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Migration and Economic Growth: A 21st Century Perspective

Cat Moody

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Migration and Economic Growth: A 21st Century Perspective

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Abstract

While there is extensive literature on the determinants of migration and its microeconomic effects, the New Zealand theoretical or empirical literature specifically examining the effects of migration on economic growth is not as comprehensive. In New Zealand there has been an implicit underlying assumption that immigration is good for economic growth, as evidenced by the attempted use of immigration to resolve particular labour market problems. This paper uses the growth accounting policy framework to discuss the mechanisms through which immigration can impact economic growth. It reviews the contemporary literature with a view to identifying how immigration policy may be adjusted to improve the potential returns to growth from immigration in New Zealand.

JEL CLASSIFICATION F22 - International Migration
J61 - Geographic Labour Mobility; Immigrant Workers
O49 - Economic Growth and Aggregate Productivity - Other
O56 – Oceania

KEYWORDS Migration, immigration, emigration, economic growth, growth accounting framework, New Zealand

Table of Contents

Abstract	i
Table of Contents	ii
List of Tables	iii
List of Figures	iii
1 Introduction	1
2 New Zealand’s migration context	3
2.1 Immigration categories	3
2.1.1 Residence categories.....	3
2.1.2 Temporary categories	4
2.2 21 st Century trends	5
2.2.1 Demand for residence and temporary permits	5
2.2.2 Net migration trends.....	6
2.2.3 Composition Trends	8
3 Theories of migration and economic growth	8
3.1 Highly aggregative theoretical models.....	9
3.1.1 Trade models	9
3.1.2 Labour market models.....	10
3.1.3 Growth models	12
3.2 Growth accounting.....	14
3.2.1 Framework for Growth Accounting.....	14
3.2.2 The effect of migration on labour productivity and utilisation	15
4 Labour Utilisation	16
4.1 Rates of participation and employment	17
4.1.1 Employment rates	17
4.1.2 Participation rates	18
4.1.3 Outcome differences by category.....	18
4.2 Barriers to employment.....	20
5 Productivity	21
5.1 Income convergence	21
5.2 Under-employment	22
5.3 Emigration.....	23
5.4 Capital investment	24
5.5 Global connectedness	25
6 Wider Impacts	27
6.1 Fiscal impact.....	27
6.2 Economic costs.....	28

7	Policy implications	29
7.1	Introduction	29
7.2	Policy implications for labour utilisation	30
7.2.1	Entry requirements	30
7.2.2	Reducing barriers to employment	30
7.2.3	Skilled vs family-based outcomes	32
7.3	Policy implications for migrant productivity.....	32
7.3.1	Increasing skills of migrants	32
7.3.2	Emigration	34
7.3.3	Skill and labour shortages.....	35
7.3.4	Technology Spillovers	36
7.3.5	Investment - Business migration	36
7.3.6	Export Education	37
7.4	Increasing the size of the Immigration Programme.....	38
8	Conclusion	40
	References	41

List of Tables

Table 1 – Approval limits and approvals by stream since 2001/02.....	5
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List of Figures

Figure 1 - People approved for residence compared with the NZIP from 1995/96 to 2004/05	6
Figure 2 – New Zealand Monthly Migration	7
Figure 3 – The immigration surplus.....	11
Figure 4 – Contributors to growth.....	15

Migration and Economic Growth

1 Introduction

New Zealand entered the 21st century with around 20 percent of the country's total population born overseas. Such a significant migrant population¹ can have a range of impacts on a country, from influencing its national identity to changing the way that it interacts with the outside world. While the impact of migration on New Zealand society is clearly wide-ranging, a key question for Treasury is how immigration contributes to economic growth. This paper attempts to explain the main mechanisms through which immigration impacts on economic growth and investigates the available evidence to try and assess whether the economic impacts are positive or negative for New Zealand.

The New Zealand approach to immigration policy in recent times has assumed that immigration is good for economic growth. This is evidenced by the use of immigration to resolve particular labour market problems. But does the evidence back up this assumption? While there is extensive literature on the determinants of migration and its microeconomic effects, there is little New Zealand specific theoretical or empirical literature examining the effects of immigration on economic growth. The literature in this area is quite fragmented with no single definitive contribution. Micro-level studies tend to be context and migrant-specific.

Government has a strong influence over immigration policy as it ultimately determines who will be admitted to New Zealand and for how long. It is therefore important that the government ensures it has an evidence-based immigration policy programme designed to select migrants who will bring the greatest net benefits to New Zealand.

Thinking strategically about immigration issues requires a long-term perspective. Short-term data gives volatile results and it is difficult to see whether significant trends are emerging. Immigration policy, however, is often adjusted in response to current labour market conditions or immediate social or political concerns. It is also suggested in this paper that there has been a structural shift in immigration patterns over the last ten years to a system that focuses on temporary migration. Accordingly, this paper does not review the historical literature on economic growth and migration; instead it reviews the contemporary literature with a view to identifying how immigration policy could be adjusted to improve the returns to economic growth from migration in New Zealand today.

The original motivation underlying this paper was a desire to understand the extent to which immigration is a driver of economic growth. There is irrefutable evidence in New Zealand that migration has enabled our society to develop through exchange of ideas and an influx of people, and in this respect New Zealand is not alone. This is a story

¹ In this paper migrants are defined as persons born overseas but usually resident in New Zealand.

repeated throughout the world; the United States, Canada and Australia are all examples of what are sometimes termed 'traditional immigration countries'. They have experienced massive inward migration as well as strong economic growth over the past century. Can the extent to which immigration is a cause of this growth be ascertained? Can a strong relationship between immigration and economic growth be found?

It is clear that international migration has major consequences for both source and host countries. Coppel, Dumond and Visco (2001) identify four main types of economic effect. First, migration has an effect on the host country's labour market. It can reduce the wages and employment levels of natives; on the other hand it can reduce skill shortages. Secondly, it can have fiscal consequences, since the amount that immigrants pay in taxes may not exactly offset the costs of health and education that they receive. Thirdly, migration can affect the demographic composition of both the host and source countries. For example, it has been argued that immigration could be a solution to the problem of population ageing in many OECD countries.² Finally, migration may contribute directly to economic growth in both the host and source countries. Remittances by emigrants can be a major source of capital that drives development in the source country. On the other hand, the emigration of skilled workers can reduce productivity and economic growth.

This paper does not attempt to develop a new theory of migration and economic growth. Instead it surveys some of the highly aggregative existing models and then utilises a growth accounting framework to think about the mechanisms through which migration influences GDP per capita growth. To do this the paper primarily focuses on how migrants affect labour productivity and labour utilisation, and the results that this may have. The paper then moves to the implications for policy makers and suggests possible areas for adjustment.

In order to limit the scope of this task this paper only cursorily discusses the non-economic impacts of migration. The question at hand is the impact of migration on GDP per capita growth, not on society at large. Any conclusions reached here would then have to be considered in light of whether migration is desirable or undesirable for other reasons, such as social cohesion.

New Zealand's migration context is described in Section 2, including a brief description of the existing migration framework and recent trends. Readers who are already familiar with this framework may wish to omit reading this section. There are a number of highly aggregative models for assessing the impact of migration as described in Section 3. A growth accounting framework is then used to identify the main pathways through which migration affects economic growth per capita. Section 4 discusses the impact of migration on labour force participation and employment. The productivity effects of migration are discussed in Section 5. Section 6 is used to briefly explore the wider implications of migration, including the fiscal impact. The policy implications are then discussed in Section 7. Section 8 concludes.

² This issue is not covered in detail in this paper. In short, evidence indicates that migration is not an easy solution for the population ageing problem. McCarthy and Collins (2001) note that to rectify the current fiscal imbalance in OECD countries caused by an ageing population a "large" increase in migration would not be enough, but it would have to in fact be an "enormous" increase. For example, to maintain the 1995 worker-to-retiree ratio in 2050 the United Kingdom would need to accept around 60 million immigrants between 1995 and 2050, or a 16-fold increase on the 1990-1998 flows (McCarthy and Collins 2001, p29). Fundamentally, the reason such large migration flows would be required is that migrants eventually move through the age pyramid and require support themselves. Guest and McDonald (2002), in a study of Australia, conclude that any immigration flows to address the problem of an ageing population in Australia would need to be massive and in any case are not necessary. Their argument is essentially that with an ageing population and low fertility, the need for saving and investment to maintain the capital-labour ratio is reduced. Using current New Zealand population projections a similar result could be established for New Zealand. A net migration inflow of 5000 migrants per year for the next 50 years increases population projections for the year 2050 by around 360,000, but reduces total dependency projections by less than two percentage points (Population and Sustainable Development Report 2003).

2 New Zealand's migration context

Migration is a dynamic process. There are cyclical elements to inflows and outflows due to the effect of economic cycles. Any policy response needs to operate within the current context. Therefore this paper focuses on the contemporary migration story. There is evidence that in the last five years or so there has been a fundamental shift in the type of migration received by New Zealand. The evidence shows that over the last five years temporary flows have become increasingly important in global migration, both in terms of quantum of inflows as well as in providing a supply of semi-integrated migrants ready to move into residence categories.

This section outlines the current structure for immigration in New Zealand. A basic understanding of the current categories is a useful starting point for evaluating the contributions that immigration can make to economic growth and also for understanding possible policy levers to influence change.

2.1 Immigration categories

2.1.1 Residence categories

New Zealand's immigration system can be divided into two main entry streams: residence and temporary. In 2004/05 there were 48,800 people approved for residence and over 82,500 individuals were approved with temporary permits.

The stated objective of New Zealand's residence immigration policy is to contribute to economic growth through enhancing the overall level of human capability in New Zealand, encouraging enterprise and innovation, and fostering international links, while maintaining a high level of social cohesion. The New Zealand Immigration Service (NZIS) Operations Manual states that this objective is achieved through selecting a broad mix of migrants on the basis of either their skills and experience or their family links to New Zealand (New Zealand Immigration Service 1999).

Residence policy is broken down into the Skilled/Business Stream, Family Sponsored Stream, and the International/Humanitarian Stream. The Skilled/Business Stream is explicitly designed to increase human capability and this stream dominates residence policy. The explicit objective of increasing human capability through the use of residence policy suggests that residence policy should be aiming to maximise the flow of human capital to New Zealand until it reaches the tipping point where there may be negative impacts on social cohesion. This implies a need to ensure that there are observable and measurable social cohesion indicators.³

The Skilled Migrant Category (SMC) was announced in July 2003 after a comprehensive review of the General Skills component of the Skilled/Business stream of the New Zealand Immigration Programme. The SMC replaced the previous General Skills Category (GSC), which operated under a single tier points system. Its stated aim is to promote the active recruitment of skilled migrants to New Zealand.

The Business Stream is also part of the government's residence programme. The objective of Business Immigration Policy is to contribute to economic growth through increasing New Zealand's level of human capital, encouraging enterprise and innovation, and fostering external links.

³ This work is currently being undertaken by the Ministry of Social Development.

It is important to note that not all immigration categories have an economic objective. While economic growth is explicitly stated as an objective of the skilled/business categories as well as being addressed through some components of temporary policy, the Family Sponsored Stream and the International/Humanitarian Stream do not have economic objectives.

The objective of the Family Sponsored Stream (Family Category and Family Quota) for example is to contribute to nation building. While it does not have a specific growth objective, this stream is significant as it generally accounts for around 30 percent of all residence approvals (New Zealand Immigration Service 2004). This stream allows New Zealand citizens and residents to sponsor family members to live in New Zealand (under certain circumstances). Migrants approved under this stream have a different profile from the skilled/business migrants. For example they are less educated, often older and as a result generally have poorer employment and settlement outcomes than other migrant groups.

The International/Humanitarian stream is mainly comprised of Refugee Quota people, asylum seekers, Samoan Quota and the Pacific Access Category (PAC). New Zealand's refugee policy is designed to ensure that New Zealand meets its obligations under the 1951 Convention Relating to the Status of Refugees and 1967 Protocol Relating to the Status of Refugees. New Zealand accepts around 750 United Nations mandated refugees as part of the refugee quota each year. In addition there are asylum seekers who claim asylum after crossing the border. New Zealand is then required to ascertain whether they meet the requirements for official refugee status. The Samoan Quota and PAC recognise the importance of the relationship between New Zealand and the Pacific Islands. The International Stream makes up only ten percent of the residence approvals.

2.1.2 Temporary categories

The objectives of New Zealand's temporary entry policy are to facilitate the entry of genuine visitors, students and temporary workers, while managing the associated risks, and to contribute to building strong international links, attracting foreign exchange earnings and addressing skills shortages (New Zealand Immigration Service 1999).

In considering economic impacts, the most significant categories of temporary entry policy are the student visa category and the work permit category.⁴ This is partly because the objectives of these categories are partially economic objectives and partly because of the large numbers of visas that are issued under these categories.

The purpose of New Zealand's student policy is to facilitate the entry of foreign students in order to foster the development of international linkages and mutual goodwill and understanding through reciprocal exchange schemes, and promote increased foreign exchange earnings from educational services, and enhance the quality of New Zealand's educational services.

The objective of work visa and permit policy is to contribute to developing New Zealand's human capability base. Work policy seeks to achieve this by facilitating the access of New Zealand employers and New Zealand industry to global skills and knowledge, while complementing the Government's education, training, employment and economic development policies.

⁴ Visitor permits are important for tourist revenue but their impact is outside the scope of this paper.

The impacts of migration for the labour market are significantly affected by trends in work permits. This is discussed further under the sections on labour utilisation and labour productivity.

