

# TREASURY WORKING PAPER

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### Economic Geography - Key Concepts

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#### ABSTRACT

Economic geography can help us understand why people and firms choose to locate where they do, whether these are good choices from a broader efficiency/resource allocation viewpoint, and what the implications of these choices are for the distribution of income and wealth.

This paper is an attempt to synthesise the key pieces of recent literature on economic geography and think about how the concepts may apply to New Zealand. The paper first builds a framework of the key forces affecting the geographic location of people and firms. The framework splits the concepts into exogenous and endogenous forces, with a particular focus on agglomerating and dispersing forces. The framework can be used to think about location decisions both within countries and between countries, and a closer look is taken at how the concepts apply to New Zealand at the international level. The paper then explores whether location decisions can be a problem from efficiency or equity perspectives and looks at possible roles for intervention.

The paper highlights that location decisions are influenced by many factors and that density can offer many benefits to people and firms. Fundamental questions are raised about whether New Zealand as a whole can maintain a critical mass of activity. There are also important questions about how we might deal with poor or declining regions.

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## EXECUTIVE SUMMARY

Economic geography is the study of where economic activity takes place and why it takes place there. It is important that we understand the concepts in this field of literature as they have implications for New Zealand's economic performance and social outcomes as well as providing insights into policy areas such as regional development and local government. The ideas presented apply to location decisions both within a country and between countries, making economic geography an extremely useful tool of analysis.

The paper presents the key concepts of economic geography in a framework of exogenous and endogenous forces. At the heart of the framework is the idea that people and firms choose their location to maximise their welfare and profits respectively and that various forces which can affect welfare and profits push and pull people and firms towards a particular place.

Exogenous forces are classed as those things that firms or individuals take as given in a location and that influence their location decision. They include:

- Natural features of geography and the environment, such as climate, harbours, water sources and soil quality. These natural features ensure that not all activity takes place in cities.
- Historical features, such as the location of a capital city or the birthplace of an entrepreneur. One important historical feature that emerges with a nation state are 'border effects' – less tangible trade barriers such as a common language and culture that limit the mobility of goods and services across borders and so affect location decisions.
- Institutional features, such as membership of international organisations, the regulatory framework and the legal system. Also included in this category are explicit trade barriers such as tariffs, which also limit the mobility of goods and services.

Endogenous forces are those things that firms or individuals can actually influence and in doing so they influence the decisions of other firms and individuals on where to locate. These forces include the amenity and rates/tax mix of a location, and the agglomeration and dispersion forces that work to attract and repel activity from concentrated dense locations such as cities. Agglomeration forces include the following:

- Lower transport costs stemming from smaller distances between agents and the existence of transport hubs in cities. Lower transport costs also help to encourage specialisation as the market size is effectively enlarged.
- Economies of scale and scope in dense areas. One particular 'scale and scope' benefit is an increase in specialisation – this increases efficiency and promotes variety and diversity. Another benefit is a thick labour market that offers workers some 'insurance' of their jobs, better matching of jobs and workers and greater bargaining power for workers, allowing them to reap the benefits of their human capital investments.
- Informational externalities stemming from the information flows swirling through agglomerations. These include knowledge spillovers promoted by the easy movement of people between proximate firms and the greater formal and informal contact in dense areas. A spillover of ideas

encourages and enables the creation of new ideas and feeds the innovation process. Telecommunications are predicted to remain a complement rather than a substitute for face-to-face contact in this process. Human capital accumulation is another externality – people may learn faster in cities and this leads to higher wage growth and higher wage levels.

- Consumption benefits. Metropolitan consumers enjoy a wider variety of goods and services and a greater provision of goods such as museums and theatres.

A common theme running through these agglomeration forces is the idea that higher density can lead to higher productivity. Empirical work from the United States suggests that doubling employment density can in some cases lead to a 6% increase in average labour productivity.

Dispersion forces act to push activity away from agglomerated areas. These forces include:

- Higher costs of living, particularly housing costs;
- Higher costs for factors of production;
- Pressure on essential infrastructure such as sewerage and roads;
- Pollution; and
- Social problems such as crime.

The balance between these agglomerating and dispersing forces will differ between locations and across industries. From an efficiency point of view, it may be important to let the forces work naturally so that an agglomeration is neither stopped before it reaches its prime nor encouraged to grow beyond its natural abilities. However, this may lead to the emergence of specialised cities that have only one main industry – these cities are fragile and may be cause for concern if their industry collapses.

The paper then takes a closer look at the conceptual framework as it applies to location decisions across countries, in particular, choices between New Zealand and elsewhere. It highlights some of the advantages and disadvantages of New Zealand as a location and notes the weakness of agglomerating forces in New Zealand. The balance that will emerge between agglomeration and dispersion forces is unclear but the discussion raises a big question for New Zealand – can New Zealand maintain a critical mass of activity in the future or will activity agglomerate offshore?

At this point the paper moves from the conceptual framework to a discussion of whether location differences are a problem. A caveat here is that being concerned about a location does not imply that there is a remedy – some of the issues are difficult and do not have obvious solutions. One reason for concern is efficiency. While movement between locations is a natural and necessary adjustment to changing circumstances, the amount of adjustment is not always efficient if there are either barriers to adjustment or externalities that make people and firms privately assess their location options differently to how society as a whole would view them. From the international perspective,

this leads us to ask questions such as, is movement of people and firms to Sydney efficient? What does this mean for policy? In particular, whose welfare are we trying to maximise – those left behind in New Zealand or all New Zealanders regardless of their location?

The discussion moves on to equity issues, in particular, the issues that arise when location decisions lead to a distributional outcome that people consider to be unacceptably inequitable or unfair. How do we decide how much and who to support in regions that are poor or declining? While economic geography can highlight some of the distributional consequences of location decisions it cannot provide answers to equity-based questions.

These equity concerns may also play out at an international level. It may be 'efficient' for activity to move offshore but naturally New Zealanders would be concerned at the thought of New Zealand becoming a poor region of Australasia, with low incomes, poorer health and education outcomes and a higher level of crime and violence. This concern partly stems from the fact that there are no transfers available to New Zealand from richer regions, and partly from a simple emotional attachment to New Zealand as a nation. This raises the very important question of what is the future of New Zealand? Our location may mean that we cannot aspire to Irish-type growth rates – how high should our expectations be?

From these concerns the paper turns to a discussion of intervention. Within New Zealand many policies have regional effects, some intended and some unexpected. The important points to note are firstly that not all regional differences are indications of problems, secondly that not all problems can be solved and thirdly that there can be unexpected side-effects from policies that can swamp any benefits. It is also important to understand how general policies, such as the unemployment benefit or the siting of infrastructure, can have regional implications. Economic geography may help analysts to offer clearer advice on these issues but one conclusion is certain – policies should be explicitly rationalised as having economic benefits, social benefits, or both, so that their effectiveness can be assessed.

Policies at the national level must also be carefully thought through to make sure they will be effective. The paper suggests some government interventions but these suggestions have not been subjected to a thorough assessment and are included as food for thought only. Fostering relationships with other countries will help to expand New Zealand's potential market, however, border effects will continue to put up a barrier to integration, particularly with countries that are less similar to New Zealand. New Zealand's relationship with Australia is one that could be expanded, but it is important to weigh up the marginal benefits from further integration with Australia against the benefits that might be gained from forming a more basic relationship with another country or group. It is also important to look at the consequences of further integration with other countries on the location of activity – would integration encourage further specialisation, and could such specialisation make New Zealand more vulnerable to shocks and less open to innovation? These are important issues that warrant further investigation.

