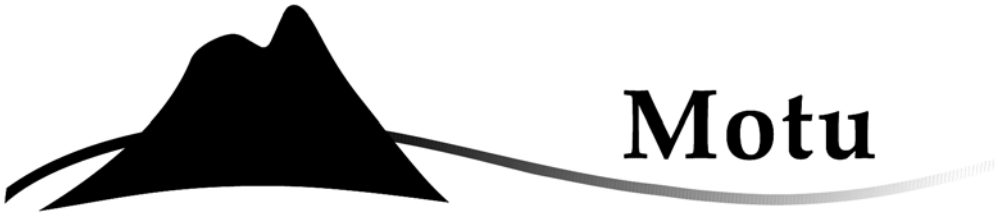

Trans-Tasman Migration, Transnationalism and Economic Development in Australasia

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Abstract

This paper focuses on migration between Australia and New Zealand, which has exhibited a strong, but cyclical, net movement towards Australia since the late 1960s. A long-term historical perspective is taken. Trans-Tasman migration is also compared with inter-island migration within New Zealand. It is argued that differential economic development, driven by forces of globalisation, agglomeration and technological change, has been primarily responsible for the long-run changes in the distribution of population across the regions of Australasia. Asynchronous business cycles, demographic dynamics, perceptions, return migration and the high international mobility of New Zealanders (of whom one quarter of those aged 40-64 have lived abroad for a year or longer) are responsible for the short-run fluctuations. However, permanent and long-term migration is only a small fraction of total trans-Tasman population movement. Moreover, trans-Tasman migration has not offset New Zealand's ability to recruit population through immigration. Over the last three decades, the outflow of half a million New Zealand citizens has been compensated by a net inflow of three-quarter million citizens from elsewhere. The number of New Zealanders in Australia is expected to continue to grow but the migration flows become increasingly diversified. One-third of the New Zealanders in Australia re-migrates within four years. Future trends will depend on New Zealand's ability to boost productivity growth, the real cost of air travel, retirement migration and the impacts of climate change.

JEL classification
F22, J61, N97, O15, R23

Keywords
Trans-Tasman migration, Australia, New Zealand, economic development

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1 Introduction

Since the late 1960s, there has been a strong – but cyclical – increase in the number of New Zealanders living in Australia, not matched by equal growth in the number of Australians living in New Zealand. The net outflow to Australia reached a record high of 35,400 Permanent and Long-Term (PLT) migrants during calendar year 2008. As at June 2008, an estimated 521,000 New Zealand citizens were on Australian soil (Department of Immigration and Citizenship, 2008). However, since the beginning of 2009, the number of PLT departures to Australia has slowed markedly while the number of New Zealanders returning from Australia has increased (Department of Labour 2009).

In our globally integrated world, recent changes in the population flows between Australia and New Zealand must be seen in the context of the financial turmoil and economic downturn in North America and Western Europe, which severely affected the export-reliant Asian economies. In turn, their contraction reversed the boom in exports of minerals from Australia and, in the end, even the most remote developed economy – New Zealand – cannot escape this global contagion. Emigration to Australia has always been more cyclical than the reverse (Gorbey et al., 1999) and geographic mobility tends to be lower in times of economic recession and uncertainty, leading to an expectation of lower emigration from New Zealand during the downturn.

While a period of consolidation of the spatial distribution of population across Australasia may be emerging, the nature of cross-border geographic mobility one decade into the 21st century is very different from what it was when the post-war baby boomers went on their overseas experience ("OE") during the 1970s and early 1980s. Global economic integration, the sharp decline in the costs of air travel and international communication, and internet-driven forms of networking and information exchange encourages greater trans-border mobility of all types in a way that is referred to as the new migration paradigm (Poot et al., 2008). In the context of trans-Tasman migration, this has led to transnationalism of a large proportion of New Zealanders in Australia. They are equally at home on both sides of the Tasman (e.g. Green et al., 2008). Their geographic location at any point in time should not be seen as permanent but merely determined by an individual-specific or family-specific constellation of push and pull factors, although subject of course to some level of cumulative inertia (Sanderson, 2006). Given the apparent receding since early 2009 of the fifth wave of migration towards Australia that has occurred since the 1960s, an opportune time has emerged to take stock of these salient features of trans-Tasman migration: the long-run trend; economic development in Australasia; cyclicality; globalisation and immigration policies; economic geography and transnationalism. In the following sections, I will focus briefly on each of these in turn. However, no attempt will be made in this limited space to

provide a comprehensive overview or a full update of Carmichael (1993), which remains the most extensive review of trends, causes and consequences of trans-Tasman migration. At the end of the paper, I will provide some concluding remarks and speculate on future prospects.

2 Long-term Trends

