of Waikato Region is projected to grow to a peak of 505,405 by 2047 before beginning to decline (Cameron, et al., 2014). Table 20 provides a brief profile of each TA in the Waikato Region (with the exception of Rotorua – which is not fully contained with the Region). The profile contains key demographic information: the population at the 2013 Census, the percentage of the population over the age of 65 for the end of 2013-2033 and 2033-2063, the projected onset of natural decline and projections of population change over the periods 2013-2033 and 2033-2063, along with the project first year of the shift to population decline (Cameron, et al., 2014). Population projections indicate that many sub-regions will continue to shrink and age, while others that are currently growing will shift into decline (Cameron, et al., 2014).

Table 20 shows that Hamilton and Waikato TAs are projected to grow strongly for the first period and then slow during the second period. Five other TAs (Matamata-Piako, Waipa, Taupo, Hauraki) that are projected to experience weaker growth in the first period, fall into decline in the second period. Otorohanga is projected to experience negligible decline during the first period and then deeper decline in the second. South Waikato and Waitomo are the only two TAs that are already in decline (although they may have CAUs that are experiencing growth) and are projected to experience decline over both periods, with South Waikato having the deepest decline (-34.9 per cent between 2033-2063). The next group of TAs to fall into decline are projected to do so between 14 years (Otorohanga) and 20 years (Taupo). That is not to say, that these towns will not experience slight increases in population but based on the medium projections the overall trend is towards population decline.

Table 20 also shows the combining of the drivers of outmigration and natural decline, the onset of the ending of growth. Although Taupo is not the first TA to start natural decline, it is the first to begin the next phase – the end of growth.

The data in Table 20 will discussed further in Section 7.2.2 under components of change for each TA.

Table 20: Waikato Territorial Authority profiles – key demographic indicators

Local Authority	Pop 2013*	65+ years (%) 2033**	65+ years (%) 2063**	Natural decline begins**	Projected population change 2013-2033**	Projected population change 2034-2063**	Year of shift to depopulation by 2063**	Year of Natural Decline and Outmigration combine – end of growth
Hamilton City	147,290	21.4	33.0	2059	29.5%	10.9%	-	-
Waikato District	64,910	22.2	29.5	-	27.5%	10.2%	-	-
Matamata-Piako	32,210	26.5	30.8	-	6.8%	-6.0%	2038	-
Waipa	46,400	33.8	42.7	2037	19.4%	-8.3%	2040	-
Taupo	34,150	29.8	41.3	2036	8.4%	-15.4%	2035	2035
Hauraki	18,730	35.6	56.0	2029	4.2%	-20.6%	2033	2039
Otorohanga	9,340	18.2	34.1	2062	-1.0%	-25.4%	2029	2062
Thames-Coromandel	27,030	42.0	64.8	2014	5.3%	-27.7%	2031	2051
Waitomo	9,300	17.2	31.3	2055	-9.7%	-28.9%	In decline	2054
South Waikato	22,530	25.2	40.3	2042	-15.0%	-34.9%	In decline	2041

*Statistics New Zealand 2015b. Census data
**FutureProof 2014 projections (Cameron, et al., 2014)
Data from a disaggregate of the components of population change over the period 2014-2063 for the medium population projection

7.2. Constraints on changing the demographic path

When considering interventions for Territorial Authorities, it is important to consider the drivers of change that are causing or are likely to cause depopulation, and whether these can be addressed and countered or whether it is better to put money and resources into dealing with the consequences of depopulation.

There are many influences on sub-regional population distribution and the success of interventions but this discussion is limited to location and town function and the demographic components of change. Recognising the effect that changing spatial trends, such as the mobility of workers and urbanisation, have on local populations is important to analyse the likely success of interventions. As well, understanding the components of the population change in subnational areas is crucial for analysing what interventions may be appropriate for each Territorial Authority. Adopting a strategy from an area that has a vastly different driver for change may reduce the success of the intervention.

Section 7.2.1 will discuss the effect of distance, labour market areas and town function with regards to population projections.

7.2.1. Location - spatial distribution, distance and town function

There are several different types of depopulation noted in Section 3.2. The old type of depopulation that is being experienced by some towns is often a function of spatial distribution, distance and town function. This section explores this connection within the Waikato context.

Changing spatial trends, such as the mobility of workers and urbanisation, impact on subnational local populations and may challenge the success of interventions. Labour Market Areas (LMAs) can be a good indicator of the changing nature of this interconnection between urban centres and peripheral areas by means of analysing the mobility of workers. Labour Market Areas can be identified by travel to work patterns, delineating particular catchment areas (Newell & Perry, 2001). Analysis of Labour Market Areas in the Waikato has shown that they have been increasing in size and absorbing former self-contained areas. In 1991 the

Waikato Region had 31 LMAs which were distinct from each other and only a few workers commuted from outlier towns to the city of Hamilton. The number of LMAs had dropped to 14 by 2006. The Greater Hamilton LMA continues to gain dominance (Cochrane, 2015). This change in LMAs is a reflection of changing commuting patterns with greater numbers of people undertaking urban work but living in rural locations (Environment Waikato, 2009). By 2008, over 85 per cent of New Zealanders lived in urban or rural areas with 'moderate to high urban influence', which is expected to increase further over time (Donovan, et al., 2013).

Table 21 and the accompanying Venn diagram (Figure 15) explores the correlation between distance to the major towns of each TA in the Waikato Region, demographic projections for each TA, and describes the commuting patterns from the 2013 Census. Table 21 also lists the amenity values and commercial values that may also influence the pattern of population, accompanied by the driving distance to each town from the centre of Auckland and/or the centre of Hamilton. Only towns that are north of Hamilton have the distance from Auckland listed.

There is no consistent definition of periphery. The definition of periphery that was adopted in a Canadian study was a radius of one hour's travel time from a major urban centre (population of 500,000 or more) with peripheral areas as all those outside of this limit (Polese & Shearmur, 2006). Although this definition may be successful for more populous countries, in low population countries, such as New Zealand this definition is not useful as the only city that has a population of greater than 500,000 in New Zealand is Auckland and consequently almost the entire country would be considered peripheral. This definition has been adapted to the New Zealand context and therefore periphery is defined as those locations that fall outside a radius of one hour's drive time of an urban centre with a population greater than 40,000.

Each town was identified by a circle on the Figure 15 with an outer ring and an inner ring. The outer ring represents the projection population change of the TA from 2013-2033, whereas the inner circle represents the projection population

change 2033-2063. The town rings do not show the projected population of those specific towns, rather the TA projections are applied as a proxy. The rings are colour coded to match the data from Table 21 with dark orange indicating strong growth through to dark blue, strong decline. The Greater Hamilton and Greater Auckland Labour Markets are also shown on the diagram with an indicative dotted green or orange circle, respectively.

Table 21: Waikato Territorial Authority profiles – driving distance and key features

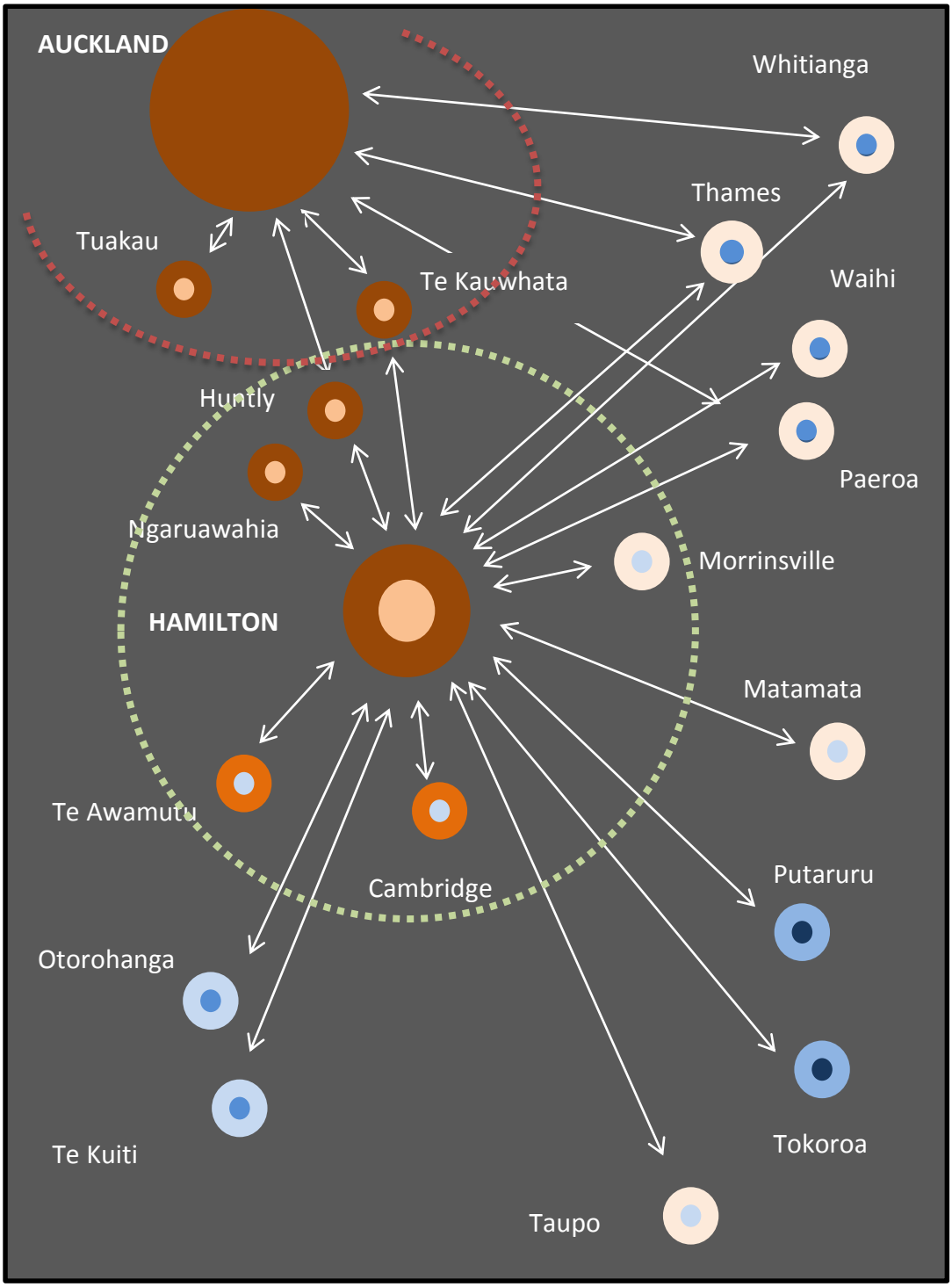
Territorial Authority	Projected population change 2013-2033*	Projected population change 2033-2063*	Driving Distance to urban centres over a population of 100,000**			Territory function***
			Main TA towns	To Ham (mins)	To Auck (mins)	
Hamilton City	29.5%	10.9%	N/A	-	-	Urban centre/agglomeration economies – research/university - lakes, river, international gardens
Waikato District	27.5%	10.2%	Huntly Ngaruawahia Tuakau Te Kauwhata	35 25 67 48	69 79 48 57	All commuter towns/rural service/primary production
Matamata-Piako	6.8%	-6.0%	Matamata Morrinsville	56 29	- -	Rural service/primary production + tourism (Matamata) or commuter (Morrinsville)
Waipa	19.4%	-8.3%	Cambridge Te Awamutu	26 31	- -	Commuter/Rural service/Primary production, elite sporting hub (Cambridge)
Taupo	8.4%	-15.4%	Taupo	120	-	Strong tourism/rural service/primary production
Hauraki	4.2%	-20.6%	Paeroa Waihi	57 75	91 109	Rural service/primary production, retirement destination/tourism
Otorohanga	-1.0%	-25.4%	Otorohanga	56	-	Rural service/primary production + tourism
Thames-Coromandel	5.3%	-27.7%	Thames Whitianga	80 157	87 156	Retirement destination/tourism + rural service
Waitomo	-9.7%	-28.9%	Te Kuiti	72	-	Rural service/primary production + tourism
South Waikato	-15.0%	-34.9%	Putaruru Tokoroa	58 75	- -	Rural service/industry and primary production

*FutureProof 2014 projections – Cameron, et al. 2014

**Driving times were calculated using google maps from the Hamilton i-site visitor information centre to the i-site of each town.

***Territory function – each Territorial Authority government website

Figure 15: Spatial model of projected population change correlated with driving distance from urban hubs (Author: Rachael McMillan)



Key:
Outer ring for each town – projection population change 2013-2033 (see Table 21)
Inner circle for each town – projection population change 2033-2063 (see Table 21)
Population change for towns are based on TA projections not individual towns
Green ring = indicative Greater Hamilton Labour Market Area
Red ring = indicative Greater Auckland Labour Market Area

Figure 15 and Table 21 show that there are four different types of TA's, based on their main function. There is overlap in some cases as some TAs have more than one main type of function.

These types are based on commuter flows, distance and town function:

1. The commuter corridor between Auckland and Hamilton – Waikato District (Tuakau, Te Kauwhata, Huntly and Ngaruawahia).
2. Hamilton commuter TA's – Waikato (Ngaruawahia), Matamata-Piako (Morrinsville), and Waipa (Cambridge, Te Awamutu).
3. The high amenity retirement destination and seasonal tourism locations – Thames-Coromandel (Thames, Whitianga), and Taupo (Taupo).
4. Predominantly rural service or primary production areas supported by some minor tourism, beyond the Hamilton or Auckland commuter zones – Hauraki (Paeroa), South Waikato (Putaruru, Tokoroa), Otorohanga (Otorohanga), and Waitomo (Te Kuiti).

There is a strong relationship between population growth and urban size; the bigger a city is, the more it is likely to grow (Donovan, et al., 2013). Studies in New Zealand have shown that districts on the edge of larger cities have experienced the highest growth rates (Statistics New Zealand, n.d.). This fact holds true in the Waikato as growth is concentrated in areas in close proximity to the urban centre of Hamilton and northern parts of the Waikato within commuting distance of Auckland, as shown in Figure 15 (Cameron, et al., 2014).

Towns sandwiched between Hamilton and Auckland are projected to grow through the entire projection period but that growth will slow post 2033. These towns are in the transport corridor and will be experiencing the Long Distance Commuting effect from Auckland housing pressures. The Waikato District contains all of the commuter corridor towns south of Auckland, and this will help support the population in this district. The Greater Auckland Labour Market also includes the northern Waikato towns of Tuakau and Te Kauwhata.

Population growth is projected to increase within the Greater Hamilton Labour Market (GHLMA), represented by the green circle in Figure 15. Towns within this

area to the east and south of Hamilton are projected to grow before shifting into decline post 2033.

Matamata-Piako is projected to grow modestly before shifting to slow decline after 2033. Matamata-Piako has two towns, Morrinsville and Matamata. Recent research shows that the GHLMA now includes Morrinsville as a commuter town for Hamilton (Cochrane, 2015).

Other types of TA are Hauraki and Thames-Coromandel. Table 21 shows that these TA's have the oldest age structures in the region. Thames-Coromandel has been experiencing fluctuations between natural increase and natural decline from year to year. This period of fluctuation corresponds to the incipient decline stage of the demographic transition. Hauraki is project to shift to natural decline by 2029. The towns in these TA's are projected to grow initially due to being retirement and lifestyle destinations before declining after 2033 as the baby boomers shift into the old-old category (Cameron, et al., 2014).

Towns in TA's to the South of the Greater Hamilton Labour Market (Waitomo, South Waikato and Otorohanga) are projected to continue to decline over the whole of the projection period. These towns are all in the rural hinterland and are reliant on primary production with some tourism. The main towns of these three TA's are between 56-75 minutes driving time from Hamilton and thus are close to or within the periphery based on the definition adopted from the Canadian study mentioned earlier. With the exception of the tourist town of Taupo, research into the major infrastructure shocks on small towns in New Zealand supports the finding that shocks on population had a greater impact on towns that did not have the benefits of near city locations (Grimes & Young, 2009).

The next section describes the demographic components of change which give a further indication of the challenges of attempting to counter population decline in the face of underlying demographic drivers.

7.2.2. Components of change, the ending of growth and responses

Section 7.2.1 showed the spatial distribution of the towns in the Waikato Region, projection population change, along with their commuter patterns, and main town function. This section presents profiles of the components of population change, and describes the ending of growth and possible responses for eight Territorial Authorities of the Waikato Region that were identified in Section 7.2.1 as either already in decline or projected to experience decline within the projection period 2013-2063. Neither Hamilton City nor the Waikato District are projected to begin depopulation before 2063 and have been excluded from the discussion.

As outlined in Chapter 3, population change is made up of natural increase (more births than deaths) or natural decrease (more deaths than births) and net migration. In this section each TA will be discussed briefly in terms of their component scenarios.

The following components of change are taken from the Future Proof (2014) report written for the Waikato Regional Council and the joint Waikato Territorial Authorities (Cameron, et al., 2014). These baseline projections, project a 'medium case' scenario drawing on past fertility, mortality and migration trends (1991-2013) with data sourced Statistics New Zealand from the 1991, 1996, 2001, 2006 and 2013 Censuses, supported by national and subnational period life tables, national and subnational vital statistics data, the SNZ subnational population projections series, and the reported assumptions underlying those projections (Cameron, et al., 2014, pp. 18-19).

The two driving forces for the projected population change for the two projection periods for these TAs is net migration loss and natural decline (more deaths than births). Table 21 above shows that natural decrease does not always occur prior to population decline, in several cases population decline is projected to commence before natural decline. This variability and how it relates to interventions is explored in more depth below.

The eight Waikato Region TA's that have been profiled in this section, fall into two broad categories:

- TAs that shift into natural decline first, followed by population decline and then net migration loss – Thames-Coromandel, Hauraki, Waipa, Taupo.

- TAs that begin the projection period in population decline, with young age structures and continue to lose population primarily through net migration loss. Natural decline takes effect after net migration loss – South Waikato, Waitomo and Otorohanga. Matamata-Piako is included in this category as it too suffers net migration loss, however it does not drop into natural decline during the projection period.

Councils need to understand the strength of the local drivers and choose an appropriate response. Each scenario requires a different response and a different mix of interventions to deal with the projected population decline depending on the strength of those drivers. Some towns may have too many challenges to attempt to use countering interventions and would be better to accept the anticipated population decline, and manage the consequences. The eight TAs that are projected to decline from some point during the period 2014-2063 will now be analysed in terms of the type of policy response that would be the most appropriate based on their demographic and spatial context.