In conclusion, this paper highlights the complexity involved in location decisions and the importance of clarity about the purpose and scope of policy initiatives. What may be ineffective from an efficiency view may be justified from an equity view – the two do not always coincide and there will be choices to be made. For example, from an efficiency perspective a drift northwards in New Zealand is reasonable. It is likely to increase productivity and wages in Auckland and create a larger denser area in which knowledge and innovation are more likely to flourish. From an equity perspective however, the drift may be seen as undesirable as other regions may face decline. Policies aimed at improving outcomes in the regions should state clearly whether they are for efficiency or equity purposes so that their effectiveness can be assessed.

The other important message is that these forces will also play out at the international level. We are left with some fundamental questions about the future of New Zealand and about whose welfare we really care about. They are not easy questions to answer.

## **1. ECONOMIC GEOGRAPHY – WHAT IS IT?**

Economic geography is the study of spatial economics – that is, where economic activity takes place and why it takes place there. It injects another dimension into economic analysis by acknowledging that location is important. Economic geography has had a long history, with contributions coming from geographers, urban scientists and economists, but the field has recently received renewed attention from the general economics community due to advances in modelling techniques. Now that economist's tools are sophisticated enough to model situations of increasing returns to scale and imperfect competition, economic geography is more tractable and we are able to address the issues of location that are so clearly important but were previously difficult to look at formally.

## **2. WHAT ARE THE IMPORTANT ISSUES?**

There is clearly public interest in trends such as the drift north to Auckland, the persistent low incomes and unemployment in the East Cape and the fear of head offices shifting to Sydney – these are all issues to do with the location choices of people and firms. Economic geography can help us understand why these location choices are made, whether they are good choices from an efficiency/resource allocation viewpoint, and what the implications of these choices are for the distribution of income and wealth. To give a few specific examples of policy areas that may be informed by economic geography literature:

- international linkages – understanding the forces affecting the geographical location of economic activity across countries;
- economic performance – understanding the significance of New Zealand's geographical location for our potential performance and the implications for New Zealand as a whole if economic activity moves beyond our borders. Also, understanding the role played by urban agglomerations in our productivity performance;
- local government – applying our understanding of the significance of urban agglomerations to assessing the implications and possible roles for local government policy;
- regional development – understanding the possible effects of policies that are targeted towards particular regions and looking at their effect on New Zealand's overall economic performance;
- innovation – understanding the significance of firm location for the innovation process;
- industry clusters – understanding why industry clusters develop and what the policy implications may be; and
- social policy – understanding how location dynamics affect social outcomes.

These issues are obviously important and for this reason we need to understand some of the central concepts in the economic geography field.

This paper is structured as follows:

- Section 3 outlines a conceptual framework for thinking about the geographic location of people and firms both within countries and across countries;
- Section 4 discusses the framework as it applies to international location decisions;
- Section 5 asks whether location differences are a problem;
- Section 6 discusses roles for government intervention; and
- Section 7 offers some conclusions.

It should be emphasised at the outset that this paper's primary objective is to set out the key concepts of economic geography and identify some important questions for further research.

### **3. A CONCEPTUAL FRAMEWORK**

The following framework attempts to outline the key forces affecting the geographic location of people and firms. It is not based on an exhaustive summary of the literature, however, it does give a structured way of thinking about location decisions.

At the heart of the framework is the idea that people and firms choose their location to maximise their welfare and profits respectively and that various forces which can affect welfare and profits push and pull people and firms towards a particular place. For the purposes of analysis we could even think of the world as spots of economic activity, rather than as separate countries or regions. People and firms then make choices about location between different sized spots in different places. We can think of activity levels in these places as being indicated by GDP- and GDP per capita-type estimates.

#### **3.1 Why regions differ**

We see in New Zealand differences in the levels of economic activity between different regions. For example, Auckland had a population of just over 1 million people in 1996, and a median income for males of \$24,401. In contrast, the West Coast had a population of just over 30,000 people in 1996, and a median income for males of \$18,521. A further contrast is the growth of full-time equivalent (FTE) people employed in the two locations: between 1995 and 1998 Auckland experienced a 14.6% rise in FTE employment while the West Coast experienced a 0.3% drop. The differences between these locations have existed for some time and the outlook for the future does not suggest the differences will lessen. Equally, there are differences in the level of economic activity between countries. What are some of the reasons for this? What attracts people and firms to particular places and why do we see agglomerations of activity in some places and relative inactivity in others?

The tables on the next few pages summarise the key concepts as we see them. The framework splits the concepts into exogenous and endogenous forces, with a particular focus on agglomerating and dispersing forces. These



forces are important for understanding cities and clusters and, at a more aggregate level, countries as a whole. Table 1 summarises the key determinants of location, which are then discussed further in the text. Table 2 gives some empirical evidence on the size of the effects and an indication of supporting literature.

**Table 1: Determinants of Location**

<b>Key determinants of location include:</b>	
<b><i>Exogenous forces: Things that firms or individuals take as given in a location that influence their location decision.</i></b>	
• <i>Natural features</i>	Features of the environment. Important from consumption perspective (e.g. Ohakune good for skiing) and production perspective (e.g. Auckland has good harbour for transportation).
• <i>History</i>	History or a chance event starting or hindering activity in a location and then chain reaction reinforces the direction of change (e.g. where an entrepreneur grows up, war, choice of capital city, colonial past, English language).
• Border effects	An important feature of history – less tangible trade barriers such as common language, culture and trust that limit the mobility of goods and services and so affect location decisions.
• <i>Institutional features</i>	Features such as what international organisations/agreements the country is part of, the regulatory environment and legal framework.
• Trade barriers	Trade barriers limit the mobility of goods and services, thus firms may have to locate in destination markets rather than supplying from one location.
<b><i>Endogenous forces: Things that firms or individuals can affect, and in doing so influence other firms' or individuals' decisions on where to locate.</i></b>	
• <i>Local amenities</i>	Provision of amenities such as public transport, schools, and playgrounds and the rates levels associated with them. In international sense, level of taxes vs. level of government services.
• <i>Agglomerating forces:</i>	Benefits from agglomeration that encourage growth of a location. Can be broken into production benefits and consumption benefits.
• Production benefits:	Benefits to firms or individuals in the business of providing goods or services to the market. One big benefit is rise in productivity.
• Transport costs	Lower transport costs in agglomerations due to lower distances