2.2 21st Century trends

2.2.1 Demand for residence and temporary permits

Demand for residence was strong in New Zealand over the 2000-2005 period leading to a high level of approvals. Changes to the skilled/business stream in 2003 seem to have led to an increase in residence approvals under this category, despite a dip in 2003/04. The higher approval numbers in 2004/05 were a result of a combination of factors including prioritisation of SMC applications, low SMC decline rates, successful marketing initiatives in key markets and a slightly higher average family size.

Under the current system approximately 60 percent of places in the Immigration Programme (NZIP) are allocated to a skilled/business stream, 30 percent to a family sponsored stream and 10 percent to an international/humanitarian stream. If the full quota is not taken up under either the family sponsored or international/humanitarian stream, the places can be reallocated to the skilled stream.

The final total residence approvals for the 2003/04 Immigration Programme are set out in Table 1 below.

Table 1 – Approval limits and approvals by stream since 2001/02

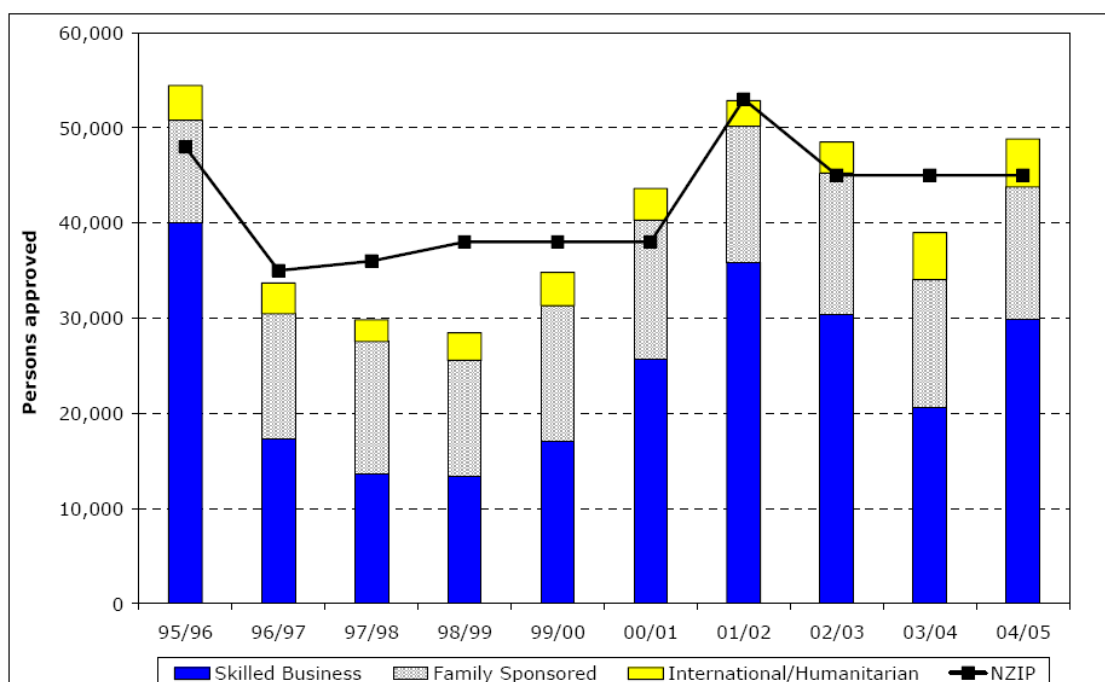
Stream	2001/2002		2002/2003		2003/2004		2004/2005	
	Limit	Approvals	Limit	Approvals	Limit	Approvals	Limit	Approvals
Skilled/ Business	35,000 max	35,876	27,000 (+/- 3,000)	30,443	27,000 (+ 3,000)	20,596	27,000 (+ 3,000)	29,826
Family Sponsored	14,500 (+/- 10%)	14,276	13,500 (+/- 1,500)	14,809	13,500 (+ 1,500)	13,462	13,500 (+ 1,500)	13,949
International/ Humanitarian	3,500 (+/- 10%)	2,704	4,500 (+/- 500)	3,286	4,500 (+ 500)	4,959	4,500 (+ 500)	5,040
Total	53,000 max	52,856	45,000 (+/-5,000)	48,538	45,000 (+ 5,000)	39,017	45,000 (+ 5,000)	48,815

Source: New Zealand Immigration Service (2005)

In 2002 the Immigration Programme was set at 45,000 (+/- 5,000 places). This level was identified as an appropriate numerical constraint on residence migration for the next three years. In 2002/03, however, the programme was raised to 50,000 to meet excessive demand. Concern has been voiced in the media regarding the relative decline in skilled/business approvals in 2003/04 relative to previous years. This decline is likely to be a result of the transition to the new SMC and to the higher quality standard required of migrants under the SMC. The results from 2004/05 show that this concern is unfounded, with a significant increase in approvals in the skilled/business stream from 20,596 approvals in 2003/04 to nearly 30,000 in 2004/05.

The figure below shows trends since 1995/96 in the residence categories.

Figure 1 - People approved for residence compared with the NZIP from 1995/96 to 2004/05



Note: Policies prior to 2001/02 were grouped together to match the streamed approach to the NZIP.

Demand in temporary categories has also been high. Work permit numbers have increased substantially since 1997/98 from 26,336 to 66,827 in 2002/2003. The majority of this increase can be attributed to more skill shortage permits being issued and an increase in working holiday scheme visas. In the six months to 31 December 2003 over 35,000 individuals were granted work permits. 38 percent of these were granted for the purpose of filling a skill shortage in New Zealand (New Zealand Immigration Service 2004). The majority of those applying for work visas are high skilled people.

The impacts of migration for the labour market are significantly affected by trends in work permits. This is discussed further under the sections on labour utilisation and labour productivity.

2.2.2 Net migration trends

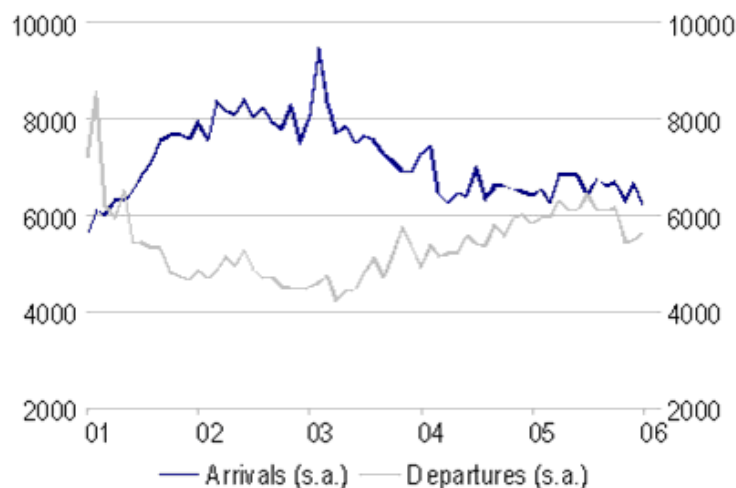
New Zealand's net migration figures can be quite volatile. 2002 was a key turning point as there was a rapid turnaround from negative to positive net migration. New Zealand has remained a net recipient of migrants since that period.

Very high movements of people (both in and out) typify New Zealand's net migration statistics. Permanent and Long-term (PLT) net migration records the balance of migrant inflows and outflows for 12 months or more. NZIS data records applications and approvals for permanent residence, and student and work visas.

In the 12 months to the end of May 2002 there was a permanent and long-term net migration gain of 31,231 people compared to a net loss of 11,114 for the previous 12-month period. In the 12 months to the end of May 2003 the gain spiked at 42,541 and dropped to a net gain of 23,983 to May 2004 (Statistics New Zealand 2003). Since this time net migration has continued to fall. These figures clearly indicate why the

government's immigration programme is not linked to any net migration targets.⁵ With the existence of largely demand driven categories such as student and work permits and the free movement of New Zealanders out of the country, any attempt to reach a net annual target would not be feasible.

Figure 2 – Monthly PLT Arrivals and Departures



Source: Statistics NZ

An increase in departures and slowdown in the arrival of overseas students led to a decline in net migration over 2005. Possible reasons for this were improved economic prospects overseas and an improvement in the perception of safety overseas. Up to February 2006 there was a slight drop off in departures of both New Zealand and non-New Zealand citizens. Monthly arrivals remain volatile with an upward trend, despite a drop off in January 2006. Arrivals from the UK are dominating the increases.

Generally, the state of the New Zealand economy has a large impact on net migration changes. A large proportion of PLT departures (people who intend to leave for at least one year) tend to stay away for longer when NZ is in a recession and there are people who category jump (ie people who don't intend to stay away for a year switch categories) in response to the economic conditions of the day.

Net migration is strongly influenced by emigration as it plays an important role in exacerbating certain immigration effects. The number of New Zealanders permanently leaving New Zealand has been steadily increasing since the early 1990s, but high levels of immigration have masked any effects of this emigration. In the year to June 2001 there was a net loss of 41,000 New Zealand citizens. However, with a net gain of 31,000 non-New Zealanders, the overall net migration loss was only 10,000 people (New Zealand Ministry of Economic Development 2003). From 2001-2004 the return migration of New Zealanders has been at its highest recorded levels. Emigration is discussed in more detail in Section 5.

⁵ In 1998 the government decided that New Zealand should aim for a net gain from permanent and long-term migration of 10,000 people a year over the medium term. In July 2001 Cabinet agreed that net migration should be disassociated from the Immigration Programme.

2.2.3 Composition Trends

The inflow of migrants affects the composition of the New Zealand population, for example new and recent migrants have a smaller proportion of people in the younger and older age groups (NZIER 2003). Migrants also affect the ethnic composition of New Zealand. Asia currently dominates as the region of origin for migrants. In 2001 one in five of New Zealand's working-age population was born overseas. This proportion rose to one in three in Auckland. The 2001 census found that there were nearly 230 countries represented in the birthplaces of people usually resident in New Zealand.

As noted above, it is important to look at the levels of temporary migration, which have become increasingly significant as a proportion of total arrivals in New Zealand in the past few years. Strong work permit numbers are a key source for the permanent residence skilled category, particularly under the new SMC. Work permit numbers are also likely to be more sensitive to current conditions relative to competitor countries than other categories as temporary workers are usually more flexible and may substitute other similar countries with better conditions.

3 Theories of migration and economic growth

This section outlines the key theoretical models of economic growth that incorporate migration. The macroeconomic effects of immigration are complex and it is unclear whether per capita incomes will increase as a result of immigration, although in the literature there is a general agreement that there is probably a small positive effect on GDP per capita from immigration. Effectively our interest lies in explaining in what circumstances an additional migrant could increase the level of income per head in a country. The key components of such an analysis are obvious; the contribution and costs of the migrant's own income as well as effects on wider income generation and wider benefits (social and cultural), as well as fiscal costs and benefits must be considered.

The literature identifies a variety of theoretical models that can be used to model the growth effects of migration. In the 1950s, in particular, there was a large body of literature produced on economic growth and migration. This paper does not propose to review all of this literature, nor all of the models available. It surveys some of the main theoretical approaches to migration and discusses some of the main effects on the host and source country that the models predict.

One strand of the literature is firmly rooted in the economics of international trade, while another approach employs methods of labour economics. Some economic growth models have explicitly incorporated migration as an explanatory variable. Another approach involves the use of a growth accounting framework. A further approach, used for example by Chapple and Yeabsley, uses neoclassical economic theory with some short-run Keynesian interactions to identify the channels through which migration affects national welfare (Chapple and Yeabsley 1996).

These models provide different ways of thinking about the impact that immigration may have but, as is often the case, none of these models provides a complete explanation of the effect of migration on economic growth. This section provides a run-through of the main theoretical approaches and then a fuller description of the growth accounting framework which will be used as an accessible way of explaining the main effects of migration on growth in this paper.

3.1 Highly aggregative theoretical models

This section concentrates on some highly aggregative models of trade and labour market theory. These theories are the principal economic frameworks used to assess the effects of immigration. The former analyses the effect of the free movement of labour on the welfare of different countries, mostly using general equilibrium analysis. The latter focuses on the role of the labour market and the effect of migration on the price of labour, typically using partial equilibrium analysis. Most of the literature takes the latter approach, focusing on labour market effects of migration. However, trade theory models are used on the basis that there is no good reason to treat labour mobility differently from the mobility of any other factor of production and because the general equilibrium framework can overcome some of the problems posed by questions such as the impact of immigration on wages that occur in the partial equilibrium framework.

One aspect of the debate in the literature on the effects of migration (for example between George Borjas and Jagdish Bhagwati) is whether the most appropriate tools used are those of general or partial equilibrium. Partial equilibrium analyses will necessarily provide a narrower viewpoint and a focus on effects in a particular sector rather than the broader general equilibrium approach.

A second aspect is whether the viewpoint taken is that of native, national or global welfare. Often only the national viewpoint is taken, and within that the impact on natives. Certainly it is rare to pay attention to measures of world rather than national welfare. Public policy analysis typically utilises a national welfare approach.

Finally, some analyses take a static, rather than a dynamic approach to migration, focussing for example on immediate effects such as the impact on native wages, rather than on dynamic consequences such as the inter-generational effects or the responsiveness of natives to immigration.

3.1.1 Trade models

In the standard Heckscher-Ohlin model, trade and migration are substitutes (that is, migration decreases with trade liberalisation). The movement of productive factors raises world income and these income gains are shared between natives of both source and host countries. It holds that there are mutual gains from migration similar to the conventional gains from trade.