Category 1 – Thames-Coromandel, Hauraki, Waipa and Taupo

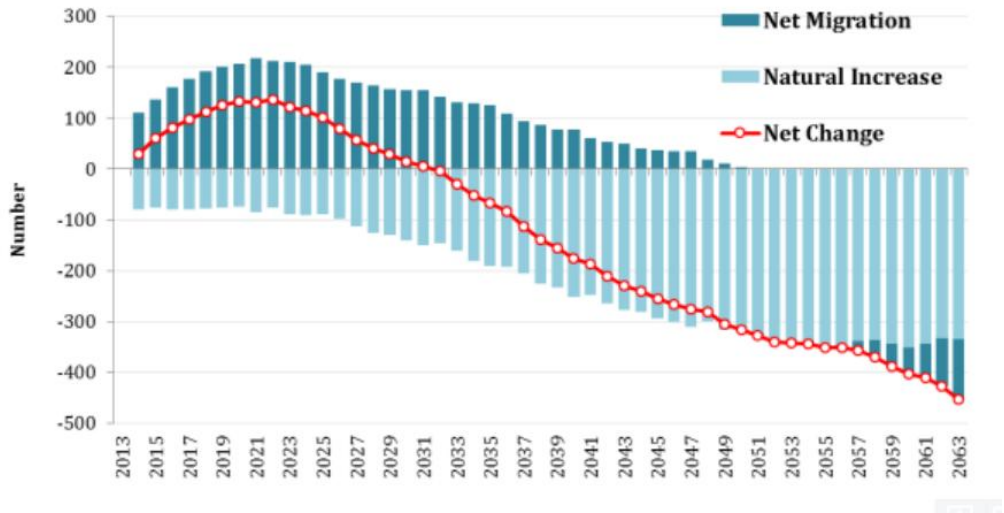
Thames-Coromandel, Hauraki, Waipa and Taupo are projected to begin depopulation at some point in the projection period, driven primarily by significant ageing of the population. These TAs experience net migration gains at retiree ages that further accelerate structural ageing of their populations. This structural ageing reaches a point where natural decrease deepens and migration gains can no longer maintain a state of growth. As the baby boomer generation moves through the population and reduces, there is a reduction in the migration inflows. At this point these TAs are on their way to experiencing the effects of the new form of population decline, where natural decline is reinforced with net migration loss (Jackson, 2013b). All four TAs show variations on the theme, due

to their different locations and different functions, the timing of the shift into natural decline, followed by population decline and net migration loss. Once the drivers combine in the new form of population decline it is likely to become self-reinforcing with fewer childbearing adults and greater numbers of older people beyond their childbearing years (Jackson, 2013b, p. 12).

Thames Coromandel

Thames-Coromandel has the oldest age structure and is the only TA that started the projection period already in natural decline (Figure 16). Although this TA is in a peripheral location, its natural attributes and amenities values encourage positive net migration and keep Thames-Coromandel in growth until 2032, although this in-migration is primarily in the older age groups drawn by the appeal of the location as a retirement destination. This positive net migration offsets the natural decrease until 2031 but is not able to continue this trend as natural decrease deepens. Positive net migration continues for an extended period beyond the shift to population decline, in fact another 20 years, however since all of the migration is in the older age groups this will not support a return to natural increase.

Figure 16: Projected components of population change for Thames Coromandel District, medium projection 2014-2063



Source: (Cameron, et al., 2014, p. 33)

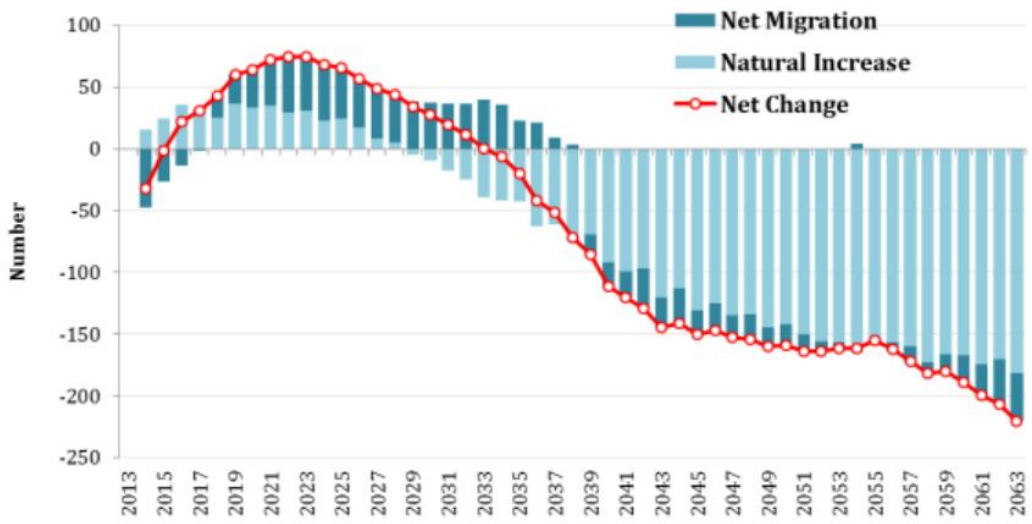
The profile for Thames-Coromandel shows how places that become retirement destinations successfully mitigate depopulation in the short term with the influx of older people, but over the long term cannot sustain growth and natural

decrease ultimately becomes dominant once the baby boomer generation passes through. At this point countering interventions are unlikely to have any success as the age structure drivers are too strong and the volume of migration that would be required to offset natural decline would be difficult to achieve. Furthermore, Thames-Coromandel has difficult topography with high amenity values that support tourism but is more challenging to achieve a diversified economic base that would support a younger population profile. Thames-Coromandel is not projected to experience the ending of growth until 2051. At this point adopting an accepting policy response that manages depopulation would be best.

Hauraki

The Hauraki District began the projection period in a state of population decline due to several years of negative net migration (Figure 17). This state is projected to shift into mild positive growth fuelled by an anticipated migration turnaround and natural increase. The natural increase is relatively short lived, with natural decrease projected to begin around 2029. With the district having the second oldest age structure in the Waikato region it drops into population decline by 2032. This decline rapidly advances due to the advanced ageing and then net migration also follows suit by 2039.

Figure 17: Projected components of population change for Hauraki District, medium projection 2014-2063



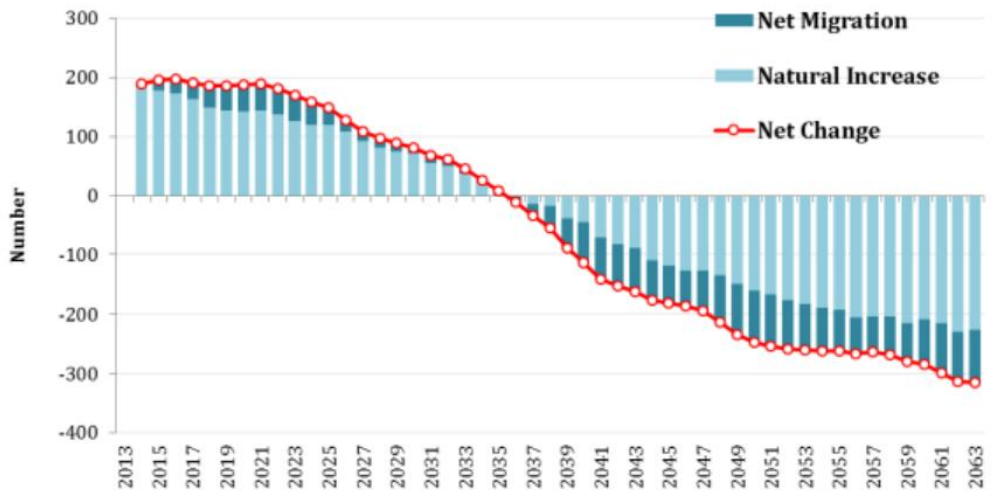
Source: (Cameron, et al., 2014, p. 40)

Hauraki is located outside of the Hamilton LMA and experiences the effects of peripherization. However, Hauraki has a diversified economic base, with primary production, mining, light industry, and tourism. Much of Hauraki's history has been tied to the economic cycles of mining (Hauraki District Council, n.d.). Although Hauraki began the projection period in decline due to outmigration at higher levels than natural increase, both natural increase and in-migration are projected to keep the population in growth for the next 20 years. Hauraki has the second oldest age structure and although the TA experiences some retirement destination migration the volumes are much lower than for Thames-Coromandel. Coupled with a low level of natural increase, the ageing population drives the shift to decline which deepens quickly after crossing the threshold into depopulation. Hauraki is projected to experience the ending of growth by 2039. Accepting interventions to manage depopulation would be the most appropriate at this point to help to improve the quality of life for those living in Hauraki.

Taupo

Taupo District is not projected to experience population decline until 2035 (Figure 18). There is little projected migration to the district. In the first half of the projection period natural increase is the predominant driver that is keeping the district's population in the positive. However, Taupo has the fourth-oldest age structure in the Waikato Region and contributes to rapid ageing of the population, tipping it into natural decrease. The population is projected to shift into decline on the same year as the onset of natural decrease.

Figure 18: Projected components of population change for Taupo District, medium projection 2014-2063



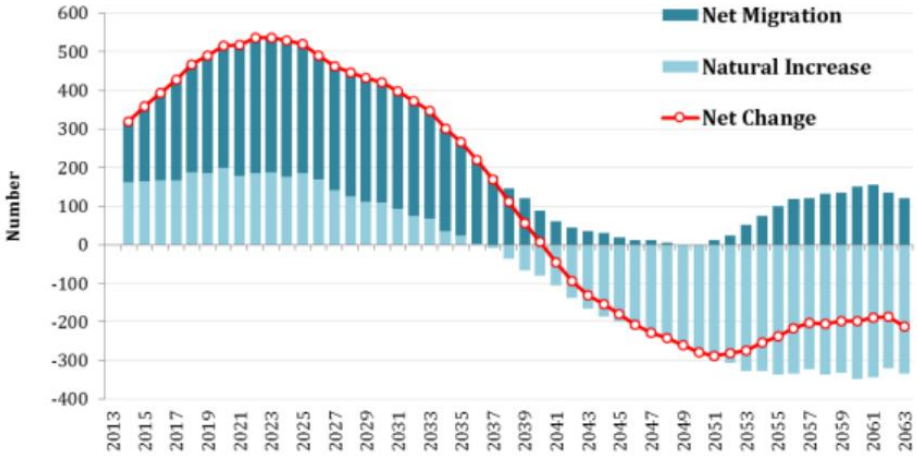
Source: (Cameron, et al., 2014, p. 96)

Taupo also experiences the effects of peripherization and is the only TA to experience the shift to the ending of growth at the same time as the onset of population decline, negative net migration and natural decline. This situation occurs due to the low numbers of in-migration and although the first period is categorised by natural increase, there is a rapid reversal due to structural ageing of the population, with no support from in-migration to offset the transition to decline. Taupo is the first TA projected to begin the ending of growth by 2036. In Taupo's case a mix of countering and accepting interventions may help shift the projected change to the ending of growth further out. In particular, Taupo needs to encourage in-migration of families if it wants to change its future, though the effect of peripherization may make this difficult.

Waipa

The Waipa District is projected to experience strong positive net migration which begins to decline in 2024, bottoming out by 2049 and then increasing mildly again towards the end of the projection period (Figure 19). Natural decrease is projected to occur by 2037 and the two drivers combine to cause population decline from 2040. The positive net migration later on is not sufficient to offset the decline caused by natural decrease.

Figure 19: Projected components of population change for Waipa District, medium projection 2014-2063



Source: (Cameron, et al., 2014, p. 68)

Waipa is adjacent to Hamilton City within the Hamilton Labour Market Area and consequently does not suffer the peripherization effects of other TAs. Population decline is not projected to be as deep in this TA. Although the structural ageing of the population will play out, countering interventions are likely to be able to be applied to this scenario with some effect, as Waipa is not combating both spatial drivers and demographic drivers. This TA is not projected to experience the ending of growth during the projection period.

Category 1 summary:

Those TAs that have old age structures and are in peripheral areas are less likely to be able to move back into population increase once significant natural decrease combines with out-migration. Once the drivers of natural decrease and outmigration combine, the ending of growth has started as there are not enough people who are of childbearing age to produce the necessary natural increase or in-migration of people of childbearing age. To achieve population increase in these scenarios interventions must achieve the slowing of the structural ageing of the population by drawing in younger people and families. Choosing to focus on encouraging retirement migration, although it can extend the period of growth for a few more years, will cause a more rapid drop into population decline. The ending of growth is unlikely to be turned around but it may be put off further. To improve quality of life for the remaining residents these TAs can adopt interventions that adapt to ageing population and support social connectedness and social inclusion.

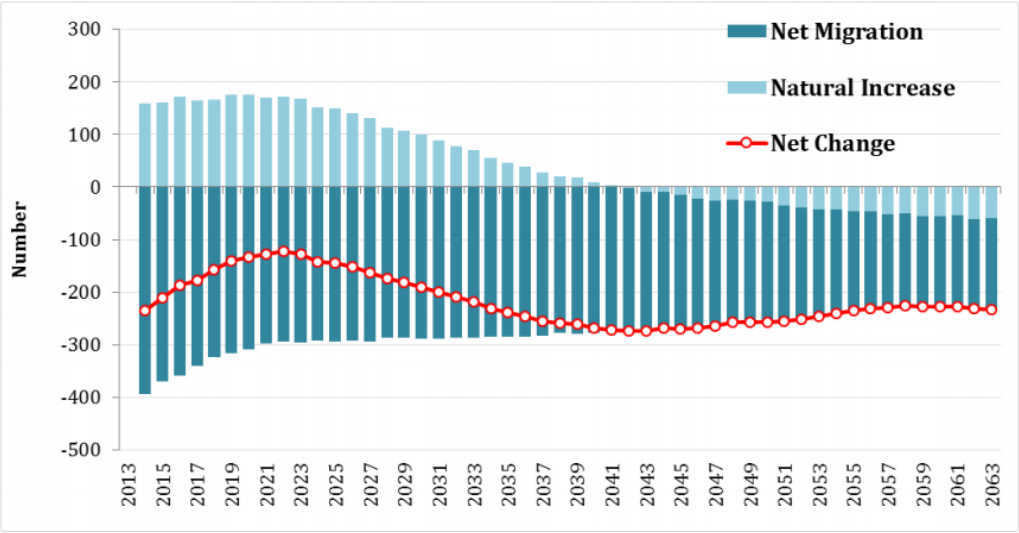
Category 2 – South Waikato, Waitomo, Otorohanga and Matamata-Piako

South Waikato, Waitomo, Otorohanga and Matamata-Piako are already, or are projected to, experience the old form of depopulation, that is, they lose population primarily through net migration loss which is greater than natural increase. These TAs have younger age structures and are struggling with the effects of urbanisation and peripherization, and the subsequent loss of their mobile young age groups, mainly at 20-39 years. This loss removes young people from the population and their reproductive potential, further exacerbating the shift to natural decrease. Most of these TAs are projected to shift slowly from the old form of depopulation to the new form of depopulation, where net migration loss is accompanied by natural decline to form the ending of growth, i.e. absolute decline (Jackson, 2013b). Matamata-Piako is the only exception amongst this group in that it is not projected to change to the new form of depopulation within the projection period.

South Waikato

The South Waikato District was already experiencing population decline at the start of the projection period and this decline is projected to continue (Figure 20). This decline is driven by outmigration, with natural decrease commencing by 2041. South Waikato is the first TA in this category to begin the ending of growth by 2042.

Figure 20: Projected components of population change for South Waikato District, medium projection 2014-2063



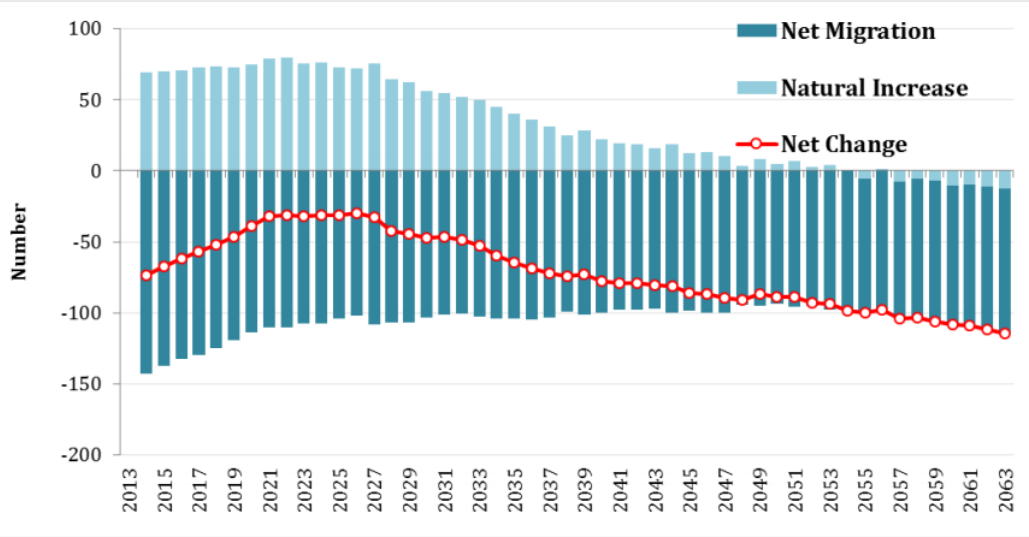
Source: (Cameron, et al., 2014, p. 82)

South Waikato also has other challenges to face, such as towns that are built on the old economy model. One of South Waikato's largest towns, Tokoroa, was built in 1941 as a one-industry town making it vulnerable to the economic cycles of that particular industry. South Waikato faces a very challenging scenario that suggests accepting strategies may be the most appropriate choice to try and retain current population.

Waitomo

The Waitomo District began the projection period in population decline (Figure 21). The main driver of population change is net migration loss. Due to the fact that the age structure of Waitomo is more youthful that other TAs, this district experiences less population ageing and natural decrease does not commence until 2053. The ending of growth is not projected to occur until 2055 even though the TA suffers population decline during the entire projection period.