	and existence of transport hubs. Lowers cost of doing business and encourages specialisation.
<ul style="list-style-type: none"> <li>Economies of scale and scope</li> </ul>	Larger market enables average cost to fall, for firms and individuals to specialise and be more efficient and productive, and for more variety of intermediate and final goods and services to be available. Thick labour market also brings benefits of 'insurance' for workers due to wider variety of prospective employers, better matching of jobs and workers, and bargaining power for workers so they reap the benefits of investment in human capital.
<ul style="list-style-type: none"> <li>Informational externalities</li> </ul>	Benefits from the flow of information and knowledge in the agglomeration. Knowledge spillovers particularly important – close proximity of firms and movement of workers enables knowledge to disperse, which encourages and enables creation of new ideas, processes and products i.e. innovation. People also more productive in agglomerations due to knowledge spillovers – helps them to learn faster and the reward is higher wages.
<ul style="list-style-type: none"> <li>Consumption benefits</li> </ul>	Benefits include variety of goods and services, lower prices of tradeable goods and services due to competition, and greater provision of goods such as museums.
<ul style="list-style-type: none"> <li><i>Dispersing forces</i></li> </ul>	Forces that work against agglomeration.
<ul style="list-style-type: none"> <li>Higher cost of living</li> </ul>	Cost of housing rises with city size, cost of commuting also higher as congestion increases.
<ul style="list-style-type: none"> <li>Higher cost for factors of production</li> </ul>	Competition for workers, land and capital pushes up factor prices.
<ul style="list-style-type: none"> <li>Pressure on infrastructure</li> </ul>	Essential infrastructure such as roads, sewerage and water comes under increasing pressure.
<ul style="list-style-type: none"> <li>Pollution</li> </ul>	Decreases the quality of life in agglomerations.
<ul style="list-style-type: none"> <li>Social problems</li> </ul>	Crime, concentration of poverty, segregation of rich and poor and different ethnic groups, consequent increase in intellectual and social isolation of disadvantaged communities.

**Table 2: The empirics of location**

Determinants of location	Empirical evidence on size of effects	Supporting literature
<b>Exogenous forces:</b>		
• <i>Natural features</i>		Gallup & Sachs with Mellinger (1999)
• <i>History</i>	E.g. NAFTA encouraged shift of industry to US-Mexico border.	Venables (1996) Hanson (1998) Amiti (1998)
• Border effects	E.g. Inter-Canadian province trade 12x bigger than province-US State trade.	Helliwell (1998)
• <i>Institutional features</i>		
• Trade costs		Venables (1996)
<b>Endogenous forces:</b>		
• <i>Local amenities</i>		
• <i>Agglomerating forces:</i>		
• Production benefits:	Higher productivity – double density of area → 6% increase in labour productivity, 4% increase in TFP.	Ciccone & Hall (1996)
• Transport costs		
• Economies of scale and scope		Glaeser (1998)
• Informational externalities	Wage premium of over 20% in US cities indicating higher human capital accumulation.	Audretsch (1998) Glaeser & Maré (1999 forthcoming)
• Consumption benefits		Quigley (1998)
• <i>Dispersing forces</i>		
• Higher cost of living		Glaeser (1998)
• Higher cost for factors of production		
• Pressure on infrastructure		
• Pollution		Glaeser (1998)
• Social problems		Glaeser (1997/98)

### **3.1.1 Exogenous forces**

No two places are exactly the same – different natural features, institutional features and histories combine to give locations uniqueness. These features are exogenous from an individual's or firm's viewpoint – they are simply taken as given. Given that different people and firms derive satisfaction from different things, diverse location specific features of this type will lead to a dispersion of people and activity over an area.

**Natural features:** Different natural features are important from both a consumption perspective and a production perspective. Some people might choose to live in Ohakune because they enjoy skiing and fishing, others might prefer to live in the Bay of Islands because they enjoy the warmer weather and boating. Some locations have better features than others for the production of certain things – central US states have large flat expanses of land ideal for growing grains while Auckland has a sheltered harbour that plays an important role in transportation of both people and goods. Natural features ensure that some activity continues to locate outside cities, for example, forestry in the central North Island.

Internationally, countries with a temperate climate and access to a coastline have greater levels of economic activity than landlocked countries with a tropical climate. New Zealand's isolated geographic location in the South Pacific has implications for location decisions through its effect on distance to our markets. As technology changes different natural features may change in value, however, the physical geography of regions and countries will remain an important factor in the location decisions of people and firms and in explaining economic performance.

**History:** The past matters – one event can shape a region or country's future in ways that are not always clear at the time but become more obvious in hindsight. Events can often be self-reinforcing so that once positive changes start to occur they encourage further positive changes. By the same token, a negative change can encourage further negative changes. This is the idea of cumulative causation – that history or a chance event may have started or hindered activity in a location and then a chain reaction leads to a concentration or dispersion of activity there. One example might be the electronics cluster in Christchurch – Angus Tait of Tait Electronics lived in Christchurch and set up a business in his garage in the 1950s. From these small beginnings the business grew and over time spawned other electronics firms – now Christchurch is seen as the pre-eminent location for the electronics industry in New Zealand. Other examples might include New Zealand's colonial past helping to shape international trading relationships and the choice of Wellington as a capital city ensuring that some activities, such as the public service, continue to locate here.

'Border effects' are another important historical feature. Border effects refer to the less tangible barriers to trade that exist between different countries or even

different regions. They stem from the closer interaction, common languages, social capital stocks, national institutions and bonds of trust that exist between members of a particular country or region. There is evidence that border effects are strong – for instance despite a free trade agreement between Canada and the United States there still exists a home bias for goods, services, savings and investment and migration. For trade in goods, inter-Canadian province trade is twelve times greater than that between Canadian provinces and US states after accounting for economic size and geographic distance. For trade in services the estimated number is between 30 and 40. This indicates that there are strong barriers to trade beyond the explicit barriers we usually think of.

If border effects such as these are persistent, economies across the world will probably never become as completely integrated as globalisation would suggest. It may be that there are upper limits to the gains to be had from trade openness if border effects are indeed that pervasive. For location decisions, border effects mean that activity is encouraged to disperse across space as these implicit trade barriers limit the mobility of goods and services.

***Institutional features:*** For individuals and firms there are certain aspects of a country that are taken as given, for example, the legal framework and the democratic system of government. These features will influence the willingness of activity to locate in a particular place. Another example is membership of various trade organisations – New Zealand's membership of the WTO and APEC and their consequent effects on market access is taken as given by firms, who may decide New Zealand is a more desirable location given its participation in these trade fora.

Trade barriers are an important example of institutional features. When there are high international trade barriers such as tariffs and quotas, firms are forced to focus supply on the local market. This encourages firms to be dispersed across space with each serving different markets because they are facing physical limits to the mobility of their goods and services – it is not possible to service all markets from one agglomeration point when there are high trade barriers. At lower trade barriers firms are more likely to agglomerate as they can supply their good or service to other markets as well as their local one more cheaply.

Taking this one step further, some believe that as trade barriers fall even lower and globalisation effects become stronger, agglomeration benefits will lose their importance. Firms will disperse widely across regions and countries and move in response to wage differentials. However, while border effects may maintain some level of dispersion, given the strong support for the ideas of information spillovers and other benefits from agglomeration, the view that globalisation will lead to mass dispersion of economic activity seems weak. The concepts around agglomeration will be discussed in section 3.1.2.

Regional trade agreements are also an important institutional feature. These agreements influence the location of activity by expanding the set of markets

that firms serve. Free trade gives domestic firms an incentive to move production to regions with relatively good access to foreign markets, such as border areas or port cities – particularly when exports are a large fraction of sales. Firms may even decide to relocate to the other country if they wish to take advantage of its larger market to achieve greater economies of scale. It is possible then that setting up a new trade agreement could lead to some industry leaving the home country and choosing to supply the home market through exports.