The model predicts that labour migrates from regions where its marginal product is low to regions where its marginal product is high, and that it will cross international borders to do so. In the absence of restrictions, labour migration should tend to bring about wage convergence between the host and source countries. The source country will experience a rise in wages and a fall in returns to capital, a rise in per capita income and a fall in national output (assuming no simultaneous emigration of capital). The host country will see a fall in wages as a result of the influx of workers and a rise in returns to capital. Per capita income will fall although national income rises. However, if wage earners also see some earnings from owning capital (such as pensions, shares or housing), then it is possible that per capita incomes of the pre-immigration population rise with the increasing return to capital. The per capita income of the immigrants is also higher than it would have been in the source country. As a consequence, individuals could be better off even though the host country is worse off. When there is simultaneous emigration of capital (in the form of financial or human capital) the predicted effects are less clear without precise information about the nature, value and ownership of the capital.

If there are only two factors of production (capital and labour) the model's results hold. But if there are more than two factors, then the results of factor migration being a perfect substitute for trade in causing factor price equalisation may no longer hold. When economies of scale in production are possible, then migration and trade may act as complements, rather than substitutes. Since with economies of scale it is always cheaper to produce in one location rather than two, production expands until either demand or economies of scale in one country are exhausted. Production in one country will be reduced as production in the other expands. Factors will shift to the location of expanding production. This would increase the host country's capacity to export, as well as increasing its domestic market for imports.

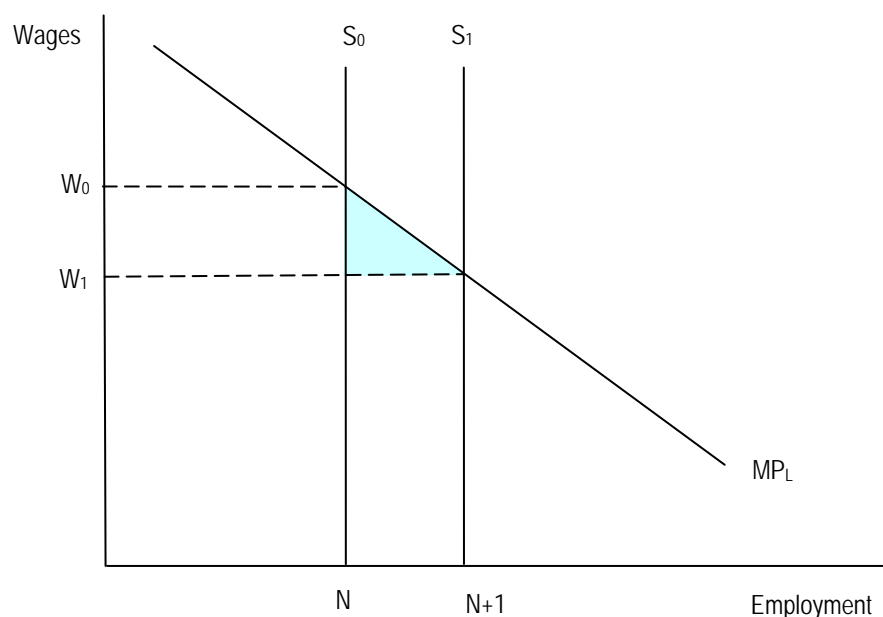
Davis and Weinstein argue that a conventional approach to assessing the returns from immigration only considers discrete inflows of a single factor to the economy. They use a variant of the standard Ricardian trade model to take into account the origins of factor price differences that motivate migration. They argue that in the case of the United States its position as a technologically superior economy encourages immigration which wants to exploit the technological advantages and that consequently "natives in the country that receives immigrants always lose relative to a baseline with free trade" (2002, p4). Their use of a Ricardian model results in the finding that immigration creates a loss for the receiving country. They conclude that the combination of labour immigration and net capital inflows impacts negatively on US native incomes, assessing this at losses of almost 1 percent of GDP, which equated to approximately \$72 billion in 1998 (2002, p36). They caution that Pareto gains could be achieved under their model due to the flow of factors enhancing world efficiency, that their analysis applies specifically to America and that despite the findings of losses to native incomes there is a redistributive effect to migrant workers resulting in higher world income overall. They also leave open for debate the idea that immigrants are likely to bring with them other important benefits that they do not reflect in their analysis.

A major criticism of the trade theory models is that they cannot hold in an economy where there is no free movement of people or where there are more than two factors of production. These limitations reduce the relevance of this model as a suitable way of explaining growth effects of migration in New Zealand.

3.1.2 Labour market models

An alternative approach is to investigate the impact of migration using a model of the labour market in the host country. This approach has been particularly associated with the work of Borjas (2000). The immigration surplus (shown in Figure 3) is used to analyse the impact of an increase in migration on the host country.

Figure 3 – The immigration surplus



Source: Borjas (1995, p6)

In the model, wages and employment depend on the relationship between labour supply (S) and labour demand (which in the short run is determined by the marginal product of labour, MP_L). Before the arrival of immigrants, wages are at W_0 and only native workers are employed (N). When immigrants enter the country, the supply of labour expands (represented by a shift in the supply curve to the right from S_0 to S_1) and the market wage falls to W_1 (all other things being equal). As a result, native workers earn a lower wage. Total employment increases to $N + 1$. The economy's total output also expands. Total output is represented by the area under the marginal product curve and to the left of the supply curve. This area is larger following the increase in labour supply. The expansion in output generates an increase in income for the owners of capital in local firms (and, of course, income for immigrants). Under certain conditions the loss in income for native workers is more than offset by the increase in income accruing to the owners of capital. The result is a net increase in national income. This increase is referred to in the labour economics literature as the "immigration surplus". The surplus is represented by the triangular area in the diagram.

In essence, the surplus arises because immigrants increase national income by more than the cost of hiring them. If there are positive externalities from immigration, the gain is even greater. Certain conditions are required to produce an immigration surplus. The model assumes that the supplies of capital and of both native and foreign-born labour are perfectly inelastic, and that immigrant workers are perfect substitutes for native workers.

Using the same formula as Borjas, Poot presents a calculation of the immigration surplus in New Zealand (Poot, Nana and Philpott 1988). In his calculation the increase in national income due to immigration comes out at approximately 0.16 percent of GDP. As emphasised by Borjas (1996), Poot highlights the importance of redistributive effects which are potentially much more important than the net gain in national income because native workers may lose income while owners of firms gain income.

It is suggested that neither the trade model theory nor labour market theories are satisfactory in explaining the relationship between migration and economic growth. In particular, for our purposes, the labour-market models do not focus on growth in GDP per

capita. This leads us to suggest alternative ways of thinking about how to explain the relationship. Growth models provide a useful way to consider the pathways through which migration may lead to economic growth.

3.1.3 Growth models

Drinkwater, Levine, Lotti and Pearlman (2002) survey the theoretical models of long-run growth that can be used to assess the impacts of migration. They identify three broad approaches.

The first emphasises capital accumulation as the engine of growth, where capital is broadly defined to include human capital. Reichlin and Rustichini (1998) use a two-country overlapping generations model with mobile capital and labour to investigate persistent migration flows and lack of cross-country convergence. They assume that the level of technology is an increasing function of the stock of capital. The two countries are assumed to be identical in technology but different in terms of the initial stocks of factors of production. With increasing returns and perfect capital mobility, they find that the driving forces behind labour migration are the size and the composition of the workforce.

A second approach views growth as being driven by the accumulation of human capital (Lucas 1988). Walz (1996) uses an endogenous growth model in which individuals can choose to invest in education or work in the unskilled sector to investigate the effects of migration on both source and host countries. The expected benefit to education is greater for workers with greater ability. Migration affects the growth rate of the economies by altering the composition of the labour force in each country. The stock of knowledge depends on the average human capital in each country which in turn is driven by migration decisions.

A similar approach is taken by Haque and Kim (1995), in which there is a tendency for higher skilled workers to emigrate. The resultant "brain drain" can bring about a reduction in the steady state growth rate of the country of emigration proportional to the fraction of the population that has emigrated. Permanent differences in the growth rates and incomes of the source and host countries make convergence unlikely.

A third approach views innovation and technology as drivers of economic growth (Romer 1990). Lundborg and Segerstrom (1998, 2000) analyse the effects of immigration on growth using a quality ladders growth model. They develop a theoretical model of free migration between developed countries and the consequent growth effects, with various cross-country structural and policy differences driving migration, and R&D determining growth rates in a two-country 'quality-ladders' model. For both policy and structural changes, the authors find that countries which trade with each other grow at the same rate, in line with Lucas's (1988) observation that growth rates amongst the (highly trade-dependent) developed countries are very similar, while growth rates in less developed countries vary widely. In this model growth is driven by improvements in product quality and firms race to become the sole producer by hiring high-skilled workers. In general the authors conclude that free international migration is only growth-stimulating where it is a reaction to labour force differences across countries. When migration is driven by policy differences, or wealth differences across countries, growth effects are much less certain, since a policy change can alter the equilibrium (post-migration) incentives to invest in R&D in both countries.

Bretschger (2001) uses a two-country, three-sector model (traditional, high tech and R&D) to examine the impact of the supply of skilled and unskilled labour on the growth rate of

open economies. He finds that high-skilled migration has a positive effect (but that low-skilled labour has a negative effect) on growth in the host country. Furthermore, the emigration of high-skilled workers has a negative effect on growth in the source country – the “brain drain” effect.

Levine, Lotti and Pearlman (2002) use a three sector general equilibrium model with endogenous growth to re-examine Borjas’s “immigration surplus”. They find that the growth effects of the immigration surplus dominate the static effects in Borjas’s model. However, the growth effects do not eliminate the fact that some native workers lose from immigration. Wilson uses a dynamic general equilibrium model to quantify the effect that large migration inflows in Canada had on domestic savings, investment, and foreign capital inflows (Wilson 2003). In 1897 Canada experienced a reversal from net emigration to a large net immigration, especially of skilled, wealthy working-age British and Americans. Migration flows were in the order of 15 percent (of 1901 population) from 1901-1911, and this period also saw large increases in investment (for example, the capital formation rate of 15 percent of GNP pre-1896 increased to a high of 33 percent in 1913). The model developed shows that the increase in the domestic savings rate over this period is solely attributable to the demographic effects of migration (ie the increase in working-age population, who brought wealth and were net savers), rather than changes in consumption patterns of natives. Secondly, increased migration required investment in equipping migrants for production and developing social infrastructure, not all of which could be financed by increased domestic savings (the authors note that most of the capital inflows over this period were government debt and foreign investment in infrastructure). Thus, net foreign inflows of capital increased over this period, and the model shows that both three quarters of this increase, and three quarters of increased investment rates, are attributable to migration.

Barro and Sala-i-Martin (1995) develop three models of migration and growth, each demonstrating that migration can increase growth rates through faster convergence to a steady state income per capita level. Firstly, the Solow-Swan growth model is extended, by allowing the labour force to increase at a faster rate than implied by natural population growth, with the assumption that capital is immobile other than when carried by migrants. There is thus a degree of capital mobility, but only to the extent that migrants bring human or physical capital with them. Using rough empirical estimates of the various parameters of the model, the authors show that migration can increase the speed of convergence by about 10 percent. Extending the Ramsey model of household optimisation gives the same conclusion. Finally, the Braun model of migration and growth is explained. Following Braun (1993), the cost of migration and the migrating individual’s optimising decision are considered, and in contrast to the other models, varying levels of capital mobility are allowed. The model concludes that the possibility of migration raises the rate of convergence to the steady state, and where there is a smaller tendency for the cost of moving to rise with the migration rate, convergence is faster. This would imply that where the income elasticity of migration is higher (the migration rate is more responsive to cross country income differentials) convergence will be faster. Some (tentative) evidence is shown for this last proposition, but the authors are unable to show any evidence that migration plays a substantial role in increasing the speed of convergence.

General equilibrium models

General equilibrium models can take into account a variety of impacts of immigration simultaneously, and can provide a relatively complete analysis of immigration although the level of aggregation involved means microeconomic detail is sacrificed (Chapple, Gorbey, Yeabsley and Poot 1994). General equilibrium models using Australian and New Zealand data provide some quantitative indication of migration effects. A 1993 Australian study used the ORANI model to estimate the effect of a 1 percent increase in the rate of growth of the labour force due to immigration. With no economies of scale, real GDP increases by 0.99 percent and real GDP/worker falls by 0.01 percent, and with full economies of scale, real GDP increases by 1.15 percent and real GDP/work rises by 0.15 percent.

Poot *et al* also undertook a detailed study using a general equilibrium model (Joanna model) as part of a study looking at macroeconomic, sectoral and labour market consequences of immigration. Using a net inflow of 15,000 people the study finds GDP growth increases by 0.6 percent per year, GDP per capita increases by 0.2 percent per year and GDP per worker increase by 0.15 percent per year, against a base scenario of zero net migration (Poot *et al* 1988). Their key finding was that liberalising immigration policy was beneficial to the economy, facilitating economic restructuring and accelerating economic growth while maintaining constant consumption per head and reducing unemployment. As in most models, the results are highly dependent on the initial assumptions used particularly around economies of scale. Equally plausible assumptions can reverse the conclusion of positive benefits, in both the Australian and New Zealand studies (Chapple *et al* 1994).