Figure 21: Projected components of population change for Waitomo District, medium projection 2014-2063



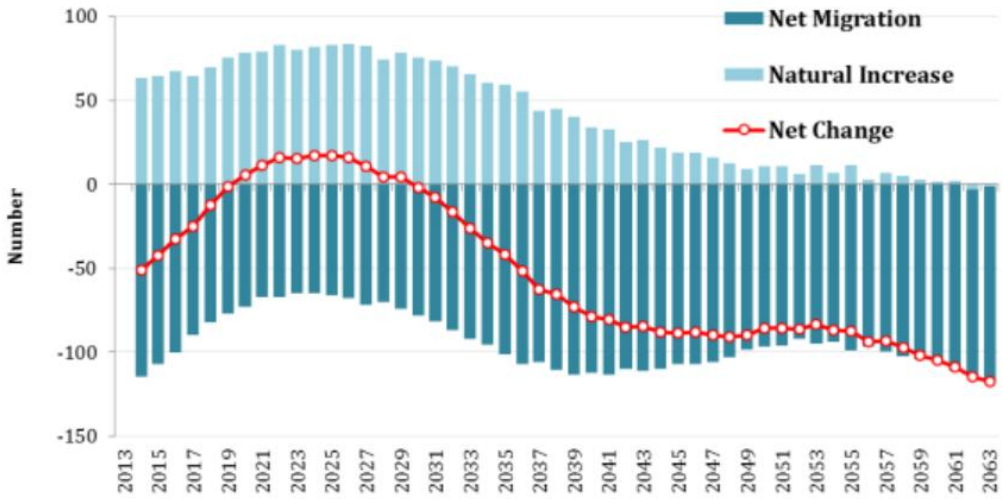
Source: (Cameron, et al., 2014, p. 89)

As for South Waikato above, the most appropriate response to this situation is to accept decline and retain the population, with a particular focus on the younger age groups.

Otorohanga

Otorohanga has the third youngest age structure in the Waikato Region (Figure 22). The driver of population decline in this TA is the loss at the younger age groups. The net outmigration is offset by natural increase, but not enough to stop the TA from shifting to population decline.

Figure 22: Projected components of population change for Otorohanga District, medium projection 2014-2063



Source: (Cameron, et al., 2014, p. 75)

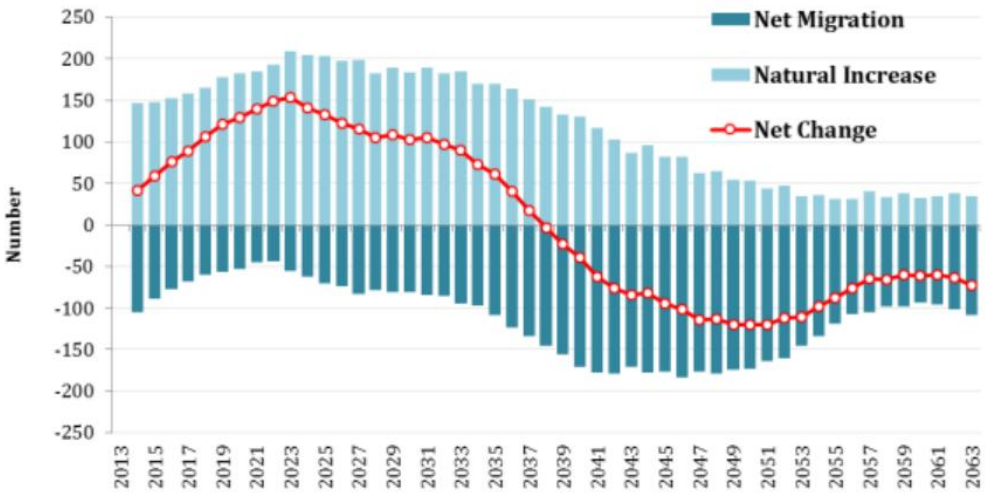
The drivers of population change do not combine until 2059 to cause the onset of the ending of growth. Otorohanga thus has a small window of opportunity to adopt both countering and accepting interventions to maintain natural increase by retaining the younger age groups and drawing in families. Unfortunately, these strategies will be competing against the forces of peripherization and will probably only slow population decline.

Matamata-Piako

The Matamata-Piako District is projected to shift to population decline around 2038 (Figure 23). This district is not ageing as rapidly as others in the region, supporting a healthy natural increase that is not projected to shift to natural decrease during the projection period, although it will slow from 2020 onwards. Thus the shift to depopulation is primarily due to a projected migration loss, particularly after 2033, coupled by the ageing of the population. Consequently,

Matamata-Piako does not begin the onset of the ending of growth during the projection period.

Figure 23: Projected components of population change for Matamata-Piako District, medium projection 2014-2063



Source: (Cameron, et al., 2014, p. 54)

Matamata-Piako is the strongest contender for intervening in the demographic future of the TA. Both countering and accepting strategies would be of use and would help to push out the onset of depopulation.

Category 2 summary:

All of these towns are losing people in their younger age groups, and adopting a programme of accepting interventions that attempt to retain (or entice back) young people and families and build social inclusion may be most appropriate. New Zealand and international examples have shown that targeting young people can be successful in retaining them, however these interventions are unlikely to stop depopulation but rather to slow it.

7.2.3. Constraints summary

The Waikato region is a region of opposites. The picture painted by the findings of this research is not a positive one for peripheral and ageing TA's. International research has shown that population decline in peripheral regions is far harder to address than in those close to economically strong centres (Galjaard, et al., 2012, p. 293). In countries that are still growing at the national level, such as New Zealand, rural towns that manage to grow under the new economy are those close to urban centres, have services and have amenities (Midmore, et al., 2010). This can clearly be seen in Figure 15 representing the four distinctive spatial patterns within the Waikato Region.

For some Territorial Authorities, both the long term and short term drivers are too strong to adopt a plan of regeneration that ignores the underlying processes. To do this could potentially load the local population with unserviceable debt or create oversupply of housing and infrastructure (Bernt, et al., 2012; Rink, et al., 2012).

The communities that have the most potential for turning around their situation are those that have less problems to start with (Figure 24) (Chesire, 2006). The factor that has been the most salient in encouraging positive change is the strength of the social capital of communities.

Figure 24: Summary of factors for community regeneration

Strengthening communities and supporting ground level initiatives appears to be the most successful way of regenerating towns or at very least enabling them to

become places that people want to live in, representing a high quality of life. In severely declining peripheral areas of the Waikato Region the best that can be hoped for is improving social connectedness and quality of life.

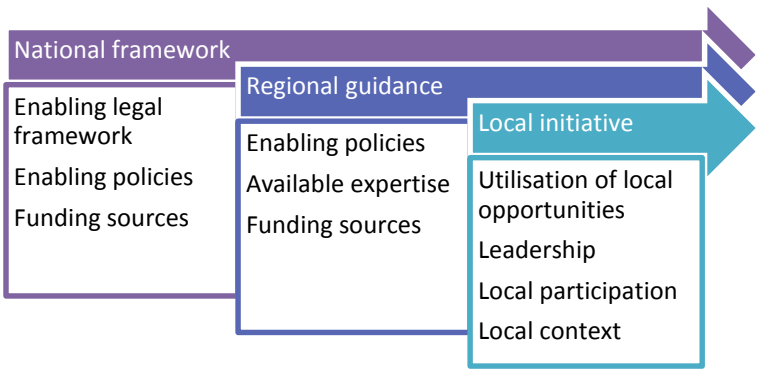
Once the strategic response to depopulation has been chosen, selecting the right interventions is the next challenge. Section 7.3 will discuss the ability to transfer interventions from one national context to another.

7.3. Transferability and governance constraints

When faced with the challenges of present and future depopulation it is tempting to adopt interventions from countries that have more experience with the situation and may have solutions or at least strategies for managing depopulation. Unfortunately, many interventions cannot be universally applied due to a number of issues that will be discussed in this section (Kuhn & Klingholz, 2013).

It is proposed that the ability to transfer good practices requires integration and cooperation across all actors and levels (OECD, 2014). In general, local level initiatives that utilise particular local scenarios', often require regional guidance, regional funding streams and enabling regional institutional structures (Dremel, 2013; Galjaard, et al., 2012). However, these rely firstly on an enabling national framework with institutional structure, strong national policies and appropriate funding streams (Galjaard, et al., 2012). Figure 25 provides an outline of the key elements for transferability of town or individual policy strategies from one country context to another.

Figure 25: Key elements for transferability of town and individual policy strategies



One of the key constraints for the ability to transfer strategies from one context to another is source funding and institutional and governance arrangements that may support or hinder the operation of initiatives. In general, local interventions need to complement the national legal and policy framework of the country (Kuhn & Klingholz, 2013). To this effect, Table 22 has been developed to compare New Zealand with key characteristics of the seven OECD countries, from which interventions were examined. The key characteristics that are compared are welfare state regime, governance structure, economic indicators, government service responsibilities, central government and subnational government revenue and expenditure. This table serves as a guide to the possible challenges for transference of interventions.

The welfare regime typology is a potentially useful device for considering money transfers between different entities within the economy (Castles & Mitchell, 1992; Chung & Muntaner, 2007; Esping-Andersen, 1990; Huber & Stephens, 2001), and may be especially relevant for social initiatives. A number of comparative studies have explored a range of types of welfare state regimes. In cluster analysis scholars group nations into welfare state types that have a similarity in their welfare services to their citizens. The welfare state typology adopted by this study groups countries by Wage Earner Welfare States, Christian Democratic Welfare States, and Liberal Welfare State (Castles & Mitchell, 1992; Chung & Muntaner, 2007; Esping-Andersen, 1990; Huber & Stephens, 2001).

Wage Earner Welfare States have low welfare state expenditure but strong labour movement (Castles & Mitchell, 1992). Liberal Welfare States use means-tested assistance, with modest universal transfers or modest social-insurance plans (Esping-Andersen, 1990), while Christian Democratic Welfare States provide welfare services to their citizens, but at the same time uphold social status differences so that the resulting redistributive impact is minimal. The role of churches and families as providers of social services is emphasized in this type (Chung & Muntaner, 2007).

The categories here are by no means exhaustive as different scholars' adopt a wide variety of typologies (Chung & Muntaner, 2007). Attempting to transfer

social strategies from one country to another may not be successful if the political economy is too different or it would require considerable change in legal structures in the country attempting to implement the strategy. For instance, social strategies may be transferred more easily to New Zealand's context from Australia than the Netherlands or Germany as the type is similar to New Zealand. There are many challenges to transferring social interventions. The use of the Welfare State Regimes is merely an example of the potential difficulties to transferal of such strategies.

Another consideration is the extent to which tasks are the responsibility of national or central government and which tasks are delegated to regional governments. Many countries delegate to their local governments administration of education, social protection, general services, health, economic affairs, defence, etc. In New Zealand these functions are mainly held by the central government. Countries that delegate to the lower levels of government are more likely to be able to adapt governance arrangements to take advantage of certain innovative interventions. For instance, in Scotland school buildings have been utilised for multi-use functions and supply various community and social services (Galjaard, et al., 2012). In New Zealand, the central government would require policy redirection to enable such changes – the local community would not be able to create the solution for themselves.

Funding for interventions is also a major challenge for local communities and local governments. The OECD (2010) notes that, in particularly unitary countries, regional development is funded primarily by central government. This reliance can constrain freedom of policy and resource allocation at regional level. However, in some places centrally controlled interventions may be a more efficient way of providing strategic overview and reducing fragmentation (OECD, 2010b, p. 21).

In New Zealand, much of the decision-making power with regard to regional development is held with central government. Of note in Table 22, New Zealand spends less than other countries on subnational government spending as a percentage of public expenditure. This may impact on the ability of local

governments to fund initiatives at a regional or local level. This also suggests that New Zealand is highly centralised with a low level of autonomy for local governments. Again the ability to transfer strategies may be constrained by this situation.

Table 22: Typology of countries – government spending at central and local government levels

	NZ	Australia	Canada	Germany	Japan	Netherlands	UK	US
Welfare state regimes[8]	Wage Earner Welfare State	Wage Earner Welfare State	Liberal Welfare State	Christian Democratic Welfare State	Wage Earner Welfare State	Christian Democratic Welfare State	Liberal Welfare State	Liberal Welfare State
Governance structure	Unitary	Federation	Federation	Federation	Unitary	Unitary	Unitary	Federation
Levels of government	3	3	3	4	3	3	4	4
GDP growth rate % (2012)	3.0	3.7	1.8	0.7	2.0	-1.2	0.3	2.2
GDP per capita (USD)	33,026	46,539	42,302	41,243	35,220	43,078	36,892	49,316
Government responsibilities								
Central or state government responsibilities	Education, Social protection, General Services, Health, Economic affairs	Education, Social protection, General Services, Economic affairs	Education, Social protection, General Services, Economic affairs	Education	Education, Social protection, General Services, Health, Economic affairs	Education, Social protection, General Services, Health, Economic affairs	Health, policing?	Education, Social protection, General Services, Health, Economic affairs
Local government responsibilities				Education, Social protection, General Services, Economic affairs, some health			Education, Social protection, General Services, Economic affairs	

[8] (Chung & Muntaner, 2007)

Government funds – general and tax (total and subnational)								
General government revenue per capita***	12,524	14,229	15,052	18,625	11,198	19,992	15,827	15,193
Subnational government revenue per capita*	1,308	N/A	3,184	3,253	5,698	6,852	5,013	N/A
Government spending								
General government spending per capita (USD)	14,751	16,051	17,223	18,559	14,220	21,713	18,208	20,063
Subnational government spending per capita (USD)	1,431	N/A	3,408	3,158	5,663	7,031	5,149	N/A
Subnational government spending as % of public expenditure	9.7**	N/A	19.8	17.0	39.8	32.4	28.3	N/A
Subnational government expenditure % GDP	4.8**	N/A	8.7	7.7	16.7	16.3	13.7	N/A

OECD (2013). Subnational Governments in OECD Countries: Key Data. OECD Publishing. (2012 figures unless stated).

*Subnational figures for federation countries are for 'local government alone' or regional and local government rather than individual states within the federation.

**2010 figures

***General government revenue: tax revenue, transfers (current and capital grants and subsidies); tariffs and fees; property income and social contributions

General government: combines central/federal government; state government; local government (regional and local) and social security funds.

Some interventions are more transferable than others (Rink, et al., 2012). There are three levels of governance in New Zealand: national, regional and local. Interventions need to be targeted at the specific level of governance that is applicable to the leadership and operation of the intervention. For instance, if an intervention requires national level governance change, then by definition, the intervention will take more coordination and cooperation to be achieved.

Some individual strategies and tools may be directly translated to the New Zealand context. Generally, planning and economic strategies may be translated from other countries to New Zealand at the regional level as local governments have the legal framework to make decisions at this level. In particular, Rink, et al. (2012), consider smart shrinkage strategies and gentrification strategies as the most transferable strategies. Promotion strategies require the cooperation of local government and business and do not require central government input, except in the area of immigration policy. Some social initiatives will be able to be applied at local level, while others will require governance changes. The most challenging initiatives are those that require a complete rethink of how our governance and planning frameworks operate, particularly for combining services, as the current legal arrangements tend to focus on the separation of activities (Hospers & Reverda, 2015).

Even if the national governance structures are not an issue, transferability can be affected at the regional or local level by different leadership styles and cultures, diverse concepts of time scales, different conceptions of the role and authority of planners, and dissimilar policies and political decision making processes (Rink, et al., 2012). However, inspiration can still be drawn from the analysis of strategies from shrinking communities which can be then contextualised to the local situation (Rink, et al., 2012).

7.4. Case study summary

This case study has shown that although the Waikato Region is on the whole growing, there is tremendous variation in the spatial distribution of the population at the sub-regional level. The analysis showed that the eight TAs that are projected to experience population decline could be disaggregated into two main groups – those whose strongest driver is the age structure of their populations and those with the primary driver being outmigration. Regardless of which is predominant, once the drivers combine the ending of growth is likely to begin and to become self-reinforcing. The first TA to experience this new (dual) form of decline is set to begin by 2035. This research has shown that population decline is challenging to address and ultimately, at best, population decline may be slowed rather than stopped.

An analysis of the transferability of interventions has shown that some interventions that would be useful at the local level will struggle to be achieved without governance changes at the central government level in New Zealand. That said, there are number of countering and accepting actions which Territorial Authorities can take that do not trigger higher level governance restrictions.

Because its overall population is still relatively youthful, New Zealand has the opportunity to prepare for subnational depopulation, choose the level of response, pro-actively manage the consequences, focus on the opportunities, and promote well-being and quality of life.

Chapter 8 will make suggestions for a local level community action plan for activating community change in depopulating Territorial Authorities.

8. Conclusion and recommendations

This thesis studied the drivers of depopulation, the policy responses to population decline and the spectrum of interventions available to address population decline from a number of OECD countries.

The literature proposes that there are only three possible policy responses to population decline, non-intervention, countering and accepting. Although there were a range of key themes for successful intervention approaches it was found that successful 'countering' strategies were dependent on the location, economic and demographic context of each community and primarily slowed decline rather than reversing it. None of the 'accepting' strategies that were identified were able to stop population decline. This may have been due to the fact that the accepting case studies primarily came from locations where population decline had already been accepted and by definition had reached a point that the government had decided that there was no longer evidence to support attempting to reverse the decline. Ultimately the research identified that it is easier to achieve improved quality of life than to slow population decline.

Addressing depopulation with policy interventions is very challenging, particularly in peripheral locations as the structural demographic and economic trends encourage outmigration. The research showed that in the context of zero or low growth national population growth such communities are unlikely to gain population. Outmigration is even more significant in peripheral communities in nationally declining countries.

An examination of central governments population policies and regional policy approaches showed that there is a strong relationship between depth and length of depopulation and the response to depopulation. Responses to population decline vary from country to country based on historical, cultural, political, institutional arrangements, issues to be addressed and resource availability. The literature suggests that governments around the world are still in the early stages of developing policies to manage ageing-driven population decline. This is at least in part because it differs fundamentally from past periods of decline, so

old approaches no longer work. It also became evident that there is often a divide between central government and local government attention and efforts to address depopulation and in some cases this can restrict local level action. Some countries put a great deal of effort into providing resources, funding and expertise to encourage innovation in their periphery weak areas. Countries that follow neoliberal policies more closely tend towards an expectation of self-help for local communities.

What became apparent through this research was that towns are like businesses – they need to keep reinventing themselves in the global marketplace to remain competitive. However, some communities do not have the functional elements to succeed. For some areas both the long term and short term drivers of population decline are too strong to adopt a plan of regeneration.