Evidence shows that the free trade agreement between the United States and Mexico (NAFTA) has pulled industry towards the border in Northern Mexico where transportation costs to the United States are lower and may have led to the deindustrialisation of Mexico City, the former manufacturing hub. The United States has set up factories in Northern Mexico to take advantage of lower labour costs, and there has also been some movement of employment in the United States to cities bordering areas of Mexican activity. However, given the disparate sizes of the two economies the United States has a much larger effect on the location of activity in Mexico than vice versa. These examples show how policy decisions can have profound effects on the location of economic activity.

It appears then that different locations can have different levels of economic activity as a result of the preferences of people and firms for different location specific features that arise from the natural environment, institutional arrangements and history. This is not the full story though. We need to know what determines the size of these areas of economic activity. Economic geography literature suggests that it is not just the number of people or firms that prefer a given bundle of features – there are also specific benefits to be had from simply being in a larger area. The choices of individual people and firms can lead to cumulative effects that can alter the features of a location and make it more or less attractive to others. The specific questions then are, what are the benefits of people and firms agglomerating in an area that keep an area expanding and what are the costs that put an upward limit on the extent of agglomeration that takes place?

### ***3.1.2 Endogenous forces***

Endogenous forces occur when the actions of individual people and firms lead to changes in a location that affect other people's and firm's decisions about where to locate. One simple example of this is the provision of local amenities. Areas differ in their provision of public transport, playgrounds and swimming pools, in the variety of schools and tertiary institutions, in their provision of quality roading and reliable water and electricity supplies and so on. They will also differ in the level of rates that they charge. The number of people and firms in the area affects the efficiency and the amount of provision of particular goods and services. Voting and other public participation in local decisions helps to signal the preferences of residents who choose to stay in the location. This type of movement between regions is the Tiebout idea – individuals and

firms choose their location based on the level of local public goods and the access cost, and reveal their preferences via their location decision.

The story can equally apply across countries, with taxes and government services being the focus, and firms and individuals choosing the country that best suits their preferences. For example, Ireland's 10% tax rate for business has been one of the factors attracting firms to Ireland. Sometimes too, firms can extract specific concessions from local or state governments before choosing a location, rather than passively moving to the area that offers a particular tax/service bundle. This is apparently common practise in the United States.

The most interesting case of endogenous forces is agglomeration. There are some very complex mathematical ways of defining the structure of agglomerations but for the purposes of this paper it will suffice to say that agglomerations such as cities are concentrated and have a higher density than their surrounding areas. Density refers to the amount of labour and human and physical capital relative to a physical space – density is high when there is a large amount of labour and capital per unit of space. Agglomerations bring definite benefits to those who work or operate within them and these benefits can encourage inward migration that increases the size of the agglomeration and increases the benefits – thus a dynamic process begins. There are also dispersing forces that work to slow or stop the growth of agglomerations after a time. The degree of agglomeration that works best may differ across firms and industries, thus from an efficiency perspective it may be important to allow natural agglomerating and dispersing forces to work. The discussion below explores the economics of agglomerations, looking at the forces that encourage and discourage agglomeration and how they balance.

### **a) Agglomerating forces**

The benefits from agglomeration can be thought of as agglomerating forces. They confer to both production and consumption, and the following discussion will be broken up into these categories.

#### ***i) Production benefits***

Firms and individuals that are in the business of producing goods or services for the market will gain benefits from locating in an agglomeration. Three categories of benefits are identified below: transport costs; economies of scale and scope; and informational externalities. One common theme running through all of these categories is that higher density can lead to higher productivity. The theory is supported by empirical evidence from the United States that suggests a doubling of employment density can in some cases lead to a 6% increase in average labour productivity. Density, whether it be in a city or cluster, will attract people and firms as they seek to improve their productivity and ultimately their welfare or profits.



### Transport costs

The cost of transporting goods and services to market can be an important consideration for firms and individuals when making a location decision. If transport costs are high they may feed through to higher prices for the good or service and subsequently affect demand – this may provide impetus for activity to locate somewhere with lower transport costs. Transport costs are lower in agglomerations due to the smaller distances to both suppliers and final consumers. Cities are also often the hubs of transport networks, again making transportation cheaper and easier and lowering overall costs for businesses. Low transport costs also help to encourage specialisation, as it becomes possible to serve a larger market more cheaply – essentially enlarging the total market size. As transportation costs have fallen over time their effect on location decisions has reduced in relative importance. However, they remain a part of the overall story of agglomeration.

### Economies of scale and scope

Economies of scale result when an expansion of activity within a firm allows it to enjoy reduced average costs of production. Economies of scope emerge when the presence of one activity makes carrying out a complementary activity cheaper by fostering diversity in supply and specialisation among firms and individuals. The larger market inherent in an agglomeration allows firms and individuals to benefit from economies of scale and scope. Below we take a closer look at specialisation and at the benefits arising from the large labour market in agglomerations.

**Specialisation:** A higher degree of specialisation can be achieved in denser areas by both firms and workers due to the larger market. This can lead to higher productivity, as firms and workers become more efficient at producing or delivering their particular good, service or skill. Specialisation in dense areas may be particularly strong if there is a high level of trust and co-operation that gives firms a degree of comfort in outsourcing part of their production process.

For firms, a larger market allows production of a specialised good or service to be viable. This is because there are a greater number of customers and a greater number of supporting activities that are able to provide inputs. This holds for the production of both intermediate and final goods or services, and therefore it promotes variety and diversity in an agglomeration. Silicon Valley is a good example – firms can specialise in a particular part of the production process, say a small chip component, as they know they have a large base of other firms to sell to. There are probably also other firms in the agglomeration that offer their services for the maintenance of specialised production equipment. Another example is simply a big city – firms and individuals benefit from a greater range of accounting services, advertising agencies and legal advice, for example.

The large number of people in cities also allows workers to specialise in the task at which they are most efficient, as they know they have a large market in which to sell their skills. Dense areas can support highly specialised computer consultants, for example, or highly skilled medical specialists.

***Labour market:*** Firms and workers gain a number of benefits from the ‘thick’ labour markets or ‘labour market pooling’ effects that exist in agglomerations. These benefits include insurance for workers, better matching of jobs and workers and greater bargaining power for workers. Evidence suggests that labour market pooling is a dominant force in explaining the agglomeration of industry and authors say there is little reason to suspect that this force will decline in importance.

Workers are ‘insured’ against firm- or industry-specific shocks as agglomerations provide a wider variety of prospective employers both in the industry the worker specialises in and in other industries. This means that if a firm or industry suddenly experiences difficulties and lays off members of its staff, these workers will have a greater chance of finding alternative employment elsewhere in the agglomeration due to the larger number of other firms. In another way, agglomerations provide ‘insurance’ for households with more than one worker, such as families where both adults hold down jobs. It is more likely that all workers in the household will find jobs within the vicinity of the agglomeration that are suitable for their skill-set than if the household located elsewhere.

Firms also benefit from a larger labour market, as they have a greater variety of people and specialised skills to choose from, and therefore are more likely to be able to fill vacancies with the ‘right’ person. This is the idea of matching and it brings great gains to specialised firms that require equally specialised workers. Gains accrue to workers as well as they are more likely to be satisfied in their work and better paid as they become more skilled at their jobs.

Workers also gain benefits from ‘thick’ labour markets in the form of bargaining power. When workers have many prospective employers they can afford to bargain to gain the best possible deal for themselves. This bargaining power is important as it raises the likelihood that workers will reap the benefits of their human capital investments, thus encouraging workers to invest more in their education and training.