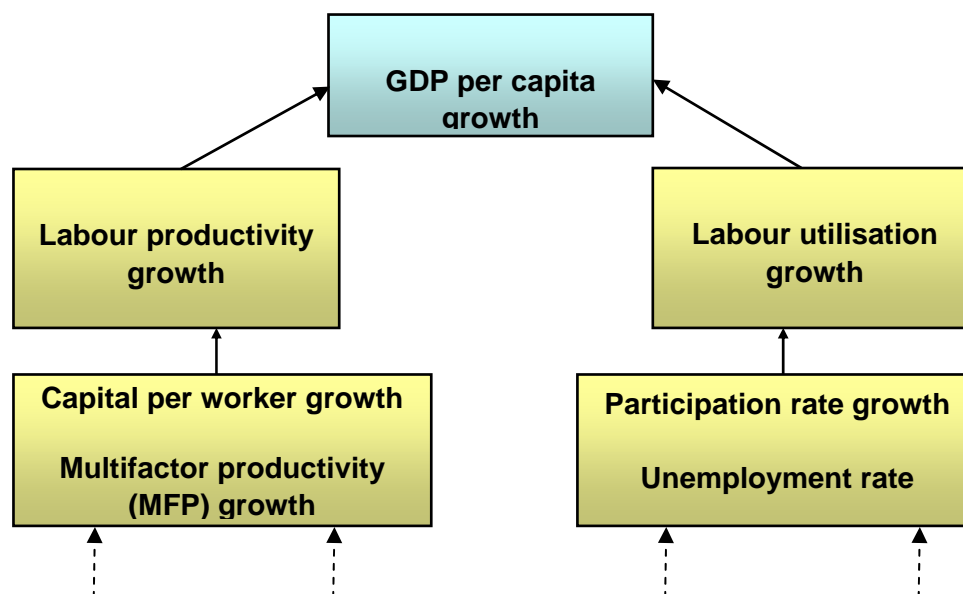
3.2 Growth accounting

3.2.1 Framework for Growth Accounting

Output growth can be broken down into different sources, such as labour inputs. This approach is known as growth accounting. Previous Treasury work has used a growth accounting framework to examine the impact of different policy areas on GDP per capita growth⁶ (see “New Zealand economic growth: An analysis of performance and policy”). The framework is not a model of economic growth. However, it does provide a useful means of organising ideas about how migration affects growth.

⁶ See “New Zealand Economic Growth: An analysis of performance and policy”, 2004
<http://www.treasury.govt.nz/release/economicgrowth/nzeg-app-apr04.pdf>

Figure 4 – Contributors to growth



In this framework, growth in GDP per capita is driven by growth in labour productivity and growth in labour utilisation.⁷ Migration, in turn, can affect growth through one (or both) of these two channels.

3.2.2 The effect of migration on labour productivity and utilisation

Migration clearly affects labour utilisation through the labour force participation rate and the unemployment rate. The extent to which migration affects these rates has a direct effect upon labour utilisation and thus on output. Differing groups of migrants, with different labour market characteristics, will have varying effects on participation. The literature provides solid data on the participation of various groups of migrants and this is discussed in section 4.

Migration is also likely to affect productivity. In particular, the human capital of migrants is expected to affect the productivity of the labour force. The emigration of highly skilled workers (a “brain drain”) could be expected to reduce labour force productivity and *vice versa* (see Glass and Choy 2001). Other productivity effects are also possible. Migration can affect capital flows, either through migrants bringing with them investment capital or through remittances abroad. Migrants can also affect multifactor productivity, for example there can be spill over effects by having migrants share their knowledge and skills within the firm which can encourage innovation.

Our investigation into the relationship between migration and economic growth can be assisted by using the elements in the growth accounting framework to attempt to reach propositions of causality.

⁷ It is recognised that there are limitations to using GDP per capita. An alternative measure is GDP per working age person. One reason for using this latter measure is that the total population is influenced by demographic change—an increase in the birth rate or number of elderly will reduce GDP per capita, making it harder to isolate the effects of economic variables on growth. The counter argument is that this ignores the economic effects of the dependency ratio on the overall economic well-being and prosperity of a nation. GDP has well-known limitations as a measure of well-being. However, some of the factors that drive GDP also have important implications for well-being. In particular, employment has important effects on both income and well-being as it provides social inclusion and protects against poverty. It also has intergenerational effects, and entering employment from welfare can break the cycle of disadvantage and poverty for the worker and his or her children (Blank 2000).

Growth accounting frameworks do not appear to have been widely used in migration analysis. Blattner and Sheldon (1989) use a growth accounting framework to identify the contribution of immigration to economic growth in Switzerland between 1961 and 1982. They find that while foreign workers accounted for 0.3 percentage points of the 2.7 percent average growth rates during this period, immigrants reduced per capita growth over this period, due to their lower productivity.

It can be difficult, from the data available, to isolate the economic impacts that migration has on the native population. To ascertain the impact on natives, consideration must be given to whether migrants impact negatively or positively on native labour utilisation or native labour productivity. Migrants could also have distributional effects which would also need to be separated out. There is often a general assumption that highly skilled immigrants will have a positive impact but it is possible, if only natives are considered, that if immigrants retain all or most of the gains from their skills then their impact could be to make the native population worse off, for example by driving down native wages. In the analysis it is important to ensure that gains or losses to natives, which can be assessed in terms of average incomes, are not confused with gains or losses evaluated in terms of GDP per capita which includes both natives and new immigrants.

This paper does not seek to model the returns to natives, but where possible the varying effects on the native population are highlighted. The discussion will now focus on the New Zealand evidence in relation to the factors identified in the growth accounting framework.

4 Labour Utilisation

Migrants can affect labour utilisation through three channels: the participation rate, the unemployment rate, and average hours worked. During the first half of the 1990s New Zealand's economic growth, measured in GDP per capita, came predominantly from an increase in labour utilisation caused by a decline in the unemployment rate and an increase in labour force participation.⁸ Participation in the workforce includes not only those who are in employment, but also those who are actively seeking work. Those who are not participating include students, stay-at-home parents and those who choose not to work. Those who are economically inactive, but of working age, may be facing barriers to their employment, ultimately leading to unemployment which deprives the labour market of additional resource as well as possibly increasing welfare costs to New Zealand. These barriers to employment are effectively a brake on economic growth.

Migrants may have a positive impact on GDP per capita if they have higher participation and lower unemployment rates than natives. Migrants with lower participation rates than the native average will have the effect of lowering GDP per capita with a consequential negative impact for the native population. This section looks at the comparative rates of employment and participation for migrants, and at barriers to employment.

⁸ Labour force participation measures the proportion of the population over fifteen years of age who are either working (employed) or without paid work and actively seeking work (unemployed).

4.1 Rates of participation and employment

This section looks at the employment rates and workforce participation rates of migrants and compares them to the native population. Secondly, it discusses evidence on the difference between skilled and family migrant stream outcomes.

4.1.1 Employment rates

The employment outcomes for migrants with different levels of skills tend to vary although there is a tendency to converge with native employment rates for groups with similar skills over time. Winkelmann (1999) shows that employment rates for immigrants appear to converge with those of New Zealand-born residents within 5-15 years for most groups.

The differentials can persist for certain migrant groups. Poot, Nana and Philpott (1988) show that in 1981, whereas recent migrants from the UK, Australia and North America had similar employment outcomes to the New Zealand born, unemployment rates for recent Pacific Island migrants were considerably higher than New Zealand-born workers and other immigrant groups. Both Poot, Nana and Philpott (1988) and Winkelmann (1999) find that male immigrants from UK and Australia had higher unemployment at the outset of their residency but that they converged to New Zealand-born levels and then fell below native rates within three years of residence. These findings suggest that male immigrants from UK and Australia face lower barriers to employment than other migrant groups.

Analysis of the 2001 census compared to 1996 census demonstrated that the employment rates of recent working aged migrants had improved from 46 percent in 1996 to 50.4 percent in 2001 (Boyd 2003). The remainder were either unemployed (8.7 percent) or not in the labour force (40.9 percent). The greatest improvements in employment rates were for the recent prime working aged migrants which had increased by over 7 percent for both males and females. The male migrant employment rate was 72.5 percent and the female migrant rate was 52.7 percent. This is still below the levels of native born with similar characteristics.

The employment rate gap between recent prime working aged migrants and the New Zealand born had narrowed between census, although the gap was still significant at 17.8 percent in 2001. From 1996 to 2001 there was also an increase in employment rates for the native population which sit at around 80 percent. For example, the 45-49 year-old age group had the highest rate of employment at 82.4 percent (Boyd 2003).

Analysis of the 2001 census data carried out by the Department of Labour showed that employment rates were lower for migrants from non-English speaking countries.⁹ Prime working age migrants from non-English speaking countries had consistently lower employment rates than prime working aged migrants from English speaking countries or the New Zealand born (New Zealand Department of Labour 2004).

The LisNZ pilot survey collected information on the labour force activities of migrants (New Zealand Department of Labour 2004).¹⁰ The employment rate for Wave 2 in the pilot group was 62 percent, with 84 percent of skilled/business migrants employed or self

⁹ This study used the standard definition of employment rates as a measurement of the percentage of the working aged population who are employed, either full or part time over the total working aged population.

¹⁰ In this survey the labour force activity rate is the proportion of migrants who were working or looking for work out of the total working age population, excluding unspecified responses. The seeking work rate is the proportion of migrants who were looking for work (and who were not currently working) out of all those in the labour force. The term 'employment rate' refers to the proportion of all migrants who were employed or self-employed, not just those who were in the labour force.

employed. This preliminary data suggests that later cohorts of migrants may be experiencing improved employment outcomes. The figure of 84 percent is commensurate with the 45-49 year old New Zealand employment rate stated above.

4.1.2 Participation rates

Analysis of the 2001 census data showed that young and older recent migrants were less likely to be in the labour force than other age groups. Participation rates for recent migrants in 2001 were 39 percent. Migrants aged 15-24 were more likely to be studying than to be in the labour force, although the proportion of migrants studying had declined in comparison to the 1996 census results. Recent, older migrants had labour force participation rates which were significantly lower than those of long-term migrants and the New Zealand born. Their participation rates were 28 percent in comparison to 64 percent for long-term migrants and 66 percent for the New Zealand born.

Similarly migrants from non-English speaking countries had lower participation rates than English speaking migrants or the New Zealand born. Analysis of the 2001 census data showed that North East Asian migrants had the highest non-participation rates at 51.5 percent, compared to South East Asian migrants at 33.6 percent and migrants from the Pacific at 30.4 percent. In 2001 the non-participation rate for the New Zealand born was 16 percent. These results show that a large section of the migrant population is not achieving native rates of participation and therefore may be having a negative impact on GDP per capita growth. While this would give policy makers cause for concern, conclusions cannot be drawn in isolation from other factors.

New Zealand's overall participation rates are high relative to the OECD. But the evidence outlined above shows that there is potential to increase the participation rates of migrants. Assuming no displacement of native workers (discussed below), increasing the number of people employed in the economy raises gross domestic product by the equivalent of their production. This has the effect of increasing total output. Unemployment of migrants has a high opportunity cost in terms of total output for the New Zealand economy. There are two main levers through which New Zealand can attempt to improve migrants' participation rates. First, the entry requirements need to be set so that those people entering New Zealand have the skills and characteristics that are in demand in the labour market, thereby increasing their chance of being employed. Secondly, there are barriers to employment that exist within the host community which may be able to be partially addressed through government policies. These are discussed further under the policy implications section.

4.1.3 Outcome differences by category

It is generally assumed in the literature that skilled migrants have more significant and enduring positive outcomes than less-skilled or family-based migrants. The United States has never had immigration flows that are focused on skills whereas this has been the focus of immigration flows to New Zealand since the 1970s. In analysing the economic benefits from immigration experienced by the United States, Borjas (1995, p6) suggests that the current small economic benefits could be increased considerably if the United States were to attract a more skilled immigration flow.

However, the extent to which greater economic benefits would be experienced from a shift towards a more skilled immigration flow might not be as significant as is often assumed. There is evidence to suggest that long-run differences in employment outcomes for skilled versus family-based migrants are not as significant as might be expected.

Cobb-Clark (2000), writing about family based and skilled migrants in Australia, finds that employment rates more closely match visa categories than participation rates do. Six months after arrival employment rates for immigrants in all visa categories were significantly lower than those who had arrived under the Australian Business Skills/Employer Nomination Scheme programs. Skill-based migrants seemed to have an initial head start in obtaining employment which dissipates over time, but does not eliminate the relative gaps in employment outcomes between different categories even 18 months after arrival. She concludes that while visa category seems to be quite important in the short-run (initial 18 months) for employment outcomes, the evidence in Australia indicates that this is unlikely to persist over the long run.

Jasso and Rosenzweig (1995) examine changes in occupation status after entry for US male immigrants selected under two different groups in the United States; family based migrants (marriage to a US citizen) and employment-based migrants (having an occupation or skill deemed to be in scarce supply in the United States).¹¹ As expected, they find that initially the employment-based migrants had significantly higher skills and earnings levels than the family-based migrants, even when age, employment experience and country of origin are controlled for. Their work indicated that employment-based migrants suffered substantial downward mobility in terms of change in post-immigration occupational status, and the family-based migrants experienced substantial upward occupational mobility particularly in the first five years after immigration (Jasso and Rosenzweig (1995, p108). They suggest that for the employment-based immigrants this is partly because they have limited opportunity for upward mobility due to their high skills and so it is not surprising that they experience a 'regression to the mean'. Similarly, the family-based migrants are usually in lower-paying occupations initially so their upward mobility reflects a natural movement towards the mean.

Jasso and Rosenzweig (1995, p86) suggest that the difference in overall productivity between these groups is usually overstated and may be "small or nonexistent". The two main reasons are first that family-based migrants have immediate access into family networks in the United States and second that family members may be adept at screening for long-term productivity as opposed to employers who may have a short-term focus. Their results indicate that in the long-run (ten years after immigration) the differential in average occupational earnings between the employment-based and family-based migrants was 60 percent of what it was when the groups became immigrants and this was a result of the different directions of their occupational mobility after admission (Jasso and Rosenzweig 1995, p88). In other words, the occupational disparity between skill-based and other immigrants in the US tends to diminish over time, although it still remains considerable. This is an important finding as in New Zealand it is sometimes assumed that the family category is a necessary, but unproductive element of the NZIP. This is because to get skilled migrants, they will often want reassurances that they can bring their family in later, and if they cannot they will be less inclined to migrate in the first place.