Given the findings of Section 5.4 and 6.3, the most appropriate response to a scenario where some places are growing and peripheral areas are not, is to adopt a pragmatic response that uses elements from both countering and accepting strategies. A pragmatic plan uses the best of both countering and accepting strategies in an approach that focuses on positive change while acknowledging that success may be measured in quality of life, a healthy environment and high quality amenities rather than increasing economic outcomes. There is a need to look at what can be resuscitated, what can be combined and what might be shut down. Instead of this process being undertaken in different government departments, on different governmental levels with limited community input, each town could be facilitated to build their own solution with support and resources from central and local government.

Table 23 outlines a suggested action plan with key steps that a community could take to encourage change in their community based on a synthesis of the research from literature and case studies, and which takes the New Zealand governance framework into account.

Table 23: Community level action plan

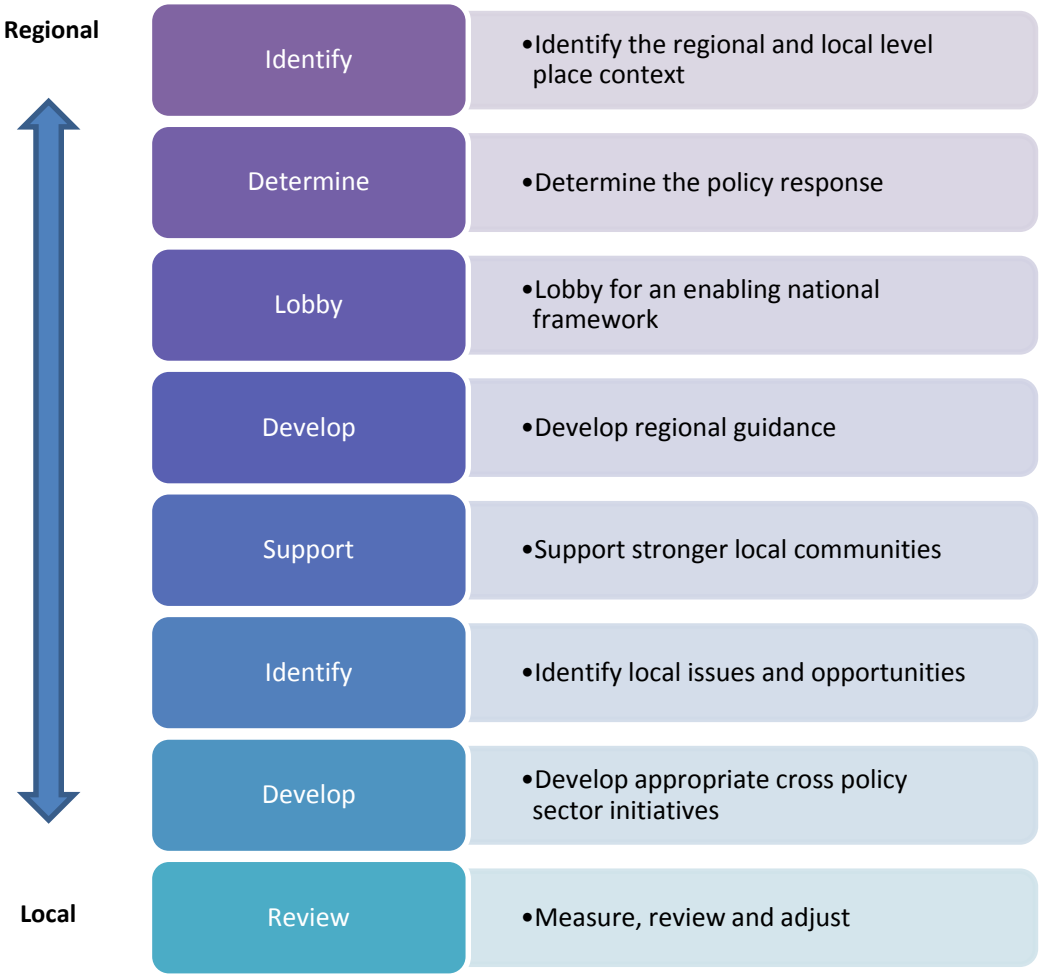
Accept	• Accept that prosperity may need to have a different appearance than in the past. • Accept that peak population in peripheral towns was a hallmark of the Old Economy when New Zealand was the bread basket of the UK. • Accept that the existing infrastructure is a product of those historical situations. • Accept population ageing.
Engage	• Engage with the local community to see what ideas they have, develop local community leaders, train and mentor. • Are there people in the community that are looking for leadership opportunities?
Utilise	• Identify key industries, natural resources, and amenities that could provide new functions for the location.
Attract	• Use people based initiatives and social strategies for attracting newcomers, rather than building new attractions, unless there is a very clear opportunity, such as capitalising on the national cycleway network. • Use targeted migration integration initiatives in places with low unemployment and a high number of job or skill vacancies.
Retain	• Focus on strengthening the community's skills base, social inclusion and connectedness through – youth initiatives, transport initiatives, educational opportunities, skills training, community groups, and senior groups.
Maintain	• Critically examine what can be resuscitated, what can be combined and what may need to be shut down. • Look at best practise examples of new models for services i.e. citizen buses, telecare, off-grid communities, temporary and/or mobile provision. • Are any of these new models able to be used in the location?
Provide	• Look for initiatives to provide for the ageing population – providing silver learning opportunities, mobility scooter friendly accesses, transport initiatives, employment for older people.
Retire	• Lobby central and local government to develop a fund to enable derelict abandoned buildings to be demolished.

	• If the costs are too great for demolition, explore other options such as beautifying buildings by growing creepers over unsightly buildings. This technique has been used in Germany. Many former abandoned locations have been reinvented as historic sites after several decades.
Wait	• Good quality buildings may not be used now but should not be demolished as in future there may be a new function for them.

Communities that are struggling with depopulation are often not receiving the attention and help they need to make a difference. As noted in Chapter 7, the governance framework in New Zealand hinders some transformation strategies that could be adopted. Action to face depopulation is often left to individual Territorial Authorities to manage in New Zealand.

This action plan would benefit from a regional level strategy (Figure 26) that identifies areas that are struggling within the region and supports change. A comprehensive strategic response would require assessment of the regional and local contexts, integration across levels, actors and policy sectors, and should provide support to local communities so that they have the tools and resources to succeed.

Figure 26: Developing a regional level strategy to sub-regional depopulation



In summary, depopulation may not be able to be halted if the drivers are too strong, however, there may still be there are opportunities to slow the progression towards the ending of growth in New Zealand's peripheral locations. At the very least measures may be taken to adapt to an ageing population structure and increase the quality of life for those that inhabit New Zealand's small declining towns.

References

Adelaja, S., Hailu, Y. & Abdulla, M., 2009. *Chasing the past or investing in our future: Placemaking for prosperity in the new economy,* Michigan: Land Policy Institute.

Aguado, R., Gibaja, J., Navarro, M. & Bilbao-Osorio, B., 2008. *Regional innovation systems in EU-10: A typology and policy recommendations.* Mexico City: Paper presented in the IV Globelics Conference, September 22-24.

Alberani, V., De Castro Pietrangeli, P. & Mazza, A., 1990. The use of grey literature in health sciences: A preliminary survey. *Bulletin Medical Library Association,* 78(4), pp. 358-363.

Anbumozhi, V., 2008. Eco-industrial clusters: Enhancing regional economic development through environmental linkages. *Institute for Global Environmental Strategies,* pp. 1-8.

Anholt, S., 2007. Competitive identity: A new model for the brand management of nations, cities and regions. *Policy & Practice: A Development Education Review,* 4(Spring), pp. 3-13.

Aslund, O., 2005. Now and forever? Initial and subsequent location choices of immigrants. *Regional Science and Urban Economics,* Volume 35, pp. 141-165.

Australian Bureau of Statistics, 1998. *Australian Social Trends,* Canberra: ABS.

Aziz, O., Ball, C., Creedy, J. & Eedrah, J., 2012. *The distributional impact of population ageing. Background research paper, Long-term fiscal statement 2012,* Wellington: New Zealand Treasury.

Baerenholdt, J. & Granas, B., 2008. *Mobility and place: Enacting Northern European peripheries.* s.l.:Ashgate Publishing Group.

Ball, C. & Creedy, J., 2012. *Population ageing and the growth of income and consumption tax revenue,* Wellington: New Zealand Treasury and Victoria University.

Barca, F., McCann, P. & Rodriguez-Pose, A., 2012. The case for regional development intervention: Place-based versus place-neutral approaches. *Journal of Regional Science,* 52(2012), pp. 134-152.

Beckham, A., 2015. *Younger worker shortage warning,* Dunedin: s.n.

Bedford, R., Ho, E. & Lidgard, J., 2001. Immigration policy and New Zealand's development into the 21st Century: Review and speculation. *Asian and Pacific Migration Journal,* Volume 10, pp. 585-616.

Beeton, S., 2010. Regional community entrepreneurship through tourism: The case of Victoria's rail trails. *Int. J. Innovation and Regional Development,* 2(1/2), pp. 128-148.

Beetz, S., Huning, S. & Plieninger, T., 2008. Landscapes of peripherization in North Eastern Germany's countryside: New challenges for planning theory and practice. *International Planning Studies,* 13(4), pp. 295-310.

Bernt, M. et al., 2012. *Policy response, governance and future directions,* Leipzig: Shrink Smart Research Brief No. 2. Helmholtz Centre for Environmental Research – UFZ.

Bernt, M. et al., 2014. How does(n't) urban shrinkage get onto the agenda? Experiences from Leipzig, Liverpool, Genoa and Bytom. *Internation Journal of Urban and Regional Research,* 38(5), pp. 1749-1766.

Besser, T., 2013. Resilient small rural towns and community shocks. *Journal of Rural and Community Development,* 8(1), pp. 117-134.

Bhagwati, J., 2004. *In defence of globalization.* New York: Oxford University Press.

Bijak, J. et al., 2007. Population and labour force projections for 27 European countries, 2002-052: Impact of international migration on population ageing. *European Journal of Population,* 23(1), pp. 1-31.

Blacker, C., 1947. Stages in population growth. *The Eugenics Review,* 39(3), pp. 88-101.

Bloom, D., 2011. 7 billion and counting. *Science,* Volume 333, pp. 562-569.

Bloom, D., Boersch-Supan, A., McGee, P. & Seike, A., 2011. *Population aging: Facts, challenges, and responses,* s.l.: Program on the Global Demograhy of Aging, PDGA Working Paper No. 71.

Bloom, D., Canning, D. & Sevilla, J., 2002. Banking the demographic dividend. How population dynamics can affect economic growth. Conclusions emerging from the RAND Population Matters Project. *The Demographic Dividend: A New Perspective on the Economic Consequences of Population change*.

Bloom, D., McGee, P. & Seiki, A., 2011. *Population ageing. Facts, challenges and responses.* Harvard: Program on the Global Demography of Ageing.

Blue, L. & Espenshade, T., 2011. Population momentum across the demographic transition. *Population and Development Review,* 37(4), pp. 721-747.

Boardman, L., 2008. As residents leave, locals shrink smartly. *The American City & Country,* 127(7), pp. 15-16.

Bowden, C., 2008. *The emptied prairie.* [Online]
Available at: http://ngm.nationalgeographic.com/2008/01/emptied-north-dakota/bowden-text/3
[Accessed 26 March 2015].

Brink, S., 2013. *Telehealth: The ultimate in convenience care.* [Online]
Available at: http://health.usnews.com/health-news/hospital-of-tomorrow/articles/2013/10/09/telehealth-the-ultimate-in-convenience-care
[Accessed 26 March 2015].

Cameron, M., Jackson, N. & Cochrane, W., 2014. *Baseline and stochastic population projections for the Territorial Authorities of the Waikato Region for the Period 2013 - 2063,* Hamilton: University of Waikato, National Institute of Demographic and Economic Analysis.

CanadaVisa.com, 2015. *Eligibility requirements for the Manitoba Provincial Nominee Program (MPNP).* [Online]
Available at: http://www.canadavisa.com/eligibility-requirements-manitoba-provincial-nominee-program.html
[Accessed 26 May 2015].

Castles, F. & Mitchell, D., 1992. Identifying welfare state regimes: The links between politics, instruments and outcomes. *Governance: An International Journal of Policy and Administration,* 5(1), pp. 1-26.

CBC News, 2014. *Fly in, fly out jobs here to stay, researchers says..* [Online]
Available at: http://www.cbc.ca/news/canada/newfoundland-labrador/fly-in-fly-out-jobs-here-to-stay-researcher-says-1.2808633
[Accessed 19 March 2015].

Chesire, L., 2006. *Governing rural development discourses and practices of self-help in Australian rural policy.* Brisbane: Ashgate Publishing Group.

Chipeniuk, R., 2004. Planning for amenity migration in Canada. *Mountain Research and Development,* 24(4), pp. 327-335.

Cho, D. & McDougall, G., 1978. Regional cyclical patterns and structure 1954-1975. *Economic Geography,* 54(1), pp. 66-74.

Chung, H. & Muntaner, C., 2007. Welfare state matters: A typological multilevel analysis of wealthy countries. *Health Policy,* Volume 80, pp. 328-339.

CIC News, 2014. *Immigration to Morden, Manitoba.* [Online]
Available at: http://www.cicnews.com/2014/09/immigration-morden-manitoba-093839.html
[Accessed 17 August 2015].

City of Morden, 2015. *Morden: Job, career opportunities in Morden.* [Online]
Available at: http://mordenmb.com/business/immigrate-to-morden/job-career-opportunities
[Accessed June 2 2015].

Clark, W., 2004. The end of world population growth in the 21st century: Implications for sustainable communities. *New Zealand Population Review,* 30(1&2), pp. 43-60.

COAG Reform Council, 2012. *Productivity and aggomeration benefits in Australian capital cities,* s.l.: SGS Economics & Planning.

Coburn, A. et al., 2007. *Choosing rural definitions: Implications for health policy,* US: Rural Policy Research Institute Health Panel, Issue Brief 2.

Cochrane, W., 2015. *Functional labour market areas,* Hamilton: NIDEA Seminar Series 5 May, University of Waikato.

Collits, P., 2002. *Australian regional policy and its critics.* Sydney, Paper presented at the 11th Biennial Conference of the Australian Population Association, Oct.

Collits, P., 2012. *Evaluating regional development initatives: An EU-Australian comparison. Regional Policy In Australia.* s.l.:Presentation, University of Southern Queensland.

Connell, J. & McManus, P., 2011. *Rural revival? Place marketing, tree change and regional migration in Australia.* Farnham: Ashgate Publishing Group.

Conradson, D. & Pawson, E., 2009. New cultural economies of marginality: Revisiting the West Coast, South Island, New Zealand. *Journal of Rural Studies,* 25(1), pp. 77-86.

Creaco, S. & Querini, G., 2003. *The role of tourism in sustainable economic development.* Jyvaskyla, 43rd Congress of the European Regional Science Association.

Cross, M. & Nutley, S., 1999. Insularity and accessibility: The small island communities of Western Ireland. *Journal of Rural Studies,* 15(3), pp. 317-330.

da Costa, N. & Meyer, A., 2013. *Demographic change in shrinkage areas: The Netherlands.* [Online]
Available at: http://www.youtube.com/watch?v=6FSo5YRkrI0
[Accessed 19 March 2015].

Davidson, H., 2014. *Western Australia plan to close 100 remote and Indigenous communities 'devastating'.* [Online]

Available at: http://www.theguardian.com/australia-news/2014/nov/18/wa-plan-to-close-100-remote-and-indigenous-communities-devastating
[Accessed 29 May 2015].

Day, L., 1977. Starting points for consideration of the socio-demographic conditions of stationary or declining populations. In: *International Population Conference.* Leige: International Union for the Scientific Study of Population, pp. 79-83.

Department of Labour, 2007. *Annual in-depth regional report: Southland region,* Wellington: Department of Labour.

Domhardt, H. & Troeger-Weib, G., 2009. *Germany's shrinkage of a small town scale?,* s.l.: Berkeley.

Donovan, S., Cagney, M. & Munro, I., 2013. *Impact of urban form on transport and economic outcomes,* Wellington: NZ Transport Agency Research Report 513.

Dreijerink, L., Van der Noort, L. & Kortman, J., 2012. Sustainability and shrinkage: Three case studies in Netherlands.. In: C. Martinez-Fernandez, N. Kubo, A. Noya & T. Weyman, eds. *Chp 5 In Demographic Change and local development: shrinkage, regeneration and social dynamics.* Paris: OECD Publishing, pp. 71-78.

Dremel, A., 2013. *Rural depopulation and public service provision in Germany: How is public service provision and depopulated, rural regions in Germany organised and what can be learnt from good practices in this field?,* University of Twente: Bachelor thesis, European studies, School of Management and Governance.

Dyson, T., 1978. One sixth of mankind. *People,* 5(3), p. 6.

Dyson, T., 2011. The role of the demographic transition in the process of urbanization. *Population and Development Review,* Volume 37, pp. 34-54.

e.Estonia, 2013. *e.Estonia: The digital society.* [Online]
Available at: http://e-estonia.com/components/population-register
[Accessed 6 May 2013].

Eaqub, S. & Stephenson, J., 2014. *What is a regional economy? ,* Wellington: NZIER Report for the LGNZ.

Editorial, 2013. An introductory review to the special issue: Shrinkage cities and towns: Challenge and responses. *Urban Design International,* 18(1), pp. 1-5.

Egan, C., 2014. *Last of the Blasket Islanders were evacuated to mainland in 1953.* [Online]
Available at: http://www.irishcentral.com/roots/history/Last-of-the-Blasket-

Islanders-were-evacuated-to-mainland-today-in-1953-PHOTOS.html#
[Accessed 27 May 2015].

Environment Waikato, 2009. *Implications of agricultural change in the Waikato Region: Current trends and future scenarios,* Hamilton: Environment Waikato Technical Report 28.

Esping-Andersen, G., 1990. *The three worlds of welfare capitalism.* Princeton: Princeton University Press.

European Commission, 2010. *International building exhibition urban redevelopment Saxony-Anhalt 2010: Halle (Saale) Balancing act dual city,* s.l.: Ministry for Regional Development and Transport Saxony-Anhalt.

European Commission, 2015. *Growing the European silver economy,* s.l.: European Commission.