### *Informational externalities*

An important reason that density may increase productivity is that there may be ‘externalities’ in production within cities and clusters. Informational externalities occur in agglomerations when firms and individuals gain benefits from the information flows that are swirling around them. Two externalities are discussed below: knowledge spillovers and innovation; and human capital accumulation. These externalities are another force that encourages location in an agglomeration.

**Knowledge spillovers and innovation:** A key externality is the ‘spillover’ of information and knowledge between firms. The easy movement of workers between proximate firms allows ideas and expertise to disperse, as does the formal and informal contact between people in the area. Such dispersion of ideas encourages and enables the creation of new ideas, new processes, new products – in other words, encouraging the innovation process. Some authors argue that cities are critical for facilitating unplanned idea combinations that are important for economic growth.

Telecommunications advances have not reduced the importance of proximity. Human contact is still extremely important due to the way information and knowledge flow between people. The most important flows are of tacit knowledge and since such knowledge is vague, difficult to codify and often only recognised by accident, it is important to transmit it face to face. Information, on the other hand, can easily be transmitted via electronic means since it generally has a singular meaning and interpretation. Telecommunications will therefore continue to be a complement to face-to-face contact, rather than a substitute.

Commentators believe that knowledge spillovers are a fundamental factor in the emergence of the Silicon Valley cluster and others like it. However, it is difficult to find strong empirical evidence for this – anecdotal evidence is more abundant than statistical evidence. There are also questions around whether information spillovers are more beneficial in diversified cities or concentrated industrial park-type arrangements and whether the production of new ideas is greater in a competitive or less-competitive environment. Evidence so far suggests that having a diverse range of firms has more value for long-term growth than having a large total scale of production. There is also a strong positive connection between the number of firms per worker and growth in a given area, suggesting competition is important.

**Human capital accumulation:** The idea that workers are more productive in agglomerations is backed up by evidence on wage premiums in cities. Wage premiums refer to higher nominal wages, received in this case by workers in cities. Evidence from the United States shows that wage premiums in urban areas are over 20% even after accounting for differences in worker experience, education, ethnicity and ability. Within New Zealand, rough estimates show Auckland to have a wage premium of around 13%. An increasingly popular explanation is that workers are more productive because they learn faster in cities – as a result they experience higher wage growth and higher wage levels. They learn faster because of the amount of information and knowledge spillovers that take place when people interact, as discussed above. Human capital accumulation is therefore thought to be faster in cities.

## **ii) Consumption benefits**

Consumers also reap the benefits of being in a city-type environment. The benefits stem from lower transport costs and economies of scale and scope,

similar to the benefits accruing on the production side. Consumers have access to a wider variety of goods and services, as the larger market enables the viability of more firms, as discussed above. Consumers may take advantage of a greater variety of restaurants, clothing outlets, and nightlife for example. If we assume that people are happier when they have a greater variety to choose from, then cities will provide greater wellbeing – even more so if agglomeration benefits are so large as to allow firms to lower prices. Other consumption advantages include the greater provision of local goods – there is more likely to be a museum, an opera house, and regular and frequent provision of public transport in a city as there are greater numbers of people to support them.

### **b) Dispersing forces**

Agglomerations are not without their costs, however. There are forces at work that will eventually cause a city or cluster to stop growing, at least when its growth is left to natural forces. These forces may be referred to as dispersing forces; rather than encouraging economic activity to cluster in an area, they will encourage activity to disperse.

**Higher cost of living:** The first dispersing force is the higher cost of living. There are several reasons for the higher cost. One is simply higher demand stemming from greater numbers of people and bigger incomes leading to higher prices. For example, the sheer number of people in a city increases the scarcity of land and pushes its price up. Empirical evidence shows that the median housing value rises dramatically with city size. Auckland is a good example of this – increasing numbers of city-dwellers combined with scarce land have steadily pushed house prices up. Wellington's house prices have also been increasing over time, as have house prices in most other growing cities around the world. Prices could grow even more quickly if demand is not offset by improvements in building technology and commuting options that can lower the cost of building or living further away from work.

The second reason for higher prices is that not all goods' and services' production will benefit from agglomeration to the same degree. For example, it is hard to imagine a city sandwich shop benefiting from knowledge spillovers and so on to quite the same degree as an infotech-consulting firm. If 'low-agglomeration-benefit' production chooses to remain in the agglomeration to satisfy the demand of residents then to allow the providers of these goods and services to remain profitable the cost of the good or service must rise. This is another reason for the humble lunchtime sandwich being quite expensive in a city.

It is also quite costly to work in cities. The main example is commuting – commuting time is much higher in cities, with the cost of this time increasing as the value of people's time rises. One only has to try driving across Auckland in rush hour to appreciate how congested city roads can become.

**Higher cost for factors of production:** Not only is the cost of living, housing and commuting more expensive for individuals in an agglomeration, as the agglomeration grows the cost of factors of production for firms increases as well. Competition for workers, land and capital will push up factor prices, and may at some point discourage firms from agglomerating.

**Pressure on infrastructure:** As people and firms move into agglomerations pressure may be placed on essential infrastructure. The idea that roads come under pressure has been discussed above, with higher commuting times the result. However, other infrastructure may also struggle to cope – sewerage, water, and perhaps electricity. A growing agglomeration needs to maintain a good system of infrastructure – otherwise healthy growth may be prematurely slowed.

**Pollution:** Pollution is another dispersing force often associated with cities, particularly air pollution and water pollution. Pollution decreases the quality of life for city-dwellers and encourages the movement of people to cleaner, less populated areas. While some pollutants are unrelated to city size, the level of particulates does increase with city size. However, improvements in car technology, better emission controls and the decline of urban manufacturing have all helped to reduce the correlation between cities and pollution and this trend appears likely to continue.

**Social problems:** Social problems are another cost related to cities. Evidence from the United States suggests that crime rates are higher in cities and authors suggest that the same forces that make cities good places for economic activity will also make cities good places for illegal activity. For example, there is a greater 'market' of potential victims, there may be economies of scale in acquiring and disposing of stolen goods, and there is a larger social network that can spread information about crime or the values that condone crime. Literature from the United States suggests that there is also a lower probability of being arrested for a crime in a city. Greater levels of crime in cities are said to be related to the greater concentration of individuals in poverty in cities.

The concentration of poverty in cities is referred to as differential selection. It seems that cities attract poor people because of the availability of public transport, proximity to work, public goods and social networks. Unfortunately, the social problems that are created by the large number of poor also repel wealthier people, thus creating distinct spatial divisions between rich and poor. The rich may also be inclined to move out of cities to satisfy their demand for physical space, which is cheaper outside of cities, and their willingness to pay to avoid crime is also higher.

Is this type of cycle a problem? If diversity is important for growth, as evidence seems to suggest, then differential selection may be undesirable. In the United States, ghettos are thought to be undesirable as the young people that grow up there are less likely to graduate from high school and to be in paid employment, and more likely to have a child at a young age, than young people growing up in

less segregated areas. Commentators suggest that the intellectual and social isolation of disadvantaged communities works against the acquisition of human capital among young people.