Similarly, Canadian research (Duleep and Regets (1992) as cited in Cobb-Clark (2000)) concludes that Canada's relatively greater emphasis on skills in selecting immigrants does not appear to give immigrants in Canada a long-term earnings advantage.

The LisNZ data indicates significant differences by category in New Zealand. The results of that pilot indicated a significant difference between the employment rates of skilled/business as opposed to family/international migrants (86 percent labour force activity rate versus 56

¹¹ The authors note that data availability has previously limited the ability to assess immigration economic characteristics subsequent to immigration but the availability of a cohort study following a complete 1977 US immigrant cohort and their naturalization records through to 1990 is used in this article to reach their findings.

percent). That data, however, includes refugee members as well which may result in an unrepresentative result for the family category labour force activity rate (New Zealand Department of Labour 2004). The data is short-term but in the future will allow greater analysis of whether the findings of Cobb-Clark and others apply in New Zealand.

4.2 Barriers to employment

The successful employment of migrants is dependent on a number of factors including the skill level of the migrants, willingness of employers to hire them and local labour market conditions. Breaking down these barriers is critical to increasing the employment rates of migrants.

The barriers to employment that are identified by the literature include poor English language skills and/or strong accents, recognition of qualifications, discrimination, inability to apply for jobs requiring a full driver's licence, limited literacy skills and lacking in computing skills and experience pertaining to specific New Zealand employment applications. Fletcher (1999) identifies English language proficiency, recognition of qualifications, access to family and social networks, and access to information (effectively in that order) as being of greatest importance to the successful settlement of migrants.

The National Immigration Settlement Strategy released by the government at the end of 2003 looked at the wider question of settlement and identified particular barriers that government views as existing for migrants to fully settle into New Zealand. These include an inability to access services and information, difficulty speaking New Zealand English and difficulty gaining employment. These three barriers were prioritised for the 2004 Budget Round which allocated a package of \$60 million over five years to fund a package of initiatives to support migrant settlement, including English for Speakers of Other Languages support for schools, adult ESOL training, New Zealand Qualifications Authority assessment of refugee qualifications, careers advice and labour market information, migrant resource services, refugee and migrant services and a national settlement structure.

Participation and employment rates for migrants improve over time, and for some migrant groups they surpass the rates of the New Zealand born. But the poor results for recent migrants are cause for some concern. The relatively low employment rates compared to natives may indicate a negative impact on GDP per capita. Migrants would be able to make a greater contribution to growth if they were assisted to integrate into the labour market as early as possible after arrival.

An important question, however, is whether the employment and participation rates for migrants as a whole are on average higher than the native population. If the migrant population has lower rates of participation and employment than the native population, but the migrant population is more highly skilled on average than the native population and therefore has higher productivity, then their impact on per capita growth may be positive. This would depend on the relative size of these two effects.

The literature suggests that migrants are facing a number of barriers to employment. This analysis suggests that addressing barriers to employment should be a high priority for the government as it could increase the employment rate of migrants which would improve their contribution to growth. This is discussed further in the policy section of this paper.

5 Productivity

Productivity measures the relationship between the output of goods and services and the inputs of resources used to produce them. Labour productivity is output per hour worked. Labour productivity is a result of physical capital (machinery, equipment, infrastructure etc) per worker and multifactor productivity (the overall efficiency with which resources are used including the effects of changing technologies). There is typically little direct evidence on the productivity of migrants relative to the native population. However, there is evidence of *underemployment* of skilled migrants, who are operating at a salary lower than their native counterpart, suggesting a productivity differential. By *underemployment* we mean migrants not being employed in positions commensurate with their skills and training.

This section discusses productivity issues that may arise from the underemployment of migrants, and skills transfers within firms that may have productivity effects.

It is assumed that migrants are likely to make the greatest contribution to economic growth when they are fully employed in a position commensurate with their skills and training. The education levels of migrants can be of greatest benefit to the economy when migrants can be employed in a job that makes the most of their skills. In some occupations, occupational licensing can act as a barrier to employment, creating difficulties for some migrants in obtaining long-term, sustainable employment and/or employment that uses their skills to the full.

Estimates of GDP for each extra migrant employed should allow for the possibility that the new employees work different hours, and have different productivity, from existing employees. While highly skilled migrants employed in a position commensurate to their skills are likely to have higher labour productivity than the national average, conversely migrants with skills lower than the native average, or migrants employed in a position that does not utilise their skills can have lower than average labour productivity. The skill level of migrants is discussed further below.

There is also a question as to whether economies of scale can be created as a result of migration. There is doubt as to whether migration creates economies of scale at the economy-wide level (OECD 2003a). There is the possibility that clustering effects may increase productivity in large cities although there is a lack of empirical evidence to back up this theory conclusively. Empirical studies done in other countries suggest that an estimated scale elasticity is unlikely to be greater than 1.2. In other words, net migration raises output by more than the increase in population. The OECD suggests that these figures are “highly speculative” but do imply that migration could have a notably positive effect on the economy.

5.1 Income convergence

Income convergence is affected by labour utilisation, as well as by labour productivity. Income differential is measured in the literature by comparing the incomes of different migrant cohorts with the income of natives. Evidence is usually presented in terms of the number of years that it takes for immigrant incomes to converge with those of the native population. This section focuses on the New Zealand literature, including evidence of differences in the income differential for second-generation migrants.

While the evidence shows that participation and employment rates for immigrants appear to converge with rates for New Zealand born residents within 5-15 years, for most groups the convergence of income seems to take approximately twice as long.

An earlier study (Poot 1993) looked at the median annual incomes of immigrants using 1986 census data. The effects of age, occupation, country of-origin and years since migration were controlled for. Pacific Islanders had a large income disadvantage upon arrival and a relatively steep 'years since migration-income profile'. Their income did not reach parity with New Zealand born workers until 35 or 40 years in New Zealand. UK born immigrants did not face an initial entry disadvantage, typically outperforming New Zealand born workers from the start. Australians had similar outcomes to New Zealand born workers.

The Winkelmann study (Winkelmann and Winkelmann 1998) showed that on average, new skilled migrants (those who had been in New Zealand less than five years) in the labour force had an income 20 percent below that of New Zealand born residents with similar characteristics and qualifications. An NZIER report (2003) notes the differential noted in the Winkelmann study may in fact be more marked today because that study focussed on migrants who were in employment, and since the report was published migration flows from non-Anglophone countries have increased. In addition to this, recent immigrant cohorts have been younger, more likely to be involved in full-time education and less likely to be actively participating in the labour force. On the other hand recent immigration cohorts have been more skilled as high demand has ensured a high pass mark and this may to some extent offset their tendency to not actively participate in the labour force so much as in the past.¹² It is difficult to ascertain which factor would have the greatest effect on income, but is reasonable to assume that the incomes of new skilled migrants are unlikely to have improved from the 20 percent discrepancy discovered in the Winkelmann study. This indicates that, at least in the initial stages after entry, and probably also after this stage, migrants have lower levels of labour productivity than natives.

This lower productivity and slow convergence can be explained, at least in the short term, because migrants must adjust to a new country and its culture, workplace routines, language, and other factors. This adjustment period will vary depending on the nature of the migrants (such as their country of origin) but it is sensible to expect that it would partly explain the findings of lower productivity and slow convergence.

5.2 Under-employment

NZIER (2003) research investigated the economic cost of under-employed skilled migrants finding that the major cost component came from reduced production as a result of migrants not fully utilising their skills. In this situation there are unrealised gains from immigration. While migrants are participating, their sub-optimal participation is not the best use of inputs available.

Winkelmann and Winkelmann (1998) show that immigrants had distinctively higher education levels than New Zealand born persons. Immigrants were about 30 percent more likely to have a post-school qualification than New Zealand born persons in any of the census years and that recent immigrants were between 40-50 percent more likely to have those qualifications. Migrants had a higher proportion of university qualifications and a lower proportion of vocational qualifications, a distinction that is likely to have been perpetuated under the mechanics of the pass mark system during the late 1990s.

¹² The pass mark for SMC started off very high but was lowered in September 2004 before rising again.

This greater level of education can lead to an increase in the overall levels of knowledge, skills and experience. Most immigrants to New Zealand are highly skilled, well qualified people. This increases the overall knowledge level in the economy and the stock and quality of the skills base (considering of course the skill level of the emigrating population). In this respect, work on the “brain drain” which became a fear in the early 2000s indicated that in fact the flows of migrants at that time would be more appropriately called a “brain exchange” rather than a “brain drain” (Bushnell and Choy 2001). This is discussed further below.

In New Zealand, the current policy settings focus on facilitating the entry of skilled migrants. Sixty percent of the total Immigration Programme is allocated to the skilled category. In addition, the Minister has the ability to reallocate any unused places in the other streams to the skilled category. During the early 2000s the high demand for migration to New Zealand meant that the pass mark under the General Skills Category (GSC) had to be increased quite significantly to manage the number of residence permits that could be offered. In practice this means that between 1999-2003 a GSC applicant would be unlikely to be accepted unless they had a tertiary qualification. The policy argument for focusing on skilled migration has been that skilled migrants will make a greater contribution to economic activity than migrants in other categories would, or than less skilled migrants. The discussion above confirms that skilled migrants have better participation and employment rates than migrants who are not selected for their skills, but it also indicates that there are still barriers to skilled migrants reaching employment at their greatest level of social return. This policy may be revisited in light of current labour market conditions in New Zealand and high demand for unskilled labour.

5.3 Emigration

New Zealand is both a source and a host country. Emigration can affect average labour productivity and its impact will depend on the characteristics of emigrants. Even though many New Zealanders leave New Zealand to live and work overseas, many also decide to return (Bushnell and Choy 2001, Glass and Choy 2001). This section discusses the role of New Zealand as a source country of migrants, and the potential impact this may have on growth.

Highly skilled New Zealand workers may experience pull factors such as better-paying jobs and the attraction of larger labour markets with a greater variety of job opportunities. The phenomenon of skilled workers departing the country is often referred to as a “brain drain”. Much of the literature argues that emigration has negative effects on the source country – the “brain drain” effect. The argument is that the propensity to emigrate increases with skills, so higher skilled workers leave while less-skilled workers remain. However, the source country may also benefit from emigration.

The “brain drain” has two principal negative effects on the well-being of those who remain in the source country as discussed by Domingues Dos Santos and Postel-Vinay (2003). First, emigration reduces per capita income in the source country as the economy loses skilled workers who contribute more to GDP than do the unskilled. The economy loses income that could be taxed and redistributed. The source country also loses the returns on its public investment in the human capital of the departing workers which is enjoyed by the host country.

Secondly, the source economy suffers a decumulation of human capital, reducing productivity and economic growth. Having an on average lower-skilled labour force would

reduce average labour productivity, and consequently would render physical capital less productive. Overall this can lead to lower wages and incomes. If a “brain drain” led to a relative scarcity of skilled labour this could push up wages for skilled labour resulting in greater wage inequality. Policy implications of skill shortages are discussed further at Section 7.

In addition, it may be that because of positive externalities and network effects, a critical mass of skills in certain fields is necessary to achieve higher levels of growth in certain industries. A small country with a thin supply of skilled labour will find it harder to form clusters of expertise.

So, has emigration negatively impacted upon growth in New Zealand? In the early 2000s there was fear of a “brain drain” taking the minds of New Zealand’s youngest and brightest offshore. The data, however, suggested that there was no net brain drain from New Zealand (Bushnell and Choy 2001). Theoretical reasons also exist for why it would not necessarily be expected to see a “brain drain” from New Zealand. First, it may be that wages are simply lower for all skill levels in New Zealand, as a result of low capital investment or lack of agglomeration externalities. In that case, the flow of emigrants could be expected to be evenly drawn from workers throughout the distribution, if the poor are as likely as the rich to find better opportunities overseas. This would lead us to predict steady net migration out of the country until wages are equalized across countries; on the other hand, there may be compensating differentials due to quality of life issues. It may be no exaggeration to say that migration to and from New Zealand is driven more by preferences than by skills. It is possible that those who leave New Zealand have a stronger preference for money, while those coming to New Zealand have a stronger preference for New Zealand’s way of life. This could explain why New Zealand wages are lower, but would not result in a skill bias in migration flows.

Second, as noted previously, New Zealand has experienced a strong rise in wage inequality; in other rich countries, the rise in wage inequality has been subdued or nonexistent. As predicted in the labour market models, skilled labour is expected to migrate to regions of greater inequality, while unskilled labour migrates to regions of less inequality. Thus it may be that skilled workers are migrating to New Zealand from countries with less inequality. This has been empirically tested elsewhere (Borjas 1987) but not for New Zealand.

Emigration can also have positive consequences for the source country. First, remittances from emigrants can play an important part in the income of the source country. Secondly, the “brain drain” can also increase the potential returns to skilled workers who do not emigrate and can induce individuals to up-skill, leading to an accumulation of human capital and contributing to economic growth. The source country can benefit from the spill-over effects of knowledge diffusion and imitation from the skilled emigrants who contribute to growth-inducing innovation in the host country. As discussed above, the role of the diaspora further complicates the issue of the brain drain. Finally, the source country can benefit from the human and financial capital accumulated by returning migrants during their sojourn in the host country.

5.4 Capital investment

Migrants can add to the pool of human capital, but can also bring with them physical capital. The amount of physical capital in the economy is a determinant of the level of economic growth. New Zealand’s business stream migration categories demonstrate an

explicit link between capital and labour flows. There are other less direct aspects to this relationship examined by the literature.