European Union, 2008. *Shrinking regions: A paradigm shift in demographic and territorial development,* Brussels: European Union, Policy Department B, Structural and Cohesion Policies.

Ezeh, A., Bongaarts, J. & Mberu, B., 2012. Global population trends and policy options. *Lancet,* Volume 380, pp. 142-148.

Ferry, M. & Vironen, H., 2011. Dealing with demographic change: Regional policy responses. *Geopolitics, History, and Internal Relations,* 3(1), pp. 25-58.

Field, A. & Perrott, T., 2015. *Rural-urban linakges: Literature review for Waikato Spatial Plan,* Auckland: Dovetail Consulting Ltd.

Fitzpatrick, A., 2012. *Fly in, fly out and hope for work. The Telegram.* [Online]
Available at: http://www.thetelegram.com/News/Local/2012-03-14/article-2926866/Fly-in,-fly-out-and-hope-for-work/1
[Accessed 19 March 2015].

Fol, S., 2012. Urban shrinkage and socio-spatial disparities: Are the remedies worse than the disease?. *Built Envrionment,* 38(2), pp. 259-275.

Forth, G., 2000. *What is the future for Australia's declining country towns?.* [Online]
Available at: http://www.onlineopinion.com.au/view.asp?article=935
[Accessed 19 March 2015].

Freeman, C. & Cheyne, C., 2008. Coasts for sale: Gentrification in New Zealand. *Planning Theory & Practice,* 9(1), pp. 33-56.

Frey, W., 2014. *A population slowdown for small town America,* Washington DC: Brookings.

Galjaard, R., Van Wissen, L. & Van Dam, K., 2012. European regional population decline and policy responses: Three case studies. *Built Environment,* 38(2), pp. 293-303.

Galor, O., 2012. The demographic transition: Causes and consequences. *Cliometrica (Berl),* 6(1), pp. 1-28.

Garcilazo, E., 2013. *Growth trends and characteristics of OECD rural regions: OECD Regional Development Working Papers 2013/10,* Paris: OECD Publishing.

Gates, J., 2005. *A study of inactive main street communities,* Unpublished thesis: University of Pennsylvania.

Gerland, P. et al., 2014. World population stabilization unlikely this century. *Science,* 346(6206), pp. 234-237.

Gilbey, H., 2015. *Skegness set for record boom in tourism after 'best year in 20 years'.* [Online]
Available at: http://www.lincolnshireecho.co.uk/Skegness-set-record-boom-tourism/story-26508035-detail/story.html
[Accessed 25 May 2015].

Gkartzios, M. & Norris, M., 2011. 'If you build it, they will come': Governing property led rural regeneration in Ireland. *Land Use Policy,* Volume 28, pp. 486-494.

Global Environmental Centre, 2005. *Eco-towns in Japan - implications and lessons for developing countries and cities,* Japan: Global Environmental Centre.

Goldstein, J. R., 2009. How populations age. In: P. Uhlenberg, ed. *International handbook of population aging.* Dordrecht: Springer, pp. 7-18.

Gordon, T. & Glenn, J., 2003. *Environmental Scanning,* s.l.: Futures Research Methodology – V2.0, AC/UNU Millennium Project.

Grafeneder-Weissteiner, T. & Prettner, K., 2013. Agglomeration and demographic change. *Journal of Urban Economics,* Volume 74, pp. 1-11.

Grimes, A. & Young, C., 2009. *Spatial effects of 'mill' closures: Does distance matter?,* Wellington: Motu Economic and Public Policy Research Trust.

Haartsen, T. & Van Wissen, L., 2012. Causes and consequences of regional population decline for primary schools. *Tijdschrift voor Economische en Sociale Geografie,* 103(4), pp. 487-96.

Haartsen, T. & Venhorst, V., 2009. Planning for decline: Anticipating on population decline in the Netherlands. *Econom. en Soc. Geog,* 101(2), pp. 218-227.

Haase, A., Hospers, G., Pekelsma, S. & Rink, D., 2012. *Shrinking areas: Front-runners in innovative citizen participation,* s.l.: European Urban Knowledge Network.

Haase, D., 2008. Urban ecology of shrinking cities: An unrecognized opportunity?. *Nature and Culture,* 3(1), pp. 1-8.

Hall, P. & Stern, P., 2009. Reluctant rural regionalists. *Journal of Rural Studies,* 25(1), pp. 67-76.

Hall, V. & McDermott, C., 2014. *Recessions and recoveries in New Zealand's post-second World War business cycles,* Wellington: Discussion Paper DP2014/02, Reserve Bank.

Haug, W. & Buscher, M., 2000. *e-census: The Swiss census 2000 on the internet,* Paris: Paper presented at INSEE/EUROSTAT Workshop, "Censuses beyond 2001".

Hauraki District Council, n.d. *Waihi - the town with a heart of gold.* [Online]
Available at: http://www.hauraki-dc.govt.nz/our_district/waihi
[Accessed 31 July 2015].

Healthcare IT news, 2013. *Southern Denmark: Telemedicine and assisted living solutions rolled out.* [Online]
Available at: http://www.healthcareitnews.com/news/southern-denmark-telemedicine-assisted-living-solutions-rolled-out
[Accessed 26 March 2015].

Heidenheimer, A., Heclo, H. & Teich Adams, C., 1983. *Comparative Public Policy.* Second Edition ed. New York: St Martin's Press.

Helderman, A., Van Ham, M. & Mulder, C., 2006. Migration and home ownership. *Tijdschrift voor economische en sociale geografie,* Volume 97, pp. 111-125.

Hinde, A., 2014. *Demographic methods.* New York: Routledge.

Hollander, J., 2011. Can a city successfully shrink? Evidence from survey data on neighbourhood quality. *Urban Affairs Review,* 47(1), pp. 129-141.

Hollander, J., Pallagst, K., Schwarz, T. & Popper, F., 2009. Chapter 4: Planning shrinking cities. In: Shaken, shrinking, hot, impoverished and informal: Emerging research agendas in planning. *Progress in Planning,* 72(4), pp. 195-250.

Hospers, G., 2013. Coping with shrinkage in Europe cities and towns. *Urban Design International, Supplement, Special issues: Shrinking Cities,* 18(1), pp. 78-89.

Hospers, G., 2014. Policy responses to urban shrinkage: From growth thinking to civic engagement. *European Planning Studies,* 22(7), pp. 1507-1523.

Hospers, G. & Reverda, N., 2015. *Managing population decline in Europe's urban and rural areas.* London: Springer.

Huber, E. & Stephens, J., 2001. *Development and crisis of the welfare state—parties and policies in global markets.* Chicago: University of Chicago Press.

Internal Affairs, 2011. *Localcouncils.govt.nz.* [Online]
Available at: http://www.localcouncils.govt.nz/lgip.nsf/wpg_url/Profiles-Councils-by-region-Waikato
[Accessed 3 June 2015].

Jackson, N., 2007. Population ageing in a nutshell: A phenomenon in four dimensions. *People & Place,* 15(2), pp. 12-21.

Jackson, N., 2011. *The demographic forces shaping New Zealand's future. What population ageing [really] means,* s.l.: s.n.

Jackson, N., 2013a. *The demographic forces shaping New Zealand's future: Population ageing in a nutshell,* Hamilton: National Institute of Demographic and Economic Analysis, University of Waikato.

Jackson, N., 2013b. *Waikato Region - demographic profile 1986-2031,* Hamilton: National Institute of Demographic and Economic Analysis.

Jackson, N., 2014. Sub-national depopulation in search of a theory - towards a diagnostic framework. *New Zealand Population Review,* Volume 40, pp. 3-39.

Jackson, N., Cameron, M. & Cochrane, B., 2014. *2014 Review of demographic, households and labour force projections for the future proof sub-region for the period 2013-2063,* Hamilton: National Institute of Demographic and Economic Analysis.

Janoschka, M., 2009. The contested spaces of lifestyle mobilities: Regime analysis as a tool to study political claims in Latin American retirement destinations. *Die Erde,* 140(3), pp. 251-274.

Johnsen, I. & Perjo, L., 2014. *Local and regional approaches to demographic change in the Nordic countries: Nordregio Working Paper 2014: 3,* Stockholm: Nordic Centre for Spatial Development.

Johnson, M., 2014. *Strategy design for community response to distress and decline using data analytics,* University of Massachusetts Boston: Department of Public Policy and Public Affairs Research Seminar.

Johnson, M., Hollander, J. & Hallulli, A., 2014. Maintain, demolish, re-purpose: Policy design for vacant land management using decision models. *Cities,* Volume 40, pp. 151-162.

Joint Working Party, 2013. *Realising the potential of the Wellington region: Conclusions of the joint working party on local government reform,* Wellington: Joint Working Party on Local Government Reform.

Jones, G., Straughan, P. & Chan, A., 2009. Very low fertility in Pacific Asian countries: Causes and policy responses. In: G. Jones, P. Straughan & A. Chan, eds. *Very low fertility in Pacific Asian countries.* Oxon: Routledge, pp. 1-22.

Journeyman Pictures, 2013. *China's incredible ghost cities will make your jaw drop.* [Online]
Available at: http://www.youtube.com/watch?v=GpnoPhY1f70
[Accessed 19 March 2015].

Katz, E. & Stark, O., 1986. Labor migration and risk aversion in less developed countries. *Journal of Labor Economics,* 4(1), pp. 134-149.

Kenyon, P. et al., 2001. *Small town renewal: Overview and case studies. A report for the Rural Industries Research and Development Corporation,* Canberra: Rural Industries Research and Development Corporation.

Keyfitz, N., 1971. On the momentum of population growth. *Demography,* 8(1), pp. 71-80.

Kimmel, C. & Schoening, J., 2011. *An evaluation of Pennsylvania's Main Street Programs,* Center for Rural Pennsylvania: Shippensburg University of Pennsylvania.

Kizuna Foundation, 2012. *Current projects.* [Online]
Available at: http://kizunafoundation.org/current/
[Accessed 17 August 2015].

Kizuna Foundation, 2013. *Traumatized port struggles to stay together, move on.* [Online]
Available at: http://kizunafoundation.org/traumatized-port-struggles-to-stay-together-move-on/
[Accessed 17 August 2015].

Knight Foundation, 2010. *Knight soul of the community 2010: Why people love where they live and why it matters: A national perspective,* s.l.: Knight Foundation.

Kresl, P. K. & Ietri, D., 2010. *The ageing population in the competitiveness of cities: Benefits to the urban economy.* Cheltenham, UK: Edward Elgar.

Kuhn, E. & Klingholz, R., 2013. *Allowing diversity: What population decline means for public service provision in rural regions,* Berlin: Berlin Institute for Population and Development.

Kukutai, T., McMillan, R. & Mason-Mackay, J., 2014. *Moving out to stay at home: A study of fly-in-fly-out workers who live in New Zealand and work overseas.* Wellington, Presentation to the 16 LEW Conference.

Kunzig, R., 2014. *National Geographic: A world with 11 billion people? New population projections shatter earlier estimates.* [Online]
Available at: http://news.nationalgeographic.com/news/2014/09/140918-population-global-united-nations-2100-boom-africa/
[Accessed 23 July 2015].

Kwon, D., 2009a. *Human capital and its measurement.* Busan, Korea: The 3rd OECD World Forum on "Statistics, Knowledge and Policy" Charting Progress, Building Visions, Improving Life, 27-30 Oct.

Kwon, D., 2009. *Human capital and its measurement,* Busan, Korea: The 3rd OECD World Forum on "Statistics, Knowledge and Policy" Charting Progress, Builidng Visions, Improving Life: 27-30 Oct.

Labour & Immigration Research Centre, 2012. *Permanent and long term migration: The big picture,* Wellington: Department of Labour.

Lambe, W., 2008. *Small towns - big ideas: Case studies in small town community economic development,* Raleigh: UNC School of Government; N.C. Rural Economic Development Center.

Lee, R., 2011. The outlook for population growth. *Science,* 333(6042), pp. 569-573.

Lehmbruch, n.d. *Elements of a developmental theory of interest systems,* s.l.: Organization of Society, Administratives Strategies, Policy Networks.

Longman, P., 2004. *The empty cradle.* New York: Basic Books.

Lucas, D. & Meyer, P., 1994. *Beginning population studies.* 2nd ed. Canberra: National Centre for Development Studies, The Australian National University.

Lupieri, S., 2013. *Volunteers wanted: Locals help save Germany's shrinking towns.* [Online]
Available at: http://www.spiegel.de/international/germany/volunteers-help-save-germany-s-shrinking-towns-a-880352.html
[Accessed 29 May 2015].

Lutz, W., Sanderson, W. & Scherbov, S., 2008. The coming acceleration of global population ageing. *Nature,* Volume 451, pp. 716-719.

Lutz, W., Sanderson, W. & Sherbov, S., 2004. *The end of World population growth in the 21st Century: New challenges for human capital formation and sustainable development.* London and Sterling: International Institute for Applied Systems Analysis/Earthscan.

Mackenzie, F., 1994. Population decline in non-metropolitan Australia: Impacts and policy implications. *Urban Policy and Research,* 12(4), pp. 253-263.

Mak, A. & Stouten, P., 2014. Urban regeneration in Rotterdam: Economic and social values. *European Spatial Research and Policy,* 21(1), pp. 101-122.

Martinez-Fernandez, C., 2010. De-industrialisation and de-innovation in shrinking cities. In: I. Audirac & J. Alejandre, eds. *Shrinking Cities South/North.* Florida State University & University of Guadalajara: UCLA Programme on Mexico, pp. 51-68.

Martinez-Fernandez, C., Audirac, I., Fol, S. & Cunningham-Sabot, E., 2012a. Shrinking cities: Urban challenges of globalisation. *International Journal of Urban and Regional Research,* 36(2), pp. 213-225.

Martinez-Fernandez, C., Kubo, H., Noya, A. & Weyman, T., 2012b. *Demographic change and local development: Shrinkage, regional and social dynamics,* Paris: OECD Local economic and Employment Development (LEED) Program, Working Paper Series: OECD Publishing.

Martin, L., 2014. *Former residents oppose plans to demolish buildings at remote Oombulgurri community.* [Online]
Available at: http://www.abc.net.au/news/2014-06-21/former-residents-oppose-plan-to-demolish-oombulgurri/5539040
[Accessed 27 May 2015].

Massey, D. et al., 1993. Theories of international migration - a review and appraisal. *Population and Development Review,* 19(3), pp. 431-466.

Matanle, P., 2011. The great East Japan earthquake, tsunami, and nuclear meltdown: Towards the reconstruction of a safe, sustainable, and compassionate society in Japan's shrinking regions. *Local Environment: The International Journal of Justice and Sustainability,* 16(9), pp. 823-847.

Matanle, P., 2015. *Achieving the population dividend. Evidence and experience from Japan's shrinking regions,* Tauranga: Presentation to Western Bay of Plenty District Council, 22 January.

Matanle, P. & Rausch, A., 2011. *Japan's shrinking regions in the 21st Century: Contemporary responses to depopulation and socioeconomic decline.* Amherst, NY: Cambria Press.

Mayors Taskforce For Jobs, 2014. *Our youth, our future.* [Online]
Available at: http://www.mayorstaskforceforjobs.co.nz/
[Accessed 30 July 2015].

Mazurkewich, K., 2010. *Jolt for declining towns,* Canada: s.n.

McDonald, P., 2001. Theory pertaining to low fertility. *International Union for the Scientific Study of Population Working Group on Low Fertility, International Perspectives on Low Fertility: Trends, Theories and Policies*, 21-23 March.

McInerney, M., 2015. *Australia's remote indigenous communities fear closure.* [Online]
Available at: http://www.bbc.com/news/world-australia-31846031
[Accessed 29 May 2015].

McIntyre, N., Williams, D. & McHugh, K. eds., 2006. *Multiple dwelling and tourism: Negotiating place, home and identity.* s.l.:House & Home.

McKinsey & Company, 1994. *Lead local, compete global: Unlocking the growth potential of Australia's regions,* Canberra: Report to Department of Housing and Regional Development.

Mendola, M., 2006. *Rural out-migration and economic development at origin: What do we know?,* s.l.: Sussex Migration Working Paper No.40, University of Milano-Bicocaa and Cento Studi L. d'Agliano.

Midmore, P., Partridge, M., Olfert, M. & Ali, K., 2010. The evaluation of rural development policy: Macro and micro perspectives. *EuroChoices,* 9(1), pp. 25-29.

Midtkandal, I. & Sorvik, J., 2012. What is smart specialisation?. *Nordregio News: Smart specialisation for all regions?,* Issue 5, pp. 3-6.

Ministry of Business, Innovation and Employment, 2014a. *Regional economic activity report,* Wellington: Ministry of Business, Innovation and Employment.

Ministry of Business, Innovation and Employment, 2014b. *Nga Haerenga - the New Zealand cycle trail evaluation report,* Wellington: Strategy and Governance: Research, Evaluation and Analysis Branch.

Ministry of Social Development, 2007-2008. *The New Zealand Positive Ageing Strategy Action Plan 2007-2008,* Wellington: Ministry of Social Development.

Ministry of Social Development, 2010. *Otorohanga's zero youth waste.* [Online]
Available at: https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/journals-and-magazines/rise/issue-thirteen/otorohangas-zero-youth-waste.html
[Accessed 25 May 2015].

Morrow, E., 2011. *Vision Waihi Trust.* [Online]
Available at: http://www.waihi.org.nz/about-us/community-development/vision-waihi-trust/
[Accessed 26 Month 2015].

Murray, P., 2013. *Skegness sea monster revealed to be BBC hoax named 'Susan' for top gear presenter James May's man lab series.* [Online]
Available at: http://www.skegnessstandard.co.uk/news/local/skegness-sea-monster-revealed-to-be-bbc-hoax-named-susan-for-top-gear-presenter-james-may-s-man-lab-series-1-5039877
[Accessed 25 May 2015].

Myrdal, G., 1957. *Economic theory and under-developed regions.* London: Duckworth.

Nakagawa, Y. & Shaw, R., 2004. Social capital: A missing link to disaster recovery. *International Journal of Mass Emergencies and Disasters,* 22(1), pp. 5-34.

Nana, G., 2014. *Yes, from wool to weta. But, no, to zombie towns.* [Online]
Available at: http://www.berl.co.nz/economic-insights/economic-development/regions/yes-from-wool-to-weta-but-no-to-zombie-towns/
[Accessed 19 March 2015].