***c) Balancing agglomerating and dispersing forces***

For a growing city or cluster, agglomeration forces outweigh dispersing forces and thus further entry by firms or individuals is encouraged. However at some point agglomerating forces do balance against dispersing forces and an agglomeration may reach its upward limits. Individual firms and people perceive and value the various forces differently and they will make their location decision accordingly. At some point for instance, higher wages in the city will balance against high house prices. Perhaps the gains for firms from the large market eventually balance against the high cost of land and groaning infrastructure. At this point growth of the agglomeration may well stop. From an efficiency perspective it may be important that the natural agglomerating and dispersing forces be allowed to work so that an agglomeration is neither stopped before it reaches its prime nor encouraged to grow beyond its natural abilities.

There is also a sectoral aspect to the story. The degree of agglomeration that works best and the kinds of benefits most appreciated from agglomeration will differ across firms and industries. For some firms or industries, the agglomeration benefits will not outweigh the high land and labour costs in a large city; for others the benefits will dominate. This suggests that economies may have a range of cities of different sizes and different production patterns. The 1999/2000 World Development Report notes that the biggest metropolitan areas (defined as having a population exceeding 1 million) have large, diverse economies that support modern service and other innovative industries that derive important benefits from that diversity and size. Small and medium-sized metropolitan areas (with populations less than 1 million) tend to specialise in the production of standardised manufacturing or services that are exported outside the city. By specialising they benefit from the knowledge spillovers and scale they achieve within the industry while avoiding some of the congestion costs associated with larger cities. However, as other authors note, these specialised cities are fragile – what happens if they become uncompetitive in the particular industry that makes up the bulk of their economy? Is this a problem? Is there a role for government? These issues will be explored in Sections 5 and 6 later in the paper.

#### **4. NEW ZEALAND IN THE WORLD**

The conceptual framework detailed in Section 3 applies to location decisions both within countries and between countries. This section takes a closer look at the latter in the New Zealand context.

#### **4.1 The framework**

Moving through the framework, there are some features of New Zealand that work in favour of attracting people and firms and some that work against.

***Exogenous forces:*** New Zealand as a whole has unique natural features just as individual regions or towns do. Our clean, green image is a draw-card, as are the many scenic attractions and adventure sport destinations. The land is ideal for pastoral and agricultural industries and water sources are good.

New Zealand's history has left lasting features. Our colonial past introduced English as an official language and the traditional trade ties with Britain have helped shape our international relationships and our industrial structure to some extent. For people and firms for whom English language and ties with other 'Western' countries are important, these features are attractive. Other historical-type features include the common language, culture, national institutions and trust that have been built up within New Zealand and that act to bind New Zealand as a unit. Importantly, these factors act as 'border effects' as discussed earlier in the paper and serve to limit the movement of firms and people and the mobility of goods and services across the border. For New Zealand these border effects may mean there are limits to the level of integration we can expect to achieve with other countries.

Many of New Zealand's institutional features are attractive – a democratic system of government, low levels of corruption, an established legal framework and low trade barriers for example. Other institutional features include a nuclear free stance, membership of international bodies such as the WTO and membership of various trade agreements such as CER and APEC. The regulatory framework also counts as an institutional feature. These features are all open to adjustment by government and present options for policy.

***Endogenous forces:*** We can think of tax rates and the provision of central government services in the same way as local body rates and services. The number and type of people in New Zealand helps determine the levels of tax paid by firms and individuals and the levels of provision of services such as health and education. This package may or may not be attractive to others and will be factored into location decisions. Again, this is something government has some control over.

***Agglomeration:*** Agglomeration forces are probably not strong for New Zealand – we are a geographically isolated small country with a small market. The differences are stark when one examines the size and densities of cities. For example, Auckland has a population density of 191 people per square kilometre while the urban core of Tokyo has a density of 12,830 people per square kilometre, and the entire population of New Zealand is around the same size as Sydney.

New Zealand faces large distances to its markets; hence transport costs are often high. However, with technological advances the cost of transporting goods and services to markets outside New Zealand has fallen over time and we might expect further advances in aero-technology to be of great benefit. Economies of scale and scope may be limited as New Zealand's small population is quite dispersed across the country – cities are scattered and small by international standards. This reduces the opportunities for reaping the benefits of being in a large dense area. Informational externalities may be limited too due to the small size of New Zealand cities and simply lower absolute numbers of people participating in knowledge flows. The difficulties of tapping into knowledge spillovers increase with distance, suggesting spillover benefits from foreign knowledge may be harder to access.

In New Zealand's favour the forces that encourage dispersion are not strong. Land and building costs, congestion, pollution levels and crime levels are all relatively low. These are positive features that many firms and individuals value.

The balance that will emerge in the future between agglomeration and dispersion forces for New Zealand is unclear. While agglomeration forces are not strong, neither are dispersion forces. There may be some action government can take to influence these forces, and these will be discussed in Section 6. A big question here is whether New Zealand can maintain a critical mass of activity. Is the country able to support a successful agglomeration or will activity agglomerate offshore in Sydney or Melbourne for example? Will telecommunication and transportation advances ever lower the need for agglomeration to transmit tacit knowledge and so 'lower the goalposts' for New Zealand?

## **5. ARE LOCATION DIFFERENCES A PROBLEM?**

The paper thus far describes some reasons why people and firms choose to locate where they do. We observe that natural features, institutional features, history, the local amenity/rates mix and various agglomerating and congesting forces serve to influence location decisions and that people and firms choose their location to maximise their welfare and profits. If this is the case then why might we be concerned by location differences? This section looks at differences from efficiency and equity perspectives and raises some questions for New Zealand.

A caveat must be voiced at this point – although we may be concerned about a particular location it does not follow that there is a remedy. Some of the problems we identify are real world problems that do not have obvious solutions – this section simply seeks to acknowledge their existence and note possible implications for location decisions.



## **5.1 Efficiency**

Location decisions may or may not be optimal from an efficiency or resource allocation perspective. This is best illustrated by looking at movements between locations over time. As conditions change, one would expect people and firms to shift to the location that will maximise their welfare. This suggests we will see people migrating between locations, investment pulling out of one location and flowing into another, and changes in the scale of economic activity in various locations. Resulting from this will be changes in the level of wages paid, the price of land and buildings, and the price of capital across locations. This is a natural and necessary adjustment process as people and firms strive to achieve the best situation they can for themselves. Within New Zealand this adjustment is also beneficial for the performance of the economy as a whole as people and other resources shift to the location where they can add the most value.

Within New Zealand we certainly see movements of this type. One example is the growth of Auckland. Auckland's population grew by 13.2% between the 1991 and 1996 Censuses and full-time equivalent employment grew by 14.6% between 1995 and 1998. Over the last 5 years the median house price has risen by 30%. These statistics could suggest that Auckland is a location providing the highest possible welfare levels for increasing numbers of people and firms, perhaps because of the increasing level of and benefits from agglomeration.

People and firms also move in response to visible shocks, as they re-evaluate their options. For example, the closing down of freezing works in many smaller New Zealand towns has been one factor behind the shrinking of these towns and the expansion of larger ones. Thames and Patea are just two examples. The closing of the Bendon factory in Te Aroha may also stimulate the movement of some people and firms to other places with more opportunities.

However, are these movements enough to ensure an efficient allocation of resources? In cases where there are barriers to adjustment they may not be. For instance, it may be that because of imperfect information about other location opportunities, risk aversion towards shifting, or capital constraints a person or firm chooses to stay put even though it would be better for them if they moved. For example, a family that owns its own home in a small declining rural town may simply not have the money to shift to a larger town where there are better employment opportunities. This may be because the value of their rural home is not large enough to cover the cost of buying a home in an urban area. It may be that they are not able to source funds from their bank because they are unsure about what sort of job they might get in the city, or perhaps the future is just too uncertain for them to comfortably make the decision to move. Another example could be a firm with a large amount of sunk capital in the location that they are reluctant to leave behind. Constraints such as these may be able to be overcome, but in some cases it may take such a long time that in essence people and firms are 'stuck' where they are.