Migrants cause factor price movements by changing the capital-labour ratio: where migrants have less capital than the average native, immigration increases the supply of labour relative to that of capital and vice versa (Kemnitz 2001). Kemnitz uses an endogenous growth model to illustrate that immigration will only benefit an average native if, and only if, the average immigrant possesses more capital than the average native, ie the capital-labour ratio is increased. This is in contrast to standard neoclassical results.

It is uncertain whether migrants have, on average, greater capital than natives in New Zealand. The only category focused on capital is the business stream. The Investor Category closed in June 2005 and a new category came into existence in July 2005. The new category requires business investors to advance \$2 million to the New Zealand Government for 5 years. After two years migrants can withdraw a portion of their funds and invest in an approved business.

Lloyd (1996) suggests that globalisation literature emphasises the role of capital flows in the form of direct foreign investments and their links to the growth of international trade in commodities but neglects the international migration of people. In terms of the activities of multinational firms or enterprises, he suggests that some relationships between the international movement of goods and labour are inextricably linked to international capital movement, and that in the long run immigration may have a strong effect on the patterns of trade and direct foreign investment. He uses a Markusen specific factor model to predict the magnitude of gains and losses to factor incomes when there is a capital or labour inflow into the Australian economy (Lloyd 1996, p78).¹³ Some of the literature suggests that it is usually capital which follows labour, posited on the idea that immigrant labour has the effect of raising the marginal productivity of capital and partly due to an increase in aggregate demand inducing a transfer of capital. The model used by Lloyd indicates that capital inflows may increase the incentives for labour to migrate more than the migration of labour increases the incentives for capital to flow to Australia.

5.5 Global connectedness

Global connectedness, within the New Zealand government context, is a term used to refer to as the actual flow of factors (such as the goods, services, capital, people knowledge, ideas and technology) between countries. This compares with openness, which is the absence of formal or trade barriers to factor flows. Global connectedness allows us to take advantage of the larger international market and access the latest technology and ideas. Access to technology, knowledge and ideas is likely to be a key element in improving New Zealand's productivity performance. In terms of the growth accounting framework this can be considered as part of multi-factor productivity.

The OECD sees the large size of migration flows to and from New Zealand as important because of the connections maintained by immigration and New Zealand expatriates with their countries of origin (OECD 2003b). This increases the opportunities for exchanging knowledge and ideas which the OECD notes can be a powerful driver of innovation.

New Zealand's physical distance from the rest of the world is a barrier to exchange. Treasury has done some work investigating whether migrant stocks offset the effects of

¹³ The results can be imputed to be similar in New Zealand given the same basic feature of the New Zealand economy as being a large-scale recipient of both capital and labour for the majority of the last 150 years.

distance, by presenting detailed data on New Zealander-born people overseas, and overseas-born people in New Zealand (Bryant and Law 2004). The paper suggests a need to temper expectations about benefits from the New Zealand diaspora, but also suggests a potentially important role for immigrants to New Zealand. There is a large pool of New Zealand citizens currently overseas, many of whom will return to their native country (Lidgard and Gilson 2002). When they do so, they will bring new ideas, higher human capital and international networks – all positive for New Zealand growth.

In regard to the diaspora, Bryant, Genc and Law (2004) estimate there were almost 460,000 New Zealand-born living outside New Zealand in 2001, of which 80 percent were living in Australia.¹⁴ Their findings suggest that the number of New Zealanders in other countries is much smaller than is often assumed. The United Kingdom, for example, is home to less than 60,000 New Zealanders. It may be possible for New Zealand to tap into the networks and links of the diaspora, although a cost-effective option for doing so is not obvious.

Sustained productivity growth may come from increased access to, and incentive to develop, new technology, knowledge and ideas. Direct people-to-people contact can be key in accessing and adapting these. Migration facilitates international contacts and is a way to access larger and more varied stocks of capital and labour. Larger markets can increase productivity through larger scale production which permits specialisation, economies of scale and learning by doing, and through stronger incentives to innovate, for example through allowing the recovery of the fixed costs of innovation and competition that provides incentives to maximise efficiency and innovation.

There is evidence that the productivity of the native population may be improved by the presence of migrant workers. Some of the literature suggests that expatriate workers employed by foreign multinationals transfer labour market skills to native employees (Lloyd 1996, p77). There does not seem to be a quantitative estimate of the extent of skills transfer from temporary residents to local workers but if a significant relationship exists then this adds weight to the argument that the presence of skilled migrant workers can increase the productivity of native firms.

Immigration is one way to improve links from New Zealand with the migrant's country of origin.¹⁵ This can be done at an individual, organisational or governmental level. Improving global connectedness can facilitate greater overseas market access for New Zealand businesses, improvement in exchange of new technologies and processes and improving the New Zealand Inc image overseas. Greater market access can be achieved through improved export penetration for firms with multilingual, multicultural sales people and management with multi-country contacts.

The literature suggests that there are significant links between past immigration and the growth of exports (Lloyd 1996, p80) One study suggested that the employment of East Asian workers by Australian firms increased the East Asian export orientation of firms. This was attributed to assets of the East Asian employees such as knowledge of appropriate business ethics and practices, personal contacts with other East Asian peoples and specific cultural knowledge. In addition to export orientation being improved when native people from the export markets were employed, there was evidence of an increase in outward foreign direct investment towards that country as well (Lloyd 1996, p81). Lloyd accepts that more research is required to separate the various effects that may be involved in increasing exports and improvement in other global links, such as the

¹⁴ New Zealander is defined as being a person born in New Zealand.

¹⁵ The number of New Zealand citizens living offshore is also of relevance here.

general rapid market growth in Asia. He concludes that immigration may have a “strong effect” on trade and direct foreign investment patterns.

The evaluation of the Business Investor category in 1999 indicated that some Business Migrants were involved in exporting and importing businesses, with exporting going mainly to the country of birth of the Business Investor. These activities improve New Zealand’s global connectedness through trade with a range of countries mainly throughout Asia but also including Fiji, USA, United Kingdom and Australia. This will also improve wider international linkages that New Zealand has with the world.

6 Wider Impacts

Migration can have wider economic impacts than purely through the avenues to per capita growth set out in the growth accounting framework. These wider impacts are set out briefly below. While they are not central to the core discussion in this paper they are briefly discussed here for the sake of completeness.

6.1 Fiscal impact

The fiscal impact of an increase in immigration can be significant, particularly where tax contributions do not match the receipt of public expenditures such as health and education on the new immigrants. It can be difficult to accurately gauge the fiscal costs that migrants impose on society. Different results can be achieved depending on the measures taken and the way that private and public good provision is treated. In the context of their work on Britain, McCarthy and Collins (2001, p23) conclude only that it is “quite possible that fiscal externalities erode the gains from free migration”.

For the US, Borjas (1995, p4) shows that there was an increase in the fiscal costs of migrants to the state between the 1970 and 1990 censuses. Immigrants shifted from being less likely to receive welfare to more likely over the time period. This is correlated with their tendency to be less educated. It is difficult to accurately reconcile the costs that migrants impose on a society with the benefits that they create. Borjas (1994) provides a set of estimates of the costs and benefits of migration in the United States using 1990 census data. He estimates the net benefit to the welfare system (tax income minus cash benefits and means-tested entitlements) at around \$US60 billion. This is a simplistic analysis in that it assumes a zero marginal cost of providing other social services to migrants, such as infrastructure.

McCarthy and Collins (2001, p22) note that if you use an average cost Borjas’s calculations would indicate immigrants are a large net cost. Yet again, the inclusion of public good provision would reduce this cost (eg defence). The evidence gathered in New Zealand would not support a similar conclusion here.

In 2003 BERL (Nana, Sanderson and Goodchild 2003) carried out a study using demographic and other data from the 2001 census and government accounts data for the year to June 2002 to estimate the fiscal impact of migrants to New Zealand in the June 2002 fiscal year,¹⁶ That study estimated that migrants to New Zealand had a positive net

¹⁶ In this paper migrants are defined as persons born overseas but usually resident in New Zealand.

fiscal impact of \$1.7 billion in the year to June 2002.¹⁷ Revenue from the sub-groups of the migrant population is a function of income. Therefore, as noted by the study, the income of each group is strongly dependent on its age profile.¹⁸ The impact of the age-profile of various migrant groups is to lead to high income earnings for migrant groups but this difference can be attributed to the comparative age-composition.

Two sub-groupings were calculated to have a negative fiscal impact; new migrants from Asia and new migrants from the Pacific Islands. Their fiscal impact became positive as their duration of residence in New Zealand increased (Nana *et al* 2003).

Export education is an industry that has a significant fiscal impact. It was responsible for the substantial growth in temporary permit applications from 00/01 until 03/04, although demand decline during 2005. Export education has two important links to immigration: first, migrants who are studying, while not currently participating in the economy, are increasing the resident stock of human capital and are settling in to New Zealand; second, export education is a \$2 billion industry in New Zealand providing employment opportunities for New Zealanders and foreign exchange earnings; and finally, foreign students who return to their source country can act as international contacts thus increasing New Zealand's global connectedness.

6.2 Economic costs

In addition to the fiscal effects, immigrants can impose wider economic costs (and benefits). Although there are direct fiscal costs when welfare payments are made to unemployed migrants, the economic consequences of unemployment are likely to be much higher. In addition, there may be pressures on infrastructure.

The characteristics of the migrant population provide a basis for establishing the costs of migrants. In New Zealand new migrants have an unemployment rate above the native average, and their income differential (depending on sub-group) takes some time to converge with native incomes. The age structure of the migrant population, which puts migrants disproportionately into the working age group means that they may have a lower tendency to be utilising publicly funded education and healthcare.

An increase in immigration can put pressure on infrastructure, for example it can lead to increased demand for housing, schools, hospitals and roading. However, the overall impact is likely to be relatively small since the net migration effects are small, although there may be some geographic concentration (NZIER 2003).

¹⁷ Government revenue was assessed at \$5.8 billion and was comprised of income tax, GST and petrol, alcohol and tobacco excises. Government expenditure was assessed at \$4.1 billion and was comprised of education, health, New Zealand Superannuation, Work and Income benefits and student allowances. The net contribution of migrants was slightly higher than that of the New Zealand born. The migrant population contribution to income tax revenue totalled \$4,121 million in the year.

¹⁸ The study assumes that migrants behave in a manner similar to those born in New Zealand within the same age and income category in relation to expenditure characteristics.

Migrant inflows to New Zealand have typically concentrated themselves in major urban centres, with Auckland, Wellington and Christchurch being the greatest receivers of migrants (Newell 2001). More than two thirds of the migrants who had arrived in New Zealand over the five year period prior to March 2001 had settled in the Auckland region. The overseas born account for 34 percent of Auckland's resident population compared to 20 percent for the whole of New Zealand (Nana *et al* 2003). Auckland also receives a larger proportion of new migrants. Thirty four percent of migrants resident in Auckland are new compared to the New Zealand-wide proportion of 28 percent. The increase in temporary migration has also contributed to the perception of Auckland as a migrant city. This appearance is likely to have been responsible for some of the increased political attention that migration has received in recent years. The new SMC seeks to address this by awarding bonus points to job offers places outside Auckland.

While cities that experience large migrant inflows can experience consumption gains, such as those of Auckland in the mid 1990s (particularly in the property and construction sectors) rapid population increases can also have negative effects, including pressure on infrastructure and services. An increase in demand for housing is the oft-cited example for Auckland. An increase in demand for housing can have a positive effect for property owners by increasing prices, but can negatively impact on homebuyers. Increased demand is only likely to lead to a rise in prices if there is a supply constraint.

Despite this, the inflow of migrants into Auckland is sometimes pointed to as the major reason for infrastructure pressures in Auckland, such as traffic problems. There has been an argument that the higher net migration of the mid-1990s resulted in house prices increasing to the point that they threatened to have wider inflationary impacts. The high inflows in 2002/03 have also been correlated with rising property prices (OECD 2003a). Rising house prices increase the returns to investing in property. As a result more people may invest in property, reducing the capital available for productive investment. Conversely, public good provision does not incur any extra cost for each additional migrant.

There can also be positive agglomeration and economies of scale effects as a result of population concentration. It is difficult to find evidence on whether this has occurred in Auckland as a result of migration. If there have been scale effects then they would increase per capita GDP growth, with potentially significant effects. Further investigation into this would provide useful information to policy makers on potential economic gains from migration. It may also have an effect on the perception of a concentrated population of migrants as being a negative effect of migration.

7 Policy implications

7.1 Introduction

As stated earlier, government has a strong influence over immigration policy as it ultimately determines who will be admitted to New Zealand and for how long. It is therefore important that government ensures it has an evidence-based immigration policy programme designed to select migrants who will bring the greatest net benefits to the incumbent population.

This section presents policy implications that can be drawn from the evidence presented above. Policy implications are considered for labour utilisation and labour productivity, and include a high level consideration of the size of the New Zealand Immigration Programme (NZIP).

7.2 Policy implications for labour utilisation

As set out in the analysis in Section 4 above, improving the participation and employment rates of migrants is likely to bring economic benefits to New Zealand. If highly skilled migrants are employed in jobs commensurate with their skills and the returns to skills are shared with the native population then there should be an improvement in GDP per capita.

As previously stated there are two main levers through which New Zealand can attempt to improve migrants' participation rates. First, the entry requirements need to be set so that those people entering New Zealand have the skills and characteristics that are in demand in the labour market. Secondly, there are barriers to employment that exist within the host community which may be able to be partially addressed through government policies.

7.2.1 Entry requirements

The first policy lever has recently had major adjustments made to it. The SMC, introduced in 2004, aims to let in migrants who will be able to quickly settle and contribute to New Zealand. The huge majority of migrants admitted under this category are now likely to currently work in New Zealand or have job offers. It is probable that the policy changes made will therefore ensure greater labour force participation and employment rates for the cohort of migrants entering New Zealand under this new category. The initial data supports this; in 2004/05 87 percent of principal applicants had a job or offer of skilled employment in New Zealand. Sixty one percent had a main occupation in an area of immediate or long-term skill shortage. Given the current tight labour market, this outcome for migrants may be relieving some of the existing labour market constraints on growth.