National Main Street Center, 2015. *National Main Street Center.* [Online]
Available at: http://www.preservationnation.org/main-street/
[Accessed 17 April 2015].

New Zealand Immigration, 2015. *Migration and labour force trends: Southland overview 2014,* Wellington: Ministry of Business, Innovation and Employment.

Newell, J., 2006. *Labour market anatomy and spatial micro-economies of the Auckland Region,* Wellington: MERA.

Newell, J. & Perry, M., 2001. *Functional labour markets revealed by travel to work data 1991 and 2001,* Wellington: MERA.

Notestein, F., 1945. Population: The long view. In: T. Schultz, ed. *Food for the world.* Chicago: University of Chicago Press, pp. 36-57.

OECD, 2005. *Building competitive regions: Strategies and governance,* Paris: OECD Publishing.

OECD, 2006a. Reinventing rural policy. *Policy Brief,* pp. 1-7.

OECD, 2006b. *Investment priorities for rural development,* Paris: OECD Publishing and Scottish Executive.

OECD, 2006c. *The new rural paradigm: Policies and Governance,* Paris: OECD Rural Policy Reviews.

OECD, 2006c. *The new rural paradigm: Policies and Governance, OECD Rural Policy Reviews,* Paris: OECD Publishing.

OECD, 2007a. *Competitive Regional Clusters: National policy approaches,* Paris: OECD Publishing.

OECD, 2007b. *Innovative rural regions: The role of human capital and technology,* Spain: OECD Rural Policy Conferences: Key Messages, March 21-23.

OECD, 2007c. *OECD e – Government studies Netherlands,* Paris: OECD Publishing.

OECD, 2007d. *OECD rural policy reviews: Germany,* Paris: OECD Publishing.

OECD, 2008. *OECD rural policy reviews: Netherlands,* s.l.: OECD.

OECD, 2009a. *Governing regional development policy: The use of performance indicators,* Paris: OECD Publishing.

OECD, 2009b. *How regions grow: Trends and analysis,* Paris: OECD Publishing.

OECD, 2009c. *OECD rural policy reviews: China,* s.l.: OECD.

OECD, 2009d. *Rethinking e-government services: User-centred approaches,* Paris: OECD Publishing.

OECD, 2010a. *OECD rural policy reviews: Strategies to improve rural service delivery,* s.l.: OECD.

OECD, 2010b. *Regional development policies in OECD countries,* Paris: OECD Publishing.

OECD, 2011. *International capital flows: Structural reforms and experience with the OECD code of liberalisation of capital movements,* Paris: Report from the OECD to the G20 Sub-Group on Capital Flow Management.

OECD, 2013. Netherlands: the BrabantStad partnership - Brabant. In: *Rural-urban partnerships: An integrated approach to economic development.* s.l.:OECD Publishing.

OECD, 2014. *Regional outlook: Regions and cities: Where policies and people meet,* Paris: OECD Publishing.

Office of the Auditor General, 2014. *Water and roads: Funding and management challenges,* Wellington: Office of the Auditor General.

Olfert, M. & Partridge, M., 2010. Best practices in twenty first century rural development policy. *Growth and Change,* 41(2), pp. 147-164.

O'Neill, B., Balk, D., Brickman, M. & Ezra, M., 2001. A guide to global population projections. *Demographic Research,* 4(8), pp. 203-288.

Ortiz-Moya, F., 2015. Coping with shrinkage: Rebranding post-industrial Manchester. *Sustainable Cities and Society,* Volume 15, pp. 33-41.

Palmer, G., Driver, S., Gardiner, W. & Jackson, B., 2012. *Future Wellington: An issues paper on local government reform in the Wellington region,* Wellington: Local Government Review Panel.

Panagopoulos, T. & Barreira, A., 2011. *Shrinkage perceptions and smart growth strategies for the municipalities of Portugal,* Faro: CIEO, University of Algarve.

Pearce, F., 2010. *The coming population crash and our planet's surprising future.* Boston: Beacon Press.

Polese, M. & Shearmur, R., 2006. Why some regions will decline: A Canadian case study with thoughts on local development strategies. *Papers in Regional Science,* 85(1), pp. 23-46.

Pool, I., Baxendine, S. & Cochrane, W., 2004. *Components of regional population growth, 1986-2001,* Hamilton, New Zealand: Population Studies Centre Discussion Paper No.44., University of Waikato, Population Studies Centre.

Project for Public Spaces, n.d. *How your community can thrive - even in tough times.* [Online]
Available at: http://www.pps.org/reference/howyourcommunitycanthrive-evenintoughtimes/
[Accessed 23 March 2015].

Rees, P., van der Gaag, N., de Beer, J. & Heins, F., 2012. European regional populations: Current trends, future pathways, and policy options. *Eur J Population ,* Volume 28, pp. 385-416.

Rhodes, J. & Russo, J., 2013. Shrinking 'smart'? Urban redevelopment and shrinkage in Youngstown, Ohio. *Urban Geography,* 34(3), pp. 305-326.

Rienits, T., 2009. Shrinking cities: Causes and effects of urban population losses in the twentieth century. *Nature and Culture,* 4(39), pp. 231-241.

Rink, D., Haase, A. & Bernt, M., 2009. *ShrinkSmart: Specification of working model,* Leipzig: Helmoltz Centre for Environmental Research.

Rink, D. et al., 2012. *Governance of shrinkage: Lessons learnt from analysis for urban planning and policy,* Leipzig: FP7 project Shrink Smart, work package 7.

Rix, J., 2012. *St Kilda: On the street where we lived.* [Online]
Available at: http://www.theguardian.com/lifeandstyle/2012/mar/24/last-man-st-kilda-evacuation
[Accessed 27 May 2015].

Roberts, P., 2000. The evolution, definition and purpose of urban regeneration. In: P. Roberts & H. Sykes, eds. *Urban regeneration: A handbook.* New Delhi: Sage, pp. 9-37.

Rosenzweig, M., 1988. Risk, implicit contracts and the family in rural areas of low income countries. *The Economic Journal,* 98(393), pp. 1148-1170.

RT News, 2012. *Russia's population decline speeds up.* [Online]
Available at: http://www.youtube.com/watch?v=WAg20BfDxMo
[Accessed 26 March 2015].

Rzepka, A., 2011. Various definitions of globalisation. *International Journal of Arts and Sciences,* 4(13), pp. 453-461.

SBS Australia, 2013. *Baby drain: Are the Japanese risking extinction? Journeyman Pictures.* [Online]
Available at: http://www.youtube.com/watch?v=IwUIKDTErNo
[Accessed 23 May 2015].

Schilling, J. & Logan, J., 2008. Greening the Rust Belt: A green infrastructure model for right sizing America's shrinking cities. *Journal of the American Planning Association,* 74(4), pp. 451-466.

Sedlacek, S., Kurka, B. & Maier, G., 2009. Regional identity: A key to overcome structural weakness in peripheral rural regions?. *European Countryside,* Volume 4.

Shrink Smart, 2014. *Shrink Smart - the governance of shrinkage.* [Online]
Available at: http://www.shrinksmart.eu/
[Accessed 19 March 2015].

Singer, A., 2012. *Investing in the human capital of immigrants, strengthening regional economics,* Washington DC: Metropolitan Policy Program: Brookings.

Smith, N., 1996. *The new urban frontier: Gentrification and the revanchist city.* London & New York: Routledge.

Soble, J., 2014. *Japan stands by immigration controls despite shrinking population.* [Online]
Available at: http://www.ft.com/cms/s/0/32788ff0-ea00-11e3-99ed-00144feabdc0.html#axzz3aYmJFyF7
[Accessed 19 May 2015].

Solonec, T., 2014. *The trauma of Oombulgurri's demolition will be repeated across Western Australia.* [Online]
Available at: http://www.theguardian.com/commentisfree/2014/nov/27/the-trauma-of-oombulgurris-demolition-will-be-repeated-across-western-australia
[Accessed 29 May 2015].

Spiller, M., 2012. *Regional Australia; drivers, prospects and policy directions,* s.l.: SGS Economics & Planning.

Statistics New Zealand, 2007. *Survey of dynamics and motivations for migration in New Zealand,* Christchurch: Statistics New Zealand.

Statistics New Zealand, 2009. *Internal migration of New Zealand's 65+ population.* [Online]
Available at:
http://www.stats.govt.nz/browse_for_stats/people_and_communities/older_people/structural-change-and-the-65-population.aspx

Statistics New Zealand, 2014. *2013 Census quickstats about a place: Waikato region.* [Online]
Available at: http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=13631&tabname=
[Accessed 31 July 2015].

Statistics New Zealand, 2015a. *Australia drives record visitor arrivals.* [Online]
Available at:
http://www.stats.govt.nz/browse_for_stats/population/Migration/IntTravelAndMigration_MRJan15.aspx
[Accessed 31 July 2015].

Statistics New Zealand, 2015b. *Census data.* [Online]
[Accessed 31 July 2015].

Statistics New Zealand, 2015c. *Defining urban and rural New Zealand.* [Online]
Available at:
http://www.stats.govt.nz/browse_for_stats/Maps_and_geography/Geographic-

areas/urban-rural-profile/defining-urban-rural-nz.aspx
[Accessed 29 April 2015].

Statistics New Zealand, 2015d. *Regional gross domesitic product: Year ended March 2014,* s.l.: Statistics NZ.

Statistics New Zealand, n.d. *Home ownership.* [Online]
Available at:
http://www.stats.govt.nz/browse_for_stats/population/Migration/internal-migration/home-ownership.aspx#
[Accessed 31 July 2015].

Statistics New Zealand, n.d. *Workforces on the move: Commuting patterns in New Zealand,* Wellington: Statistics NZ.

Stockdale, A., 2004. Rural outmigration: Community consequences and individual migrant experiences. *Sociologia Ruralis,* 44 (2), pp. 167-94.

Stockdale, A., Findlay, A. & Short, D., 2000. The repopulation of rural Scotland: Opportunity and threat. *Journal of Rural Studies,* Volume 16, pp. 243-257.

Teitelbaum, M. & Winter, J., 1985. *The fear of population decline.* s.l.:Academic Press.

Tennyson, L., 2015. *Shifting sands: How do we reverse the decline of our seaside towns.* [Online]
Available at: http://www.rudi.net/node/15924
[Accessed 19 March 2015].

Terluin, I., 2003. Differences in economic development in rural regions of advanced countries: An overview and critical analysis of theories. *Journal of Rural Studies,* pp. 327-344.

The Economist, 2013. *Britain's decaying towns, City sicker. Some towns cannot be preserved. Save their inhabitants instead..* [Online]
Available at: http://www.economist.com/news/leaders/21587790-city-sicker
[Accessed 19 March 2015].

The Government of the Netherlands, 2015. *Population decline.* [Online]
Available at: http://www.government.nl/issues/population-decline/tackling-population-decline
[Accessed 19 March 2015].

The Royal Society of New Zealand, 2014. *Facing the future: Towards a green economy for New Zealand ,* s.l.: The Royal Society of New Zealand.

The Scottish Government, 2011. *Achieving a sustainable future: Regeneration strategy,* Edinburgh: The Scottish Government.

Todaro, M., 1976. *Internal migration in developing countries,* Geneva: ILO.

Unikaite-Jakuntaviciene, I. & Rakutiene, S., 2013. *Writing a bachelor's thesis in the field of political science: Didactical guidelines,* Kaunas: Vytautas Magnus University, Faculty of Politicla Science and Diplomacy.

United Nations Department of Economic and Social Affairs/Population Division, 2015. *World population prospects: The 2015 revision, key findings and advance tables,* New York: United Nations.

United Nations Environment Programme, 2015. *Green Economy.* [Online]
Available at:
http://www.unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/Default.aspx
[Accessed 11 July 2015].

United Nations Population Division, 2001. *World Population Prospects: The 2000 Revision,* New York: Population Division, Department of Economic and Social Affairs, United Nations.

United Nations Population Division, 2002. *World population ageing: 1950–2050,* New York: United Nations.

United Nations Population Division, 2015. *UN Population Division.* [Online]
Available at: http://www.un.org/en/development/desa/population/
[Accessed 26 Month 2015].

United Nations Population Division, 2015. *World Population Prospects: The 2015 Revision databases.* [Online]
Available at: http://esa.un.org/unpd/wpp/
[Accessed 31 July 2015].

United Nations Population Policy Division, 2013. *World population policies database.* [Online]
Available at: http://esa.un.org/PopPolicy/about_database.aspx
[Accessed 31 July 2015].

United Nations, Department of Economic and Social Affairs, Population Division, 2013. *World Fertility Data 2012 (POP/DB/Fert/Rev2012).* [Online]
Available at:
http://www.un.org/esa/population/publications/WFD2012/Metadata/ASFR-TF-MAC.pdf
[Accessed 24 July 2015].

United Nations, Department of Economic and Social Affairs, 2015. *World Population Prospects: The 2015 Revision, File POP/1-1: Total population,* New York: United Nations.

United Nations, 2000. *Replacement migration. Is it a solution to declining or ageing populations?,* s.l.: United Nations Secretariat, Department of Economic and Social Affairs.

United Nations, 2010. *World Population Ageing 2009,* New York: Department of Economic and Social Affairs Population Division.

United Nations, 2011. *Press conference to mark world reaching a 7 billion population.* [Online]
Available at: http://www.un.org/press/en/2011/111031_SG.doc.htm
[Accessed 7 August 2015].

United Nations, 2013. *International migration policies -wall chart,* s.l.: Department of Economic and Social Affairs: Population Division.

United Nations, 2014. *World Fertility Report 2013: Fertility at the Extremes,* New York: United Nations, Department of Economic and Social Affairs, Population Division.

United States Census Bureau, 2015. *Urban and rural classification.* [Online]
Available at: https://www.census.gov/geo/reference/urban-rural.html
[Accessed 29 April 2015].

Venture Southland, 2014. *Southland futures: Regional economic development strategy: Primary industry careers for young people in Southland,* Invercargill: Venture Southland.

Verwest, F., 2011. *Demographic decline and local government strategies,* Radboud University Nijmegen: unpublished thesis.

Waikato Regional Council, 2015. *About the Waikato region.* [Online]
Available at: http://www.waikatoregion.govt.nz/Community/About-the-Waikato-region/
[Accessed 16 July 2015].

Warkentin, J., 2012. *Growth appropriate planning in Canada: What factors lead to the implementation of progressive planning and economic development policy in Canadian communities?.* Ontario: University of Waterloo, Master's Thesis.

Wattenberg, B., 2004. *Fewer: How the new demography of depopulation will shape our future.* Chicago: s.n.

Webb, J., 1963. The natural and migrational components of population changes in England and Wales, 1921-1931. *Economic Geography,* 39(2), pp. 130-148.

Welsh Government, 2013. *Vibrant and viable places: New generation framework,* s.l.: Welsh Government.

Westphalen, S., 1999. *Reporting on human capital: Objectives and trends.* Amsterdam, International Symposium, Measuring and report intellectual capital: Experience, issues and prospects.

Weyman, T. & Martinez-Fernandez, C., 2012. Demographic change and shrinkage in Australia communities. In: C. Martinez-Fernandez, N. Kubo, Noya & T. A. Weyman, eds. *Demographic Change and Local Development: Shrinkage, Regeneration and Social Dynamics.* Paris: OECD Publishing, pp. 57-64.

White, I., 2015. *The Waikato spatial plan: Context, definitions and key messages.* Hamilton: Presentation to the Joint Committee for the Waikato Spatial Plan.

Wiechmann, T. & Pallagst, K., 2012. Urban shrinkage in Germany and the USA: A comparison of transformation pattersn and local strategies. *International Journal of Urban and Regional Research,* pp. 261-280.

Wiechmann, T. & Volkmann, A., 2012. Making places in increasingly empty spaces: Causes and outcomes of demographic change in Germany. In: C. Martinez-Fernandez, N. Kubo, A. Noya & T. Weyman, eds. *Demographic Change and local development: shrinkage, regeneration and social dynamics.* Paris: OECD Publishing, pp. 91-102.

Williams, A., King, R. & Warnes, T., 1997. A place in the sun: International retirement migration for northern to southern Europe. *European Urban and Regional Studies,* 4(2), pp. 115-134.

Williams, J., 2013. *What happens when a towns' only hospital shuts down.* [Online]
Available at: http://health.usnews.com/health-news/hospital-of-tomorrow/articles/2013/11/08/what-happens-when-the-only-hospital-closes?page=2
[Accessed 26 March 2015].

Wilmoth, J., 2015. *Global demographic projections: Future trajectories and associated uncertainty. Presentation to the World Bank, 4 March.* Washington DC: Population Division, DESA, United Nations.

World Bank, 2009. *World development report 2009. Reshaping economic geography,* Washington DC: World Bank.

World Bank, 2015. *World Bank indicators database.* [Online]
Available at: http://data.worldbank.org/indicator/
[Accessed 24 July 2015].

Appendix 1 – Country Policy Response Profiles

1.1 Australia

Australia		**Regional level depopulation**	
Governance Structure	Federation	**Layers of Government**	3
Policy position	Competitiveness, Interconnection		
Facilitation of regional policy approaches*	Regionally driven – some state facilitation		
Central government role	Australia is primarily focused on a paradigm of growth (Weyman & Martinez-Fernandez, 2012). Federal government supports community development and engagement, state governments have their own regional development initiatives. Interventions have been limited in scope and financial commitment (Collits, 2012). Most jurisdictions have adopted a 'bottom up', partnership, local context approach; with self-help for regions and communities; a focus on delivering services and managing change, as well as on regional leadership; and strategies based on developing regional competitiveness (Chesire, 2006; Collits, 2002; OECD, 2010b).		
Recent policy developments	A new ministry was created in 2013 responsible for regional development covering - infrastructure, regional development, local government, territories and disaster recovery (OECD, 2014). There are regional migration incentives and special Visa categories for international migrants.		