At the other end of the spectrum, there may be cases where adjustment is too great, where too many people and firms relocate, putting unnecessary pressure on the infrastructure and environment in their new location. This would occur in situations where there are 'externalities' – where people and firms are either not paying the full cost or not reaping the full benefits associated with their presence in a location, and so they inefficiently choose to move. One example would be an individual's choice to move into an urban area because they think the benefits outweigh the costs. In fact the true costs may be higher than they realise because they do not pay the full cost of the extra pollution they add from their vehicle, the extra congestion they bring to the roading network or the extra pressure on the local landfill from their rubbish. Another example might be a doctor in a remote rural area who is an incredible asset to the people that live there, but does not receive a salary that fully reflects this. If the doctor is not satisfied with the intangible benefits that the job brings, such as a sense of serving the community, then they are more inclined to locate in a big city, where there are already many doctors but where the pay may be better.

In summary then, while movement between locations is a natural and necessary adjustment, the amount of adjustment is not always efficient if there are either barriers to adjustment or externalities that make people and firms privately assess their location options differently to how society as a whole would view them. Efficient adjustment is desirable to allow people and capital to move to locations where they can be most productive and add to the performance of the New Zealand economy. However, reiterating the caveat at the start of this section, the problems identified are real world problems that do not have obvious solutions. While they do stand in the way of perfect optimal decision making, the government is probably not able to remove them easily, if at all. Further research would be valuable in this area.

This discussion of efficiency does have broader implications for New Zealand. So far the discussion has had a domestic regional perspective to it – but what if we think of New Zealand as a natural region of Australasia? In a perfect world, if there are no externalities that make New Zealand as a whole undervalue its residents then movements of people and industry to Sydney or Melbourne may actually be 'efficient'. It is not obvious that this benefits the New Zealanders left behind though, as the gains in productivity and higher wages that emigrants earn overseas and the knowledge spillovers that they generate are not accruing to New Zealand.

This leads us to ask 'whose welfare are we trying to maximise?' If New Zealanders choose to move offshore should New Zealand policy continue to act for them? Some would argue that a move offshore ensures the gains in productivity and higher wages are lost to New Zealand and so policy should be focused only on improving outcomes for residents left within New Zealand's national borders. On the other hand, if we consider that the people and firms that move offshore may come back at some stage and bring with them greater knowledge, networks and skills then policy should also focus on making New

Zealand an attractive place to return to. Even if they do not move back, if we place value on New Zealanders doing well for themselves then should policy be aimed at helping all New Zealanders to succeed regardless of their intended destination? This issue is a fundamental one as the world becomes more open and national borders blur.

## **5.2 Equity**

Even if there are no efficiency concerns we may ask whether location decisions give an acceptable outcome from an equity perspective. Again, the identification of 'problems' does not imply the desirability or existence of a government solution. Discussions of equity are difficult as they involve value judgements about a desired distribution of income and wealth across a population. Even so, it is still important to look at whether outcomes are consistent with some commonly agreed notion of 'fairness'. Society may have a collective, or at least reasonably common, view about the desired level of equity and this can be revealed via a democratic system of government.

People and firms may choose a location that for them is the 'best' place to be, and yet it may lead to distributional outcomes considered unacceptably inequitable by society. For example, people in the location may earn much lower incomes or perhaps hold far fewer assets. This may be considered a particular problem if lower incomes lead to poorer education or health outcomes, exclusion from the mainstream of society or higher levels of crime and violence. In other cases, if people are constrained in their location decisions, because of such things as imperfect information or capital constraints as discussed above, then society may also feel that outcomes are inequitable.

People choose locations for a range of reasons, which may include strong ties to the land, historical or cultural ties to a region or even a desire to get away from the rat race. Societies' willingness to assist firms or individuals in poorer areas may vary according to perceptions of the merits of the rationale for the location decision.

While economic geography can highlight some of the distributional consequences of location decisions, it cannot provide the answers to these equity-based questions. They are not easy issues to grapple with and it is important that mechanisms are in place for the collective voice to be heard.

## **5.3 Equity at the international level**

Looking at all these points from an international perspective casts another light on the issues. Could New Zealand become a poor region of Australasia, with low incomes, fewer assets, perhaps poorer health and education outcomes, and a higher level of crime and violence? Would remaining residents of New Zealand therefore be 'unlucky' in that their location is a poor one? If so, what level of support, if any, would be offered, and by who?

This concern about location differences stems partly from the lack of transfers available to New Zealand from richer regions and partly from an emotional attachment to one's country – we may care a great deal about New Zealand as a whole turning into a backward region.

The conceptual framework as applied to New Zealand in the international arena raises general questions about New Zealand's future prospects. How high should our expectations be about economic performance? Does our isolated location and lack of agglomeration forces mean that we are permanently constrained economically and that we may have to be satisfied with lower than desired growth rates? We may not be able to aspire to Irish-type growth rates given the stark differences in location. We can predict that we will do well in industries that make use of our positive features, such as the relatively low land costs and the clean natural environment. We may do less well in industries that require large economies of scale and scope, although there may be small niches where New Zealand can do well. Looking at the returns from these industries will give some idea of future incomes – are we happy with the predictions?

This section has highlighted some of the reasons we may be concerned about differences between locations. The next logical question is what might government do to change these differences? The following section explores possible roles for intervention in regional differences and outlines some issues to be aware of.

## **6. POSSIBLE ROLES FOR INTERVENTION**

### **6.1 Within New Zealand**

In the past, central government has intervened in various ways to alter the outcomes in regions within New Zealand. For the purposes of discussion they can be separated into two categories: policies specifically aimed at intervening in a region; and policies that are not specifically aimed at particular regions but that have regional implications. An example of the first might be locating a call-centre in a particular region in order to create jobs and an example of the second would be paying the same level of unemployment benefit regardless of the location of the unemployed person.

***Specific intervention:*** Several points are important to note when intervening specifically in regional differences. Firstly, not all regional differences are an indication of problems. For example, Invercargill may have a lower average wage rate but this is accompanied by lower house prices and a lower general cost of living for individuals and a lower cost of business for firms. Another example could be the existence of a boat-building industry in Auckland but not in Christchurch – this simply reflects the better resources available for the industry in Auckland and the long history of boating there.

Secondly, as discussed earlier in Section 5, even if there is a 'problem' this does not immediately imply that there is a solution. Some problems involve complex real-world issues such as risk aversion that are not obviously solved.

Thirdly, any policy intervention that does go ahead must be careful not to generate unintended side effects that swamp any intended benefits. An example might be funding a high-tech new industry in a declining area in order to provide jobs. If the workers in the region do not have the skills to work in the new industry then other workers may migrate in and push up house prices – leaving the locals facing higher house prices but few new jobs suitable for their skill-set. Such a policy will also distort the decisions of the people and firms who otherwise would have moved out of the region to better opportunities elsewhere.

These points highlight the importance of having high-quality quantitative and qualitative information about regions so that good policy decisions can be made.