Temporary work policy has increasingly become a pathway through to residency. There is evidence that the new SMC will continue to encourage prospective migrants on temporary work policies to "upgrade" to residence policy. Eighty eight percent of principal applicants approved for residence in 2004/05 had previously held a work, student or visitor permit. In this case it remains important that New Zealand's work policy facilitates the quick entry of migrants to fill job offers. New Zealand is competing against other countries to attract and retain the best migrants, delays in processing are likely to be one factor that migrants consider when making a relocation decision. The use of the expression of interest system is one way to manage expectations but the government needs to ensure that processing times are the shortest possible while being compatible with ensuring appropriate scrutiny.

7.2.2 Reducing barriers to employment

This second policy lever is important in dealing with those migrants whom the literature indicates are likely to have poor participation and employment outcomes. There is a large stock of migrants currently in New Zealand who fit this description so government needs to consider interventions to assist the stock of existing migrants, in addition to trying to get the right flow. There are a wide variety of policy responses to deal with barriers to employment.

In particular the literature indicates that improvements in the use of the English language will assist migrants to move into employment. Results from the inflows of the SMC show

there has been a shift in the emphasis of the flow of migrants towards Anglophone countries. However, there will still be a flow of migrants from non-Anglophone countries under all categories and a significant existing stock.

Proficiency in the English language makes all the initial aspects of the settlement process easier for migrants. In the medium term it is critical to ensuring good labour market outcomes. Since November 1998, non-principal applicants under the skilled and business categories (and principal business applicants prior to November 2002) who do not meet the minimum English language standards have been required to pre-purchase English for Speakers of Other Languages (ESOL) training. There are some concerns about the level of take-up of this tuition. The government has two options for increasing the English language proficiency of migrants. Either the English language requirement for entry could be increased (and/or it could be introduced for the family stream as well) or there could be greater ESOL provision and support for migrants after they have arrived. The latter suggestion is likely to have greater upfront costs, assuming there is not a return to the previous mechanism of an English language bond. Previous experience of the bond was that it had very low take up rates so it is not recommended that this policy be reintroduced. It is possible that further work could be done to consider a more assertive approach. For example, those under the work-to-residence route could be asked to provide evidence that they have attended and passed the requisite course before they are approved for residence.

In 2002 the English language requirements (IELTS scores) for the skilled and business stream were increased. Increasing the requirements further would reduce the pool of eligible migrants, which may be sustainable during times of high demand, but there would likely be pressure to lower it if demand dropped off. Therefore consideration of increasing the requirement would need to be balanced against the desirability of consistency in migration policy. The Settlement Strategy 2004 put some emphasis on ESOL provision and evaluation of this provision should inform future investment in programmes. There has been some initial evidence from previous programmes that there can be low take-up of courses, but this may be due to insufficient awareness in migrant communities about its availability. In this case the use of Migrant Settlement Centres to disseminate information should be assessed to ensure their effectiveness.

In general the changes to the new SMC have seen an increase in the arrival of migrants from Anglophone countries, such as Britain and the United States. Having a greater proportion of migrants with high levels of English literacy is likely to improve labour force participation and employment rates, given the evidence presented above that English language proficiency is a key barrier to employment.

There is a more difficult issue around the attitude of employers towards migrants. There is some evidence, mostly anecdotal, that employers are hesitant to employ migrants – often due to their perception that heavy accents are a negative attribute. The Auckland Chambers of Commerce have done some excellent work in matching highly skilled migrants with employment among their members. This use of networking can be used to break down barriers and illustrate to employers the great pool of talent that migrants can provide. It is less clear to see the role of government here, but the initiation of such programmes in the private sector is promising and where possible should be encouraged.

7.2.3 Skilled vs family-based outcomes

The literature outlined in the preceding discussion has illustrated that the difference in outcomes for skilled versus family-based migrants may not be quite as significant as has previously been assumed. This is one particular area whether further work would be particularly warranted. New Zealand has been taking greater numbers of skilled migrants over the last ten years, and these migrants are now beginning to sponsor family migrants. Demand in the family stream continues to outnumber places available and from September 2004 priority has been given to partners and dependent children over other applicants in this stream. Pressure on this stream is likely to increase and it would be prudent for the government to prepare for this by further investigating the outcomes of this stream, and ways to improve them.

Australia has been facing this problem and their solution has been to implement a queuing system. Around 40 percent of Australia's Migration Programme in 2003/04 was for family migrants.¹⁹ The 2002-03 program outcome of 108,072 places, included 40,794 (37.7 percent) in the Family Stream. The Australian Minister of Immigration makes decisions on parent caps as necessary during the Program Year. Once the limit or cap has been reached, no further visas are granted in that visa class in the Program Year. On 1 July 2003, there were about 23,210 people who had lodged applications for parent visas. Of these, approximately 16,400 were in the queue. The offshore component of this pipeline comprises about 17,140 people while 6,070 are in the onshore component (Australian Department of Immigration and Multicultural and Indigenous Affairs 2003).

7.3 Policy implications for migrant productivity

As set out in the growth accounting framework, labour productivity is a result of capital per worker and multifactor productivity. There is little direct evidence in New Zealand on the productivity of migrants relative to the native population; however, there was evidence of underemployment of skilled migrants, who are operating at a salary lower than their native counterpart, suggesting a productivity differential. While disentangling the effects that migrant workers have for productivity can be a black box question, the analysis above has policy implications relating to the skills of migrants, including technology spill-over questions and investment.

7.3.1 Increasing skills of migrants

The objectives of the SMC are to grant residence to people who demonstrate that they have skills to fill identified needs and opportunities in New Zealand; are able to transfer those skills to New Zealand and link with local needs and opportunities; are able to demonstrate an ability to contribute to New Zealand both economically and socially; and are able to demonstrate an ability to successfully settle in New Zealand. In meeting these objectives the SMC aims to maximise and accelerate the contribution of immigration to New Zealand's capacity building, sustainable growth and innovation, global connectedness, and thriving and inclusive communities through focusing on a range of source regions to achieve a balanced programme and linking global talent with local opportunities.

¹⁹ Australia has a separate Humanitarian programme of around 11,000 places.

The Borjas immigration surplus model suggests that the greatest gains from immigration may arise when the arrival of immigrants reduces local labour costs. This will tend to occur in those segments of the labour market in which wages are sensitive to labour supply. The weight of empirical evidence suggests that the wages of skilled workers are significantly more responsive to a shift in supply than the wages of unskilled workers. This is partly because most governments regulate wages at the low end (eg. through minimum wage laws) but not at the high end; and skilled labour and capital tend to be complements, whereas unskilled labour and capital tend to be substitutes.

It is also reasonable to assume that skilled immigrants generate larger positive externalities than unskilled immigrants (for example they disseminate more knowledge, pay more tax, and consume more); and the evidence (Nana *et al* 2003) indicates that government expenditure on income support and welfare is lower for skilled immigrants than for unskilled immigrants.

These points suggest that increasing the skill composition of the immigrant flow can potentially generate economic gains for a country. However, the gains may be associated with a redistribution of income from native workers within the affected labour market to owners of capital (shareholders, investors). The policy question is whether the efficiency gains outweigh any social costs arising from this redistribution (which raises a prior question of whether there are any significant social costs, or whether there are simply winners and losers).

There is a potential trade-off between distributional impacts and efficiency gains from immigration: the literature suggests that countries are unlikely to achieve real gains from immigration (in terms of an increase in national income) without some negative impact on the local workforce. It follows that immigration policies that are driven by a concern to minimise negative impacts on the local workforce are unlikely to be consistent with maximising the net benefits to a country from immigration.

In some respects New Zealand immigration policies are focused on minimising the impacts of immigration on native workers.²⁰ This approach may be costly to New Zealand, in terms of lost opportunity for economic gain. Protecting the local workforce may be a high priority for government, but it is important to understand the nature and level of the trade-offs involved, in order to make informed decisions.

World demand for skilled migrants

Migrant preferences affect migration decisions. The effect that this will have on demand for residence in New Zealand is dependent on whether migrant groups have homogenous or heterogeneous preferences. If viewed as homogenous then it must be accepted that countries compete with each other for skilled migrants. One study showed increases in the number of skilled migrants arriving in the United States from a particular sending country are related to a reduction in the numbers of skilled individuals from that country applying for an Australian visa (Cobb-Clark and Connolly 1996). In this light New Zealand immigration policy developments must always take account of the relative attractiveness of countries such as Canada, Australia and the United States. Competition for skilled migrants is likely to increase in the future as the pressures of populating ageing start to be felt across developed countries and the demand for skilled labour increases.

²⁰ For example, according to DOL's 1999 Briefing to Ministers, the purpose of the Immigration Programme is to "take account of... New Zealand's capacity to absorb inflows". This suggests that the concern is to avoid/minimise negative impacts rather than to maximise the net gains to New Zealand.

It is unlikely that migrants are distinctly heterogeneous or homogenous in their migration decisions. Understanding the motivation of migrants is difficult. But the shift to a greater number of onshore residence applications suggests that if migrant preferences are homogenous New Zealand needs to have very competitive policies for work and other temporary permits, not just residence permits. In practice the development of New Zealand immigration policy usually provides country comparisons between proposed changes to policy and the comparative policy in other similar countries. This should continue.

At present, the United States remains the favoured destination for many highly skilled foreign workers, but its continued competitiveness in attracting the best and brightest will require substantial changes in immigration policies and administrative mechanisms. An increasing proportion of highly skilled enter through temporary categories with little prospect of permanent residence within a reasonable period. The numbers involved are very significant and the pressures that drive them are likely to continue over the near future (Martin and Lowell 2004). Another aspect to this is that the United States has increased visa restrictions in the wake of 9/11 and the increased security has made it more difficult for some foreign workers to enter.

7.3.2 Emigration

This paper discussed the role of emigration in the migration system. What does this mean for policy in New Zealand? Again, it is dependent on which effects would dominate behaviour. If labour does not respond to international wage differentials, then New Zealand can safely invest in human capital without concern that educated New Zealanders will flee the country. What is the effect of high wage inequality on skilled workers' decisions to emigrate? This may to some extent offset the incentives to leave for higher average wages in other countries, whereas low-wage labour faces greater constraints to emigration (due to lack of resources and/or information). If the wage inequality offset does not significantly affect decisions then New Zealand can be viewed as a component of an integrated global labour market. This argument has implications for work on skills training and education for New Zealanders.

There is a lack of definitive literature on whether greater investment in skills by government leads to higher emigration and/or less immigration of skilled workers, thereby offsetting the effects of these policies on New Zealand's aggregate economic performance. Evidence in this area would be essential for understanding the impact of investments in human capital on growth. If human capital flows overseas to the country offering the highest wages then how would this affect government's incentives to increase the number of people undertaking tertiary training?

Perhaps this debate illustrates the need for greater links between work on education and immigration policy. At the very least it suggests that investments in education should be considered with a long-term lens which considers how to encourage educated New Zealanders to stay in New Zealand, or at least to return to New Zealand. The student loans policy announced in 2005 allowing students who remain in New Zealand to be free from interest payments is an example of this. The aim must be for the government to invest in skills that assist economic growth in New Zealand and it is appropriate to consider how these skills can be retained. As discussed above in relation to global connectedness, the government should also consider how to ensure New Zealand remains an attractive return option for those people who do leave the country at some point.

7.3.3 Skill and labour shortages

The New Zealand government is currently undertaking work on the interface of various responses to labour market shortages. The use of immigration policy is one possible response to periods of skill and labour market shortages. There is no agreed definition of skill and labour shortages. However in broad terms government has used the term 'skill' to refer to occupations requiring significant specialist, managerial or technical expertise while 'labour' has been used to denote low or unskilled occupations that can be learnt in a relatively short period of time.

Could immigration make a greater contribution to economic growth if it could be exploited to alleviate skill shortages and encourage expansion within businesses that have said they are currently constrained by skill/labour shortages? Since 1999 New Zealand has been facing a tightening labour market. The official unemployment rate has fallen from 6.3 percent in December 1999 to 3.6 percent in the December 2005 Household Labour Force Survey. Skills and labour shortages are high and are forming a major constraint on business expansion. There can be a number of underlying reasons why these shortages exist and the use of immigration policy to alleviate the shortages would not address all of these reasons.

Skill shortages constrict economic growth by constraining business production (or expansion). They can also push up wages for certain types of skills leading to wage inflation in excess of productivity growth. Since 1999, the New Zealand labour market has been tightening – unemployment has decreased from 6.3 percent end-1999 to 3.6 percent at the end of 2005, while employment has increased by 10 percent over the same period. Employers have reported considerable and sustained difficulties in recruiting suitable staff, with 45 percent of firms reporting difficulty in finding skilled staff and 25 percent finding it difficult to recruit unskilled staff (NZIER 2004, March).

A 2001/2002 work permit review concluded that it was not appropriate to use immigration temporary work policy to enable employers to meet shortages for low or unskilled labour caused by recruitment difficulties. Working holiday schemes were seen as a potential source of labour for addressing temporary or seasonal shortages. The risk of businesses being constrained by the unavailability of labour prepared to work at the going wage rates was noted, but immigration was not considered to be an appropriate policy response.²¹

An important question is establishing why the shortages exist. Immigration is a possible short-term intervention for shortages caused by skill gaps while training and education initiatives are underway to resolve the shortages. If shortages are absolute and ongoing then immigration could be viewed as a possible longer-term intervention. Skill shortages can be met by bringing in labour from overseas. However, if shortages are the result of poor pay or conditions or inadequate training, bringing in overseas workers could adversely impact on employment opportunities for the host country and may reduce the incentives for both businesses and individuals to invest in education and training.