1.2 Canada

Canada		**Regional level depopulation**	
Governance Structure	Federation	**Layers of Government**	3
Policy position	Competitiveness, Interconnection		
Facilitation of regional policy approaches*	Federation facilitation		
Central government role	Canada aims to reduce regional disparities and provide equal opportunities for every Canadian, founded on principles in their Constitution Act (OECD, 2010b). Focus is on an integrated approach to rural policy so that rural priorities are taken into consideration in the development of government policy, with an aim for policy coherence across ministries (OECD 2006). There is a particular focus on innovation, skills development, economic diversification, productivity and business development (OECD, 2014). Six Federal regional development agencies (RDAs) support regional development policy in addition to the actions delegated to provinces/localities. Federal RDAs focus on supporting innovation, trade and investment, business development, and community/local economic development (OECD, 2014). Federal RDAs tend to focus on actions in rural and remote areas (OECD, 2010b).		
Recent policy developments	The government supports the development of rural business. The Community Futures Program promotes bottom-up economic development in rural areas. The Western Innovation Initiative (WINN) provides incentives to get new technologies to the marketplace (OECD, 2014).		

1.3 Germany

Germany		**National level depopulation**	
Governance Structure	Federation	**Layers of Government**	4
Policy position	Focusing, utilising, managing		
Facilitation of regional policy approaches*	Regionally driven		
Central government role	Germany has a constitutional commitment to regional balance (OECD, 2010b). The main regional policy instruments focus on improving conditions in weaker areas to allow economic development (Ferry & Vironen, 2011). Germany developed a programme to address inadequacies in existing agricultural and other sectoral policy approaches. A number of small model areas were selected and local partnerships established to improve the focus of public policy for the region (OECD, 2006c). Although Germany is actively managing shrinkage with a particular focus on housing issues, the regions are responsible for mergers of local governments and most tasks are delegated to the regions (Wiechmann & Volkmann, 2012). There is a growing urban bias to Germany's regional development policy and the country's current approach is mainly sectoral (OECD, 2007d).		
Recent policy developments	There was a reduction in investment subsidies in 2013. Funding comes from the EU Structural Funds. There is a programme for the Improvement of Regional Economic Structure between the federal government and the regions (OECD, 2014).		

1.4 Japan

Japan		**National level depopulation**	
Governance Structure	Unitary	**Layers of Government**	3
Policy position	Competitiveness, interconnection, utilising		
Facilitation of regional policy approaches*	Mixed, national and local		
Central government role	The central government has a strong role in Japan. There is a focus on revitalisation of regions through: competiveness, promotion of private investment, response to ageing communities, response to energy issues. The central government developed the National Spatial Strategies which outline grand designs at national level for next 10 years. Eight regional plans define designs for individual regions under the National Spatial Planning Act. Several laws govern specific types of regions and frameworks for development (OECD, 2014). The central government drove local government reforms and mergers (municipalities reduced from 3 232 in 1999 to 1 718 in 2014) (OECD, 2014).		
Recent policy developments	Some recent policy developments include: Future City initiative – sharing experiences from cities that have overcome key regional challenges. A Grand Design for National Spatial Policy was published in July 2014. A review of statutory national spatial plan is also to be launched (OECD, 2014).		

1.5 Netherlands

Netherlands		**Regional level depopulation**	
Governance Structure	Unitary	**Layers of Government**	3
Policy position	Competitiveness, interconnection		
Facilitation of regional policy approaches*	Regionally driven		
Central government role	The objective of regional policy in the Netherlands is to stimulate economic growth in all regions (OECD, 2010b). The Netherlands has been pushing a decentralisation agenda and a number of functions have been shifted to the subnational government levels – spatial planning, regional development, traffic and transport, and environment (OECD 2014). National level policy "Top Sector" policy focuses on supporting sectors that achieved the most for the Netherlands economically and maximising these. The regions are responsible for strategies for regional development or shrinkage (OECD, 2014).		
Recent policy developments	The government released the National Policy Strategy for Infrastructure and Spatial Planning (SVIR) in 2012. This document outlines the national priorities by the central government. Governance structures are in the process of being reformed to reduce the number of provinces and municipalities as well as removal of other administrative bodies that exist between the provinces and local government (OECD 2014).		

1.6 UK

UK		**Regional level depopulation**	
Governance Structure	Unitary	**Layers of Government**	4
Policy position	Competitiveness		
Facilitation of regional policy approaches*	The United Kingdom consists of four countries – England, Scotland, Wales and Northern Ireland and has a highly complex sub-national structure and policy approaches that differ significantly between countries. In England, the objective is to balance growth promotion while reducing the gap between regions. Scotland focuses on reducing regional disparities, while Wales recognises the need to improve prosperity and quality of life for all sub-regions (OECD, 2010b).		
Central government role	In England there is an Integrated Regional Strategy. Some place-based policies are used but mostly top down. Large scale reorder of local agencies that deal with regional development. Some communities will be allowed greater planning scope at local level. Scotland has been actively countering depopulation and has a National Planning Framework. Wales has a Spatial Plan which adds in policy co-ordination at the regional level (OECD, 2010b).		
Recent policy developments	Since 2010 the nine regional development agencies have been abolished in England and focus has been shifted to local enterprise partnerships instead that will be able to decide on local priorities for investment in infrastructure. No clear regional development policy framework since abolishment. A Technology Strategy Board was created in 2013 to build innovation. 24 enterprise zones were created with tax incentives and simplified local planning regulations (OECD, 2014).		

1.7 US

US		Regional level depopulation	
Governance Structure	Federation	**Layers of Government**	4
Policy position	Passive restructuring, adaptation, competitiveness		
Facilitation of regional policy approaches*	Regionally or local level driven		
Central government role	There is no overarching framework for regional policy. Federal policies may provide infrastructure or planning investment to areas that are experiencing economic decline (OECD, 2010b). There is a wide range of responses to depopulation in the US at the local level. For the most part there is passive restructuring or an expectation of adaption. Some areas are attempting to counter or actively accept with strategies that deal with reducing infrastructure or developing places that are attractive for ageing populations.		
Recent policy developments	At the federal level there has been some attempt at greater coordination and integration of policies for regional development, with a general shift towards place-based policy. There has also been a greater focus on regional innovation clusters (OECD, 2014). White House's Neighbourhood Revitalisation Initiative – areas called promise zones – try to attract private investment, develop affordable housing and create jobs (OECD, 2014).		

Appendix 2 – Selected regional cross sector case studies

2.1 Germany – Brandenburg Region

Motivator: Countering and Accepting

Context: The economy of Brandenburg was strongly affected by the German reunification. Berlin is the central agglomeration in Brandenburg, a peripheral former East German area. The former East German industrial economies could not compete with western industries and collapsed. Berlin does not contain a strong economic structure and therefore there is little spill over from the economic conditions in the city to the region itself. Brandenburg has focused particularly on policies to reduce population decline.

Issues:

- Structural depopulation and ageing

Policy measures:

Operational demographic policy check

- A check against demographic indicators is used whenever investment decisions need to be made to make sure they are viable.

Built environment

- Financed by additional taxation, an integrated programme in response to the German reunification that deals with: vacant housing, private house improvement, inner city renewal, renewal of public space and derelict land.

Economic and business

- A turnaround from the decentralisation agenda to one of "strengthening of the strong"
- Focus on a policy of "from outside to inside" – strengthening of the inner cities through retail trade.

Education

- Transforming schools – keeping schools open, reducing physical deterioration of the schools – the state as a directive role in this.

Welfare and care services

- There is a policy shift away from the responsibility of health care for an ageing population focused on the health care sector to there being a general social responsibility and informal care.

Outcomes: The policies have not slowed population decline, however they have improved visual effects and quality of life. The quality of the living environment has improved but there has been criticism that there has not been enough focus on improving general wellbeing.

References: (Galjaard, et al., 2012)

2.2 Netherlands – Sustainability of redevelopment plans

Location: Municipalities of Heerlen, Kerkrade and Sittard-Gellen

Motivator: Accepting – improving quality of life

Context: These three municipalities are expected to shrink significantly over the next ten years. In expectation of this occurrence the three areas are developing plans to improve quality of life for their residents.

Policy measures:

Governance

- Clustering services in multiple facility buildings – primary schools and daycare, healthcare facilities and supermarkets.

Built environment - planning

- Demolishing houses with fewer houses being rebuilt than demolished
- Development of green space – pocket parks
- Create a green corridor as a link between districts
- Use shallow gully vacant spaces to create small lakes as a temporary water buffer or overflow
- Separate rainwater from roofs and streets from the sewerage system so that this water can be used in the small lakes

- Demolish the lowest quality public housing and replace with insulated homes.
- Pavements are being adjusted to cope with an anticipated influx of mobility scooters.

Economic and business

- Encourage existing businesses to hire the long term unemployed.
- Create on job learning opportunities for young people so that they do not have to leave the location to receive their education.
- Encourage retailers to locate in the central town areas not in the outer districts.

Social

- Involving the residents in the redevelopment plans
- Local residents maintaining public space
- Providing services for young people to meet
- Transport – light rail stations
- Transport – improve accessibility of the districts for cyclists

Outcomes:

The current situation and the three redevelopment plans were assessed with a sustainability performance measurement incorporating 24 aspects that cover the areas of planet, people and profit. These measures were compared to the performance of an 'average' reference district where no sustainable measures were undertaken. Preliminary conclusions from the sustainability assessment suggested that shrinking populations do not necessarily make districts more sustainable. Vacant green spaces are not necessarily a positive improvement. A positive outcome is the ability to demolish poor housing can physically improve the district. Creating a sustainable local environment in a shrinking area seems to be a more challenging and a different process than the same task in a growing area. Costs involved in the adopting various measures can also be a complication.

References: (Dreijerink, et al., 2012)

2.3 Scotland – Northeast Scotland

Motivator: Counter and accepting

Context: This is a peripheral area that was shrinking until the oil reserves were discovered in the North Sea. It has an industrial cluster that is centred on the oil industry but lacks in other agglomeration of industries that would support it long term if the oil industry suffered a setback. Due to the oil industry there has been strong international immigration. However, the region is aware that the population is ageing with future impacts on labour force. The region experienced a short period of population decline and this has been seen as a warning. Population policies are strongly focused on countering.

Issues:

- Decrease in school children
- Services and facilities - i.e.
    - 25 per cent drop in number of shops (1981-2008)
    - Increase in vacant buildings
- Ageing communities

Policy measures:

Education provision

- Law changes on school closures – reforming school closure decision making to allow for alternatives, effects on communities and transport.
- The 3Rs project: Reorganize, Renovate and Rebuild – merging declining schools.

  Mixed use of schools: school buildings can be used as a library, police station and for social work.

Welfare and care services

- Older people's Action Plan Aberdeen City: care services are customised to the needs of older people
- Flexible care facility and mobile health points – to enable older people to live in their homes longer

Service provision

- Fixed service model – services are provided from a central point
- Mobile services
- Internet based services
- Telecare

Built environment

- Law changes to Housing Act to enable the government to designate homes to be demolished due to being unsafe.

Economic and business

- Aberdeenshire Local Development Plan – economic stimulation in rural areas through diversification

Promotion

- Welcome here immigration policies

Outcomes:

Population trends in North East Scotland were reversed in the 1990s by a combination of the industrial cluster development and strong immigration policies. This reversal is unlikely to have occurred without the oil sector boost.

The education and older people strategies have had a positive effect on quality of life but the effect on population growth is unclear. In general the policies are aimed at quality rather than quantity.

Reference: (Galjaard, et al., 2012).

Appendix 3 – Selected local level case studies

3.1. Bioenergy village

Location: Germany – Lower Saxony - Juhnde

Strategy: Decentralization – technical infrastructure provision

Motivator: Accepting

Objective: To supply the village with electricity all year round.

Population (2000)	1072
Time frame	2004

Policy measures: The village of Juhnde built a biogas plant fuelled by corn, crop silage, sunflowers and manure from local farmers to produce heat and electricity. An additional woodchip heat plant was installed to guarantee supply over winter. Citizens of the village pay to be part of the project and 70 per cent of the village (140 households) have joined. The residue is able to be used again as fertilizer. A cooperative was formed to run the plant and is funded by membership contributions and profit from selling the energy.

Funding sources: The project had strong support from outside of the village. Expertise came from the Interdisciplinary Centre for Sustainable Development (University of Gottingen) which initiated the project and was part of the process. Funding was sourced from the Agency of Renewable Resources which receives funds from the federal government, from the federal state Niedersachsen, the local government of Gottingen and from the EU LEADER+ rural development programme.

Actors: Community leaders, civic society, business community, national level input

Outcomes: Social benefits – building trust and partnerships among community leaders. This enables the community to act quickly if new opportunities arise. The full range of challenges are being met.

References: (Dremel, 2013)

3.2 Downtown revitalization

Location: US – North Carolina - Ayden

Strategy: Downtown revitalization

Motivator: Countering

Objective: to create a welcoming place for businesses to prosper and for local residents to shop and spend time.

Context: Ayden's downtown business community was adversely affected by a highway construction project that diverted traffic away from the Main Street. Several revitalization projects had previously failed.

Population (2000)	4,620
Poverty rate (2000)	26%
Minority population (2000)	52%
Proximity to urban center	150km to Raleigh, N.C.
Proximity to interstate highway	90km
Time frame	2005-2007

Policy measures: Ayden applied to the North Carolina Main Street Program, an off shoot of the National Main Street Program which provides strategy and market analysis to enable rural communities to revitalize. Ayden was selected and received three years of technical assistance and guidance to develop a revitalisation programme, as well as small business assistance and leadership training.

Three groups were formed: design, economic restructuring and promotions, peopled by officials, residents and business owners.

Funding sources: "The National Main Street Program, developed by the National Main Street Center of the National Trust for Historic Preservation, includes a four-point approach to downtown revitalization based on a comprehensive strategy of work, tailored to meet local needs and opportunities. For more information, see www.mainstreet.org. The North Carolina Small Town Main

Street Program (STMSP), an offshoot of the Main Street program, provides market analysis to rural communities and gives small businesses the resources to evaluate their market opportunities.

Grants were provided for updating facades. The planning department also offered free design consultations for façade improvements. There was strong uptake of this initiative.

Actors: Community leaders, civic society, business community, national level input

Outcomes: Downtown revitalization was achieved but only through tapping into higher level programmes for support. The success was not large scale but did enable the growth of existing small business and conditions for further growth. There were also social benefits, such as, building trust and partnerships among community leaders. This enables the community to act quickly if new opportunities arise.

References: (Lambe, 2008)

3.3 Japan – Ryori Port Rehabilitation Project

Location: Ryori, Sanriku region, Ofunato Prefecture

Motivator: Countering – speed

Policy sectors: Economic and business, social

Context: Ryori was a fishing community that was severely impacted by the Great East Japan Earthquake and tsunami of 2011. A cooperative oversees all fishing activities and a factory for processing fish products. Only 206 ships survived from a fishing fleet of 610.The tsunami severely damaged the fish processing factory meaning that even though fishing has restarted the product must be sent to other fishing cooperatives for processing thereby losing economic margin. Over half of the population is over the age of fifty. The cooperative has 453 members, with each member representing a family or group of fishermen. Only 300 are

active fishing participants, the rest being widows or retirees. As these people receive financial assistance and profits from the cooperative, the cooperative is crucial for the economic and social welfare of older members.

Policy measures: Revitalizing the fishing industry, rebuilding the factory.

Objectives: To quickly rebuild the fishing fleet and fish processing plant. Any delay is likely to worsen the age structure of the population as the younger residents leave for more economic opportunities.

Actors: Central Government, Kizuna Foundation - charitable funds through grants and donations, a non-profit organization that was created in response to the needs of survivors of the Japanese tsunami 2011.

Funding: Local and Central Government and the Kizuna Foundation. The government has subsidized the ships. Local and central government have provided a subsidy for equipment needs up to 90 per cent of the cost. The Kizuna Foundation has received approval from the Japanese government for a subsidy of 90 per cent to rebuild the factory and is also working on grants for the last 10 per cent.

Outcomes: The fishing fleet is now back to 500 ships. The rehabilitation of the fishing factory serves as a symbol of recovery for the region.

References: (Kizuna Foundation, 2012)

Ishinomaki, Miyagi Prefecture – what happens when intervention isn't fast enough

Towns and cities in the prefectures of Iwate, Miyagi and Fukushima lost more than 72,000 through death or abandonment of their homes. Around 65 per cent of the population that left the area was under the age of 30.

The tsunami destroyed much of Ishinomaki. The rebuild has not been completed fast enough to maintain the rest of the population. Over 10,000 people were either killed or left from the town of Ishinomaki. There is a mismatch of jobs to job seekers. There are currently 168 employment positions for every 100 people seeking word in the town.

A fish factory was rebuilt and opened in 2013. Demand for the Kinoya company's product is high, however, there are significant challenges for operation of the factory. Kinoya is struggling to attract young workers. Even before the disaster young people didn't want to work in the labour intensive industry. Most of the employees are in their 50s and 60s.

Reference: (Kizuna Foundation, 2013)

3.4 Canada – Immigration policies

Location: Morden, Manitoba Province, Canada

Motivator: Countering

Policy sectors: Governance, Promotion, Economic and business

Context: Canada has a low fertility rate and is ageing. At the same time the economy is doing well and there is a shortage of skilled workers. The Canadian federal government now shares jurisdiction over the selected of immigrants with its 10 provinces and three territories. Most provinces run their own 'Provincial Nominee Programmes.' Different provinces have different workforce requirements which they are struggling to fill. People wanting to move to Canada must make an application through the Provincial Nominee Programme (PNP).

The province of Manitoba has its own Provincial Nominee Program (MPNP). The MPNP travels overseas to recruit possible candidates for the 'invitation' stream for their programme.

The small town of Morden is going one step further and runs a successful active recruitment campaign through their own community driven immigration initiative to fill gaps in their job market. Living costs in the town are among the lowest in Canada. Canadian cities are experiencing rising costs of living that is outstripping the rate of inflation leading to a potential shift away from immigrants seeking to live in the cities.

Morden	
Population	9,000
Nearest major city	Winnipeg – 112km
Unemployment rate	3.1%

Policy measures: The campaign taps into the Manitoba Provincial Nominee Programme, however Morden identifies potential residents *before* they make their PNP application. The community consults with local employers and then promotes candidates for immigration through the PNP. The community only

accepts applications from candidates that fall into the target occupations and the candidate must make a visit to the area to have an interview, make local contracts and seek employment.

Actors: Collaboration between local residents, employers, local government, developers.

Funding sources: Manitoba Provincial Nominee Programme

Timeframe: Started in 2012

Outcomes: There has been a high retention rate for immigrants. The community is backing the programme - with employer support, developers considering building dwellings to house immigrants and locals welcoming newcomers. A recent survey found that 85 per cent of Manitoba provincial nominees were working three months after arrival with many employed within one or two weeks.