**General intervention:** On the second category of intervention, we need to better understand how general government policies affect regions. The government provides services and infrastructure to the public that, while not explicitly aimed at influencing regional outcomes, does have regional implications. For instance, uniform levels of cash benefits wherever people live in New Zealand may be seen as fair, but they may discourage people from living in areas where there are more jobs, thereby reducing the success of policies designed to help people into work.

For government infrastructure an example could be the siting of hospitals, schools, public housing or museums. How does the location of infrastructure such as this affect the location decisions of individuals and firms? How does it affect the efficiency and effectiveness of the service? These questions highlight the need to understand how existing policies contribute to location decisions so that new policy is effective in achieving its aims.

Further work in the economic geography field should go some way to helping understand how locational dynamics work and hence help policy analysts to offer clearer advice on some of these issues. One conclusion is clear though; policies should be explicitly rationalised as having economic benefits, social benefits or both so that the effectiveness of policies can be assessed. For instance, we have a history of subsidising people in remote locations with respect to television transmission, telephone services, roading and so on. Is this for efficiency or equity reasons? Has the policy achieved its goal? This is really a more general policy-making principle – the purpose of the policy must be clear.

On the level of intervention, local government policies may be able to be used to address local problems. It is not always clear whether it is better to use central or local government to intervene, nor is it simple to design mechanisms

that consistently provide the right level of funding, autonomy or incentives to local government to act in its own right. This area may also be enlightened by further research.

## **6.2 New Zealand in the world**

Within New Zealand the tax and transfer system can go some way to providing support for those in declining regions. However, the analysis looking at New Zealand as a region in itself is slightly more complex. We cannot rely on receiving transfers from other richer regions, and we collectively care about maintaining New Zealand as a vibrant growing nation in its own right. New Zealand government policies have the goal of making New Zealand a better place to live and work and there are policies that could be aimed at making New Zealand an even more attractive place to locate. However, policies that act at the national level must also be carefully thought through from a location dynamics perspective to make sure that they will actually be effective and do not have overwhelming side-effects.

Given our earlier questions about New Zealand's future economic prospects, this leads us to ask what a government might do to influence the future. The following suggestions have not been subjected to a thorough assessment and are included as food for thought only. Firstly, the government may be able to enhance New Zealand's natural and historical advantages, or at least keep advertising them. Secondly, by enhancing New Zealand's dispersion advantages the government may improve the country's ability to gain agglomeration benefits. This may include, for example, maintaining environmental standards to keep pollution low, and maintaining infrastructure in cities to ensure congestion is kept at bay. The government may be able to help agglomeration by focusing spending on areas such as R&D and education in specific locations in order to generate a critical mass of 'knowledge-type' activity. Ensuring the education system equips young New Zealanders with the skills to help pick up knowledge spillovers may also help.

Thirdly, relationships with other countries are an extremely important component of possible government policy actions. By effectively expanding New Zealand's market size, further integration with other countries may help overcome the scale problem. However, we must remember border effects – these are generally higher for international than regional trade and suggest that integration will probably be most successful where there are fewer cultural differences. New Zealand's relationship with Australia is a good example of this. It is important though that we weigh up the costs and benefits from closer integration with Australia – while it may be easier to integrate further with Australia than say with Singapore, are the marginal gains worth the effort? Would further regulatory cooperation with Australia induce higher levels of trade than a free trade agreement with ASEAN for example? This is an important area for further research.

We also need to look at the implications of further integration on location choices. If further integration leads to a much greater level of specialisation, does this put New Zealand in danger of 'intellectual lock-in' – a situation where the narrow activity base stifles innovation due to the lack of diverse ideas flowing from different industries? Might it make New Zealand more susceptible to shocks if the industry base is narrower? How big would the adjustment costs be if more industries decide to shift to Australia? This is also an important area for further work.

Again, the caveat must be made that any intervention must be carefully thought through to make sure it will be effective and that it does not have large unintended side-effects. One thing that is clear from the discussion in this paper is that location decisions are complex and take account of many factors. Any policy that is aimed at altering location decisions must be conscious of these complexities.

## **7. CONCLUSIONS**

The study of economic geography is an important one for New Zealand. We must understand how our economic and social performance is affected by the location decisions that both New Zealanders and foreigners make – we need to understand why economic activity takes place where it does.

This paper has presented the key concepts of economic geography in a framework of exogenous and endogenous forces. The framework highlights that location decisions are influenced by many factors, many of which government has little or no control over. We have explored the effect of natural features, institutional features, history, local amenity/rates bundles and, most importantly, the forces that encourage and discourage agglomerations of people and firms. We have found that agglomeration is promoted by the spillover of knowledge, greater specialisation and lower transport costs that spawn higher productivity in dense areas. It is also promoted by the greater human capital accumulation in cities; the insurance, 'matching' and bargaining power benefits that accrue from a thicker labour market; and the consumption benefits of variety in goods and services. On the other hand, agglomeration is discouraged by the higher cost of living, working and commuting in cities; the higher cost of wages and other factors of production in cities; and the pollution and social problems that seem to beset cities. From an efficiency perspective it may be important that these natural agglomerating and dispersing forces be allowed to work so that an agglomeration is neither stopped before it reaches its prime nor encouraged to grow beyond its natural abilities.

In acting to maximise their welfare or profits, and taking the above factors into account, people and firms will end up in a variety of locations. Some fairly important issues emerge when we apply this to New Zealand in the world. Can New Zealand maintain a critical mass of activity? Will most activity move offshore?

The paper goes on to ask whether location differences are a problem. Location choices may not be efficient if there are barriers to adjustment or if externalities make people or firms choose a location different from that which society as a whole might wish. From an international perspective, is it 'efficient' for New Zealanders to move to Sydney? One fundamental question that the discussion highlights is 'whose welfare are we maximising?' – those residents left in New Zealand or all New Zealanders no matter where they are? This question is one that will have to be addressed as the world becomes increasingly open and national borders blur.

The outcomes we see from location decisions may also have distributional implications. How do we wish to respond to people and firms in poor or declining regions? Looking from an international perspective casts another light on the picture – could New Zealand become a poor region of Australasia? Concern about the decline of New Zealand as a whole stems partly from an emotional attachment to one's country – we wish New Zealand to be maintained as a vibrant growing nation in its own right. The framework presented raises the question of how high our expectations should be about New Zealand's future economic performance. We suggest that New Zealand's future is not clear-cut and that expectations of Irish-type growth rates may not be realistic.

The paper goes on to ask what government might be able to do to address concerns. In discussing possible roles for intervention we note that many policies have regional effects, some not always intended. Importantly, not all regional differences are indications of problems and even if there is a problem it cannot necessarily be solved. Any interventions that are introduced must be careful not to introduce unintended side effects that swamp the intended benefits. More general policies can also have regional implications and we need to be aware of their effects. As a general rule, policies should be explicitly rationalised as having economic benefits, social benefits, or both so that the purpose is clear. These points also hold for analysis at the international level. The paper suggests that government may influence New Zealand's future performance by enhancing New Zealand's natural, historical and dispersion advantages and maintaining relationships with other countries. How far we should go on integrating with Australia or other countries is an open question and further work is recommended.

In conclusion, the study of economic geography can help us to make more informed and sensible policy analysis. New Zealand is a small nation with limited resources – we must use what we have to our best advantage and accept some of the limitations we face.



## Supporting literature

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