Should New Zealand be more flexible in facilitating lower-skilled workers where it is in New Zealand's longer-term economic interests and where risks can be effectively managed? Particular areas experiencing labour shortages are the construction industry and the horticulture industry. Use of the occupation shortages list is a possible way forward but the concern must be the period of time for which these permits are granted. Using immigration to respond to short-term problems makes quick and efficient processing by NZIS imperative.

²¹ DoL Overview Paper: Responses to Skill and Labour Shortages – Role of Immigration. paper to Minister 16 April 2004.

In the latter part of this decade there will be a brief increase in the available workforce as the 'baby blip' cohorts of the early 1990s work their way into the working age population. Possible consequences include increases in emigration if members of the New Zealand workforce cannot find jobs in the domestic labour market. At this time Australia, Europe and North America will all be competing for skilled labour. Irregular patterns of growth will cause differential pressures on the labour market and services (Bedford, Ho and Lidgard 2000). Immigration policy can be seen by governments as an attractive mechanism to alleviate various labour market challenges, but these responses can in turn be destabilising.

7.3.4 Technology Spillovers

A possible approach is to pursue further the gains to native firm productivity that can be had from technology spillovers. In addition to the literature identified in the productivity section above, there is anecdotal evidence from firms involved in the Auckland Chamber of Commerce Skilled Migrant Employment scheme that firms are receiving great benefits from employing migrant workers. The scheme is funded by NZIS and administered by the Auckland Chamber of Commerce and aims to link skilled migrants with employers (or assist skilled migrants into jobs).

There are limited policy levers available to the Government to encourage these spillovers. The greatest advantage may be in ensuring that action is taken to reduce barriers to employment, including educating the host community employers of the benefits of bringing migrant workers, with their varied experiences, into the workplace. There are possible benefits from encouraging foreign firms to locate in New Zealand as their skills and knowledge are likely to spill over to native firms and workers.

7.3.5 Investment - Business migration

The Investor category is designed to select a sub-group of migrants whose investment capital and skills can create an economic return for New Zealand. There is limited robust evidence on the impact that business migrant flows under these business categories has had in New Zealand. For example the BERL study (Nana *et al* 2003) does not make any estimate of the contribution of migrants to corporate tax revenues. One of the primary sources of information regarding the investor category has been the New Zealand Immigration Service (NZIS) evaluation of their business immigration policy (New Zealand Immigration Service 2002). The weight that can be placed on this is limited due to the low response rate from business migrants.

The limited evidence available indicates that the majority of business migrants utilise their money in passive investments. A small proportion have active investments such as property investment (residential and commercial), owning small and medium businesses and shares and stocks.²²

In July 2005 the Government closed the Investor category and opened a new variation of the scheme. The new scheme, as under the last one does not encourage active investment by the migrant. Investor migrants may continue to choose passive investments under the new scheme because they are required to retain funds of at least the same value as originally invested. It is, therefore, not in their interest to risk their residence

²² The evaluation found that over half of those Business Investors interviewed owned or partly owned a business in New Zealand and a further third planned to establish or buy into a business. Advice from the New Zealand Immigration Service Business Migrant Unit is that this may have been unrepresentative. Their operational information suggests the majority of business migrants use passive investment only.

status by making a moderate to high-risk investment that could lose value over this period (especially in the situation where the funds are borrowed).

One consideration is that a migrant's underlying reason for migrating under this category may not be for investment opportunities. Evidence indicates that the Investor category tends to be chosen by migrants for lifestyle reasons, rather than because of perceived business or investment opportunities. Even if migrants are genuine investors, passive investment options are often initially preferred because it gives migrants time to settle in New Zealand and risky investments tend to rely heavily on networks and local knowledge that migrants are unlikely to have, or be able to acquire quickly. Business experience is now a mandatory requirement of the category.

Even under the new investor category there is scope for removing operational disincentives for active investment, while addressing information asymmetry issues. The current policy could be amended so that migrants will still qualify for residency if they invest actively after the point where they can withdraw their money but their investment loses value in that period. More information could be provided to Investor migrants on New Zealand's commercial and business environment in order to reduce the problems caused by information asymmetry. Longer investment periods and/or larger amounts could assist with signalling strength of preferences.

The requirement in the new category that funds go to investment areas mandated by the government is likely to increase the return to New Zealand in the short run. After the initial period migrants may search for greatest market returns, which may or may not benefit New Zealand. In the long run returns may only be retained if the individuals continue to make a contribution through businesses set up in New Zealand and exploitation of global linkages. Requiring active investment may increase the return to New Zealand as it forces migrants to exploit their own business skills, it encourages use of international linkages thereby increasing global connectedness and injecting their funds directly into the economy may accelerate economic growth (for example by creating jobs).

7.3.6 Export Education

Export education is now a billion dollar industry in New Zealand. The fiscal returns from that industry are not strictly within the bounds of an analysis of overall migration, but it is worth considering the policy implications, as this is a potential source of highly skilled, semi-settled migrants. An explicit link was made in 2004 by the government, to sell permanent residence to migrants who are in New Zealand on temporary permits. Students are seen as a ready-made source of possible resident migrants because they have already undergone a large part of the settlement process. Of the people issued with a student permit in 1997/1998, 20 percent of students have subsequently taken up residence. Similar trends were evident for subsequent cohorts. The take-up of residence by those previously approved for a student permit tended to increase at a steady rate for the first two or three years after a student permit was issued, and then tailed-off (New Zealand Immigration Service 2004).

The targeting of international students would seem to be a policy worth pursuing. Even those with a New Zealand education who return to their country of origin are not necessarily a negative investment as there are gains to New Zealand from having them return to their country of origin such as increasing global connectedness. The OECD (2003b) noted that the ability of the domestic education sector to attract large numbers of foreign students was a promising development for improved global connectedness. In addition to being a flourishing export sector, it attracts people who subsequently, if they

decide to stay, will have few difficulties in integrating in the labour market. The OECD suggests that strengthening the ability of universities to build on this base to create successful graduate programmes that can attract foreign researchers should be a further objective (OECD 2003b).

From a settlement point of view, and a human capital point of view it is worth pursuing these students to encourage them to become skilled residents. In addition, the work done by Bryant, Genc and Law (2004) in establishing links between having foreign-born people in a population and trade flows to their country of origin suggests that targeting students in particular markets where New Zealand is looking to deepen trade links would be a sensible extension of this policy.

7.4 Increasing the size of the Immigration Programme

If bringing in skilled migrants can contribute to economic growth through participation, population and productivity levers then perhaps consideration should be given to significantly increasing the size of the Immigration Programme. The New Zealand Immigration Service has advocated a cautious and measured approach to setting the level of residence approvals. Currently residence approvals are sitting around 50,000, but is there any particular reason for choosing that figure? In the past two years in New Zealand the policy debate on the number of migrants coming into New Zealand has focused more on the changing face of New Zealand society and associated concerns around social cohesion rather than any economic benefits that may be conferred to the host community.

A related question is whether an increase in the size of the migration programme necessarily needs to be an increase in the skilled migrant category or whether reducing the entry qualifications to allow in lower skilled workers would also provide greater economic benefits. It is suggested that despite the potential economic benefits that may be reaped from an increase in migration there are valid reasons for not doing this. One of the reasons postulated by the Immigration Service is stability in the NZIP. Stability in desired approval levels sends positive signals to potential migrants, New Zealand industries and employers about government's commitment to an active NZIP in the medium and long term. Stability enhances confidence in immigration, thus assisting in marketing New Zealand as a destination. Stability assists the NZIS to maintain the capacity to deliver immigration outcomes. There would be logistical difficulties and costs associated with increasing or reducing the NZIS's operational capacity to deal with large increases or reductions in the level of approvals on an annual basis. Stability also assists other central, local government and other organisations to plan and maintain their capacity to carry out their functions (ranging from housing infrastructure to transport, day care services, education, health to evaluation of qualifications). This in turn assists in the delivery of immigration and settlement outcomes.

There are two aspects to the desire for stability that should be teased out. There is a difference between stability in total numbers of the Immigration Programme versus stability in policy and entry requirements. Stability for the sake of stability is not a strong reason for not increasing the size of the programme, as all that would need to be done would be to increase the size of the programme over a five year period which would provide sufficient notice to local and central government for their planning services. Infrastructure is usually viewed over a longer time horizon, so if necessary the Programme could be stepped up over a ten-year period. It is suggested that the related settlement arguments provide a more serious constraint on restricting immigration. This is not for pure economic reasons, but is related to a concern of possible social fragmentation.

In October 2003 the New Zealand Government developed a national immigration settlement strategy which sets out a programme of action for settlement outcomes that promote social cohesion. Social cohesion was included as part of this review in an effort to focus on the social effects of migration on the host community in addition to the economic effects.

Social cohesion is broader than migrant and refugee settlement. It involves a climate of collaboration so that all groups have a sense of belonging, participation, inclusion, recognition and legitimacy. The current government has identified a need for a greater understanding and monitoring of the stage of social cohesion.

The National Immigration Settlement Strategy proposed six goals for migrants and refugees and their families. The goals are that migrants and refugees and their families should be able to:

- obtain employment appropriate to their qualifications and skills;
- are able to access appropriate information and responsive services that are available to the wider community;
- are confident using English in a New Zealand setting or can access appropriate language support to bridge the gap;
- form supportive social networks and establish a sustainable community identity;
- feel safe expressing their ethnic identity and are accepted by, and are part of, the wider host community; and
- participate in civic, community and social activities.

The priority goals for additional financial investment via the 2004 Budget were the first three goals listed above.

Any decisions on whether to increase the size of the Immigration Programme need to take into account the absorptive capacity of the host society, both in terms of pressure on infrastructure and services as well as impacts on social cohesion. As stated by Chapple (Chapple and Yeabsley 1996), one simple answer to why migration is limited is that there is a binding constraint of some form of social acceptability. The crux of the problem may be that migrants bring change which is highly visible, and by limiting migrant inflows the native population's tolerance for change is not overstretched (Chapple and Yeabsley 1996).

Quantum of the Programme is also important as the literature indicates that migration adds more to aggregate demand than to aggregate supply (Chapple and Yeabsley 1996). As a result it is likely that migration has some inflationary pressure. The increase in demand for housing caused in part by migration to Auckland has had an impact on housing prices. Increased inflationary pressures can add to the likelihood that the central bank will act to control inflation by increasing interest rates. Net migration over 2001-2002 proved stronger and more sustained than anticipated by the New Zealand Reserve Bank. In the December 2003 Monetary Policy Statement the Governor stated that exchange rate appreciation combined with weakening migration flows was beginning to reduce pressure on the economy's resources which in turn was beginning to reduce domestic inflation (Reserve Bank of New Zealand 2003).

8 Conclusion

The original motivation for this paper was a desire to understand how migration impacts on per capita growth in New Zealand. It is clear from the discussion that the existing literature is deficient in explaining this relationship. The growth accounting framework is not a complete theory of economic growth but it has provided a way to explore the pathways through which migration can impact on growth.

The evidence has shown that migration has significant impacts on labour productivity and labour utilisation but significant questions remain unanswered: what is the magnitude of this impact? What is the true nature of the causality? What are the interlinkages between the skill level of migrants, or the quantum of migration and growth? An accurate assessment of the magnitude of the impact of immigration on economic growth is likely to be unattainable given existing data. A variety of theoretical economic models can be employed but the results are a function of the assumptions that are made at the beginning, which are themselves subject to question. It is difficult to ascertain the extent to which theoretical models of immigration and growth accurately predict reality because the real world picture is confounded by other influences and by continuing policy adjustments which affect the composition of migrant flows.

It is clear that further work remains to be done on the question of migration and economic growth. The area would benefit from strong empirical work that aims to provide policy advice to government on realistic and achievable policy adjustments to improve the returns to growth, while still balancing social policy aims. This paper has captured a discussion of the literature in the area and set out a way of thinking about the questions. More detailed qualitative, but particularly quantitative work remains to be done if those questions are to be adequately answered and to ensure that the debate always takes into account migration patterns.

Overall, it is equivocal whether there is enough robust evidence to support the claim that immigration is always positive for per capita growth. This paper concurs with the observations of the OECD, which stated “there is not sufficient or detailed enough data on the behaviour of the New Zealand economy to give clear answers on the overall effects on per capita incomes of existing residents”. While the evidence suggests small positive net gains from migration, these do not necessarily stack up as an improvement in per capita growth rates. Whether immigration is positive is also dependent on which particular group of people governments are concerned about increasing the welfare of. If it is overall national welfare then the evidence does suggest immigration is positive. But if this is achieved through a lowering of the wages of native workers, albeit while potentially increasing returns to the owners of capital, this distribution of benefit may not be seen as desirable.

As this paper reflects, it may be more helpful to think about migration as an opportunity to increase GDP per capita growth, rather than as a threat that needs to be managed. It has been shown that improving participation and employment rates is likely to have a positive effect on overall GDP per capita and this paper has looked at some indicators that migrants may be making a positive contribution to labour productivity. Questions do remain, such as the expected increase in growth vis-a-vis the government investment required to increase participation and employment rates, or the extent to which the benefits would accrue to natives or to which subset of natives; but the available evidence indicates where policy efforts should be focussed. Ensuring that the settings of the migration system support the improvement of migrant participation and productivity, while balancing social cohesion concerns, is the first step towards improving the contribution of migration towards economic growth per capita. Continuing to analyse, evaluate and refine the system must be the second.

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