References: (CanadaVisa.com, 2015; CIC News, 2014; City of Morden, 2015) (City of Morden, 2015)

Appendix 4 – Policy variables for the World Population Policies 2013

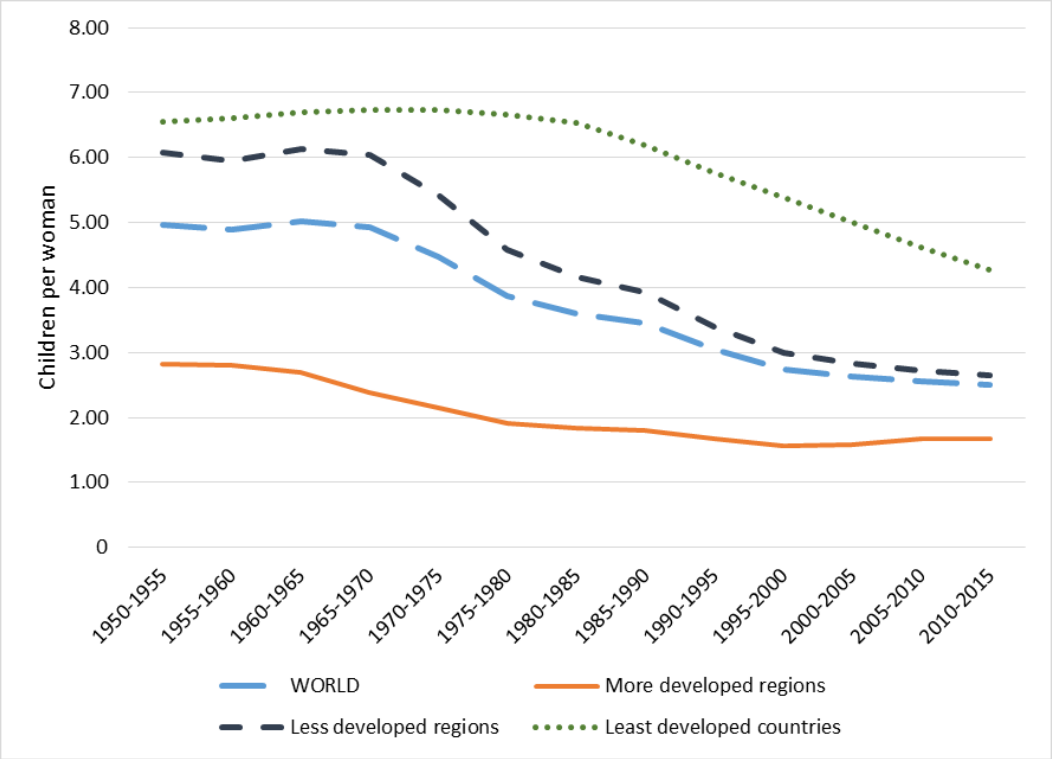
Variable name	Variable definition	Response categories
Policy on growth	Indicates Government's stated policy to influence the rate of population growth in the country.	Too low Satisfactory Too high
Level of concern about ageing of the population	Indicates Government's level of concern about the growing size or the proportion of older persons in the population and its consequences for health and social welfare provisions. In cases where the current proportion of older persons is relatively small, Government's concerns about the challenges that a growing older population will pose in the future are included.	Major concern Minor concern Not a concern
Measures to address population ageing	Indicates whether the Government has adopted specific measures in the last five years to address population ageing in the country.	1. Change in statutory retirement age 2. Reform in the pension system Neither
View on spatial distribution	Indicates whether the Government considers the spatial distribution of population within the country to be satisfactory or whether it desires a change.	Major change desired Minor change desired Satisfactory
Policy on migration from rural to urban areas	Indicates Government's policy to influence the flow of migration from rural to urban areas within the country. Migration from rural to urban areas is not applicable in countries with 100 per cent urban	Raise Maintain Lower No intervention Not applicable

	population.	
Policy on immigration	Indicates Government's policy to influence the level of documented immigration into the country.	Raise Maintain Lower No intervention

Appendix 5 – Fertility

One of the key demographic trends causing depopulation is the reduction in fertility. As can be seen from Figure 27, although the less developed regions and least developed countries have higher fertility rates than the more developed regions, they have also experienced a significant reduction in the average number of children per woman over the period 1950 to 2010. Figure 27 shows that the More Developed Regions crossed this threshold as a group in the late 1970s. However, there remains wide disparity between countries in this group, with the USA and New Zealand maintaining a higher total fertility rate.

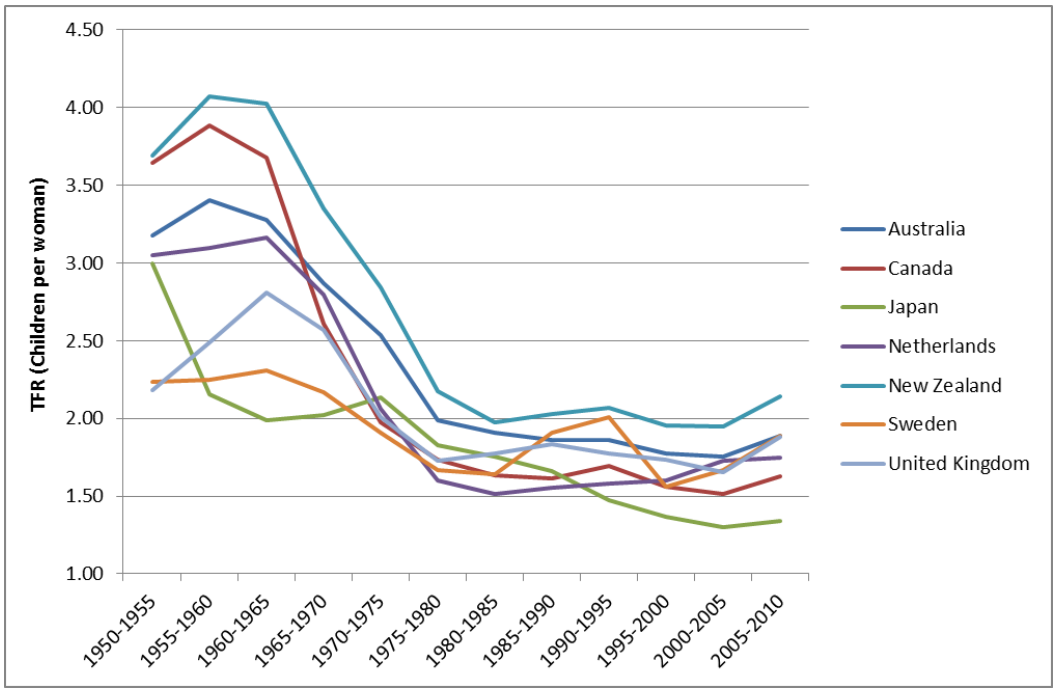
Figure 27: Estimate of Total Fertility Rates for selected regions 1950-2015



Source: UN Population Division: World Population Prospects 2015 Revision

Figure 28 shows Total Fertility estimates from selected MDC countries, revealing that New Zealand's TFR hovers around the replacement level. Although some of the countries experienced recent short term escalations in TFR (Sweden and Japan) none of the other countries in this group have maintained a rise in the TFR for an extended period, or reached above the replacement level since the 1980s.

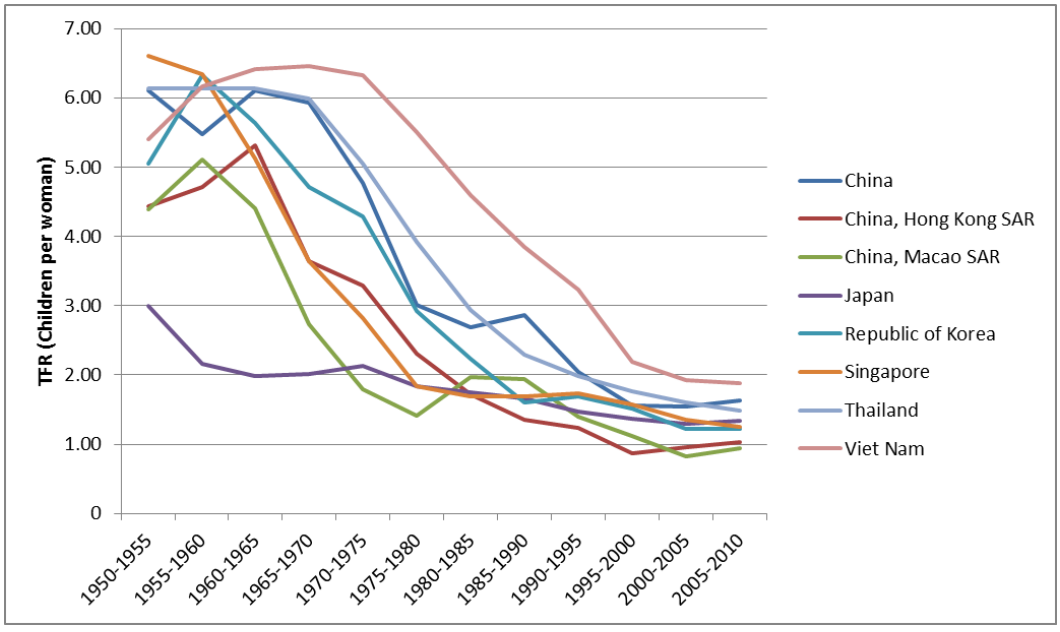
Figure 28: Selected Most Developed Countries (MDC) – TFR estimates 1950-2010



Source: UN Population Division: World Population Prospects 2012 Revision - Spreadsheets

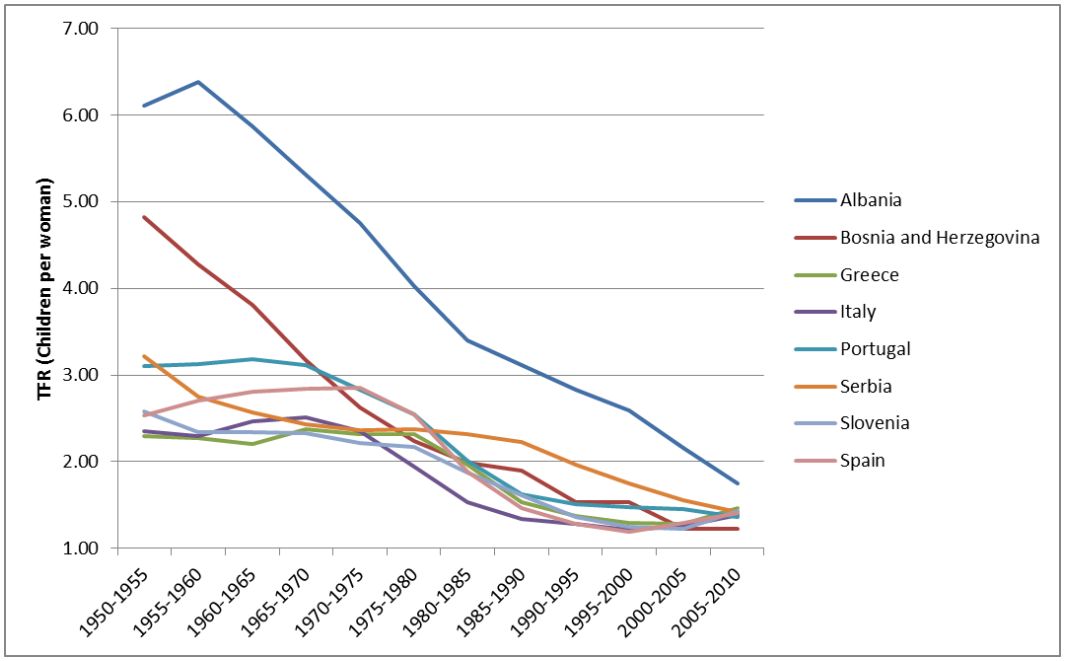
Ultra low fertility is now prevalent in Pacific Asia (Jones, et al., 2009) (See Figure 29). South Mediterranean countries are also experiencing significant entrenched ultra-low fertility (See Figure 30).

Figure 29: Estimated TFR 1950 – 2010 Ultra low fertility – Asian Countries



Source: UN Population Division: World Population Prospects 2012 Revision – Spreadsheets

Figure 30: Estimated TFR 1950-2010 Low fertility – Selected Southern European Countries



Source: UN Population Division: World Population Prospects 2012 Revision - Spreadsheets

There are some views that once fertility drops to these levels it is impossible to increase it except by a few points (Jones, et al., 2009). The reason is the drivers behind these significant drops in TFR. According to Clark (2004) "declining marriage rates, increased cohabitation without children, increasing labour force participation by women and the increasing costs of having and educating children will tend to keep fertility low" (p. 48).

McDonald (2001), states that there are four main theoretical arguments for low fertility – rational choice or demand theory; risk aversion; post materialist values; and gender equity theory.

Rational choice or demand theory presupposes that people make rational choices about the relative costs and benefits of having a child. If there is greater benefit in having the child then fertility will increase and therefore the opposite can also be assumed; if fertility declines the relative cost of having a child has increased (Becker 1981, in McDonald). Aligned with this theory is the assumption that as economic pressures bear on potential families, couples delay childbearing (Longman, 2004).

The theory of risk and opportunity adds to demand theory in that in people refrain from having children if there is a perception that their future is uncertain. Risk aversion may be in reaction to uncertainties in a wide range of spheres, such as relationships, work, housing, and family support.

Post-materialist values theory looks at the changing value structures of society and stipulates that the rise of individualism and liberalism with the accompanying break down of religious values changes previous assumptions about the need to have children (McDonald, 2001). This theory essentially holds that having children is just one option in a world of many preferences.

Gender equity theory expostulates that women will restrict the number of children they have if they are given near equivalent opportunities as men in education and employment. Even though gender equity has advanced in many industrialised countries the male breadwinner model is still prevalent. It has been observed that there is lower fertility amongst more traditional countries, such as found in Southern Europe, that lack institutional arrangements for childcare support (McDonald, 2001). In these countries the opportunity cost of having a child would be higher for women than in their counterpart less traditional societies. The opportunity cost for women to leave the workforce to produce children also increases with the length of time spent in the workforce, the seniority attained and incremental rise in salary or wages (Wattenberg, 2004).

Regardless of the reasons for low fertility, postponement of childbearing is a characteristic of low-fertility countries, with the mean age of mothers rising significantly in many such countries. The postponement of childbearing to older ages is also having an adverse effect on perinatal and maternal outcomes, such as infertility, birth defects and premature delivery (United Nations, 2014). These factors will contribute to the sustaining of low fertility.

Many countries are concerned that these fertility patterns will have significant social and economic consequences (United Nations, 2014). According to Pearce (2010), once this trend has been established is very hard to turn it around and it

will have profound implications for the developed nations: “Girls that are never born cannot have babies” (Pearce, 2010, pp. 247-248).

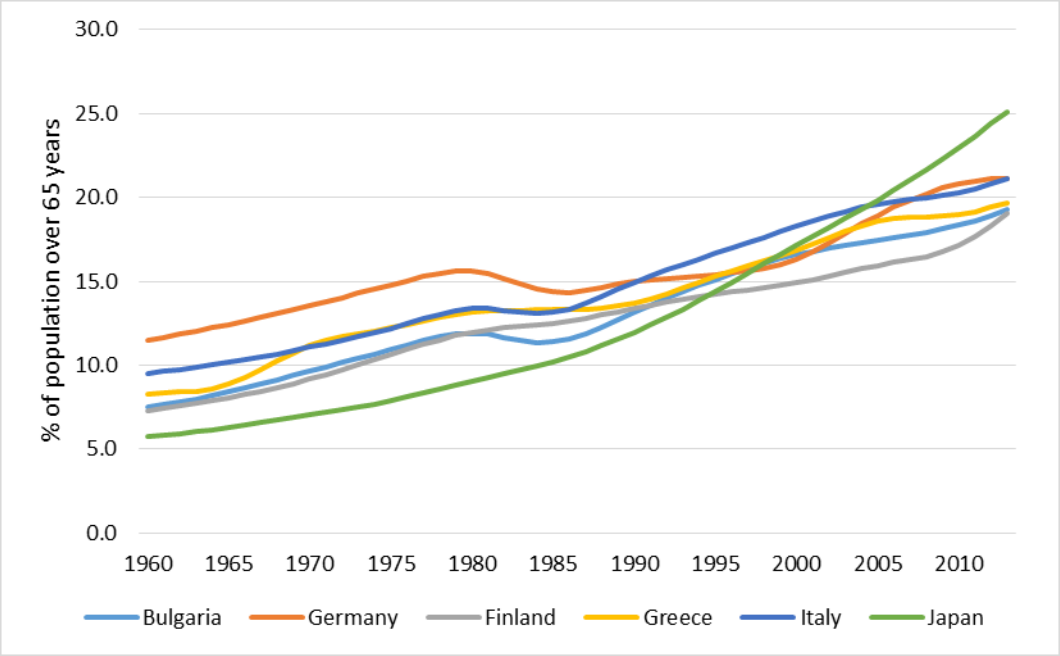
Extended low fertility will have ramifications for businesses, families, economies, and politics, to name a few. If the conditions that have caused fertility to drop over the last 50 years continue then it is unlikely that the total fertility rate will suddenly increase.

Appendix 6 – Ageing and longevity

Population ageing is unprecedented in world history as this new phenomenon that has not been experienced before. As such, it has profound implications for all aspects of human life and will affect most societies to some degree (United Nations Population Division, 2002).

In 2011 Japan, Italy and Germany had the oldest populations in the World (Bloom, et al., 2011). Figure 31 shows the six oldest countries in the World. By 2013 all these countries had more than 19 per cent of their populations over the age of 65.

Figure 31: Countries with the oldest populations in the World 1960 - 2013



Source: World Bank (2015) indicator database

Population ageing impacts on a wide range of sectors, such as; the proportion of the population in the workforce which affects both tax revenues but also labour shortages; demand for and funding of old age pensions; healthcare demand and services for old age support; and the reduction in education facilities as there are less children (Bloom, et al., 2011; United Nations, 2010).

The pace of population ageing is also an important consideration for socio-economic conditions, as these conditions may be amplified by the speed of ageing. Rapid changes in structural ageing can make it difficult for governments

and institutions to adjust to changes that need to be made (United Nations, 2010). Lutz, et al. (2008) states that the speed of ageing is likely to increase over the coming decades but to decelerate again after mid-century, after the 'baby boomers' have passed through old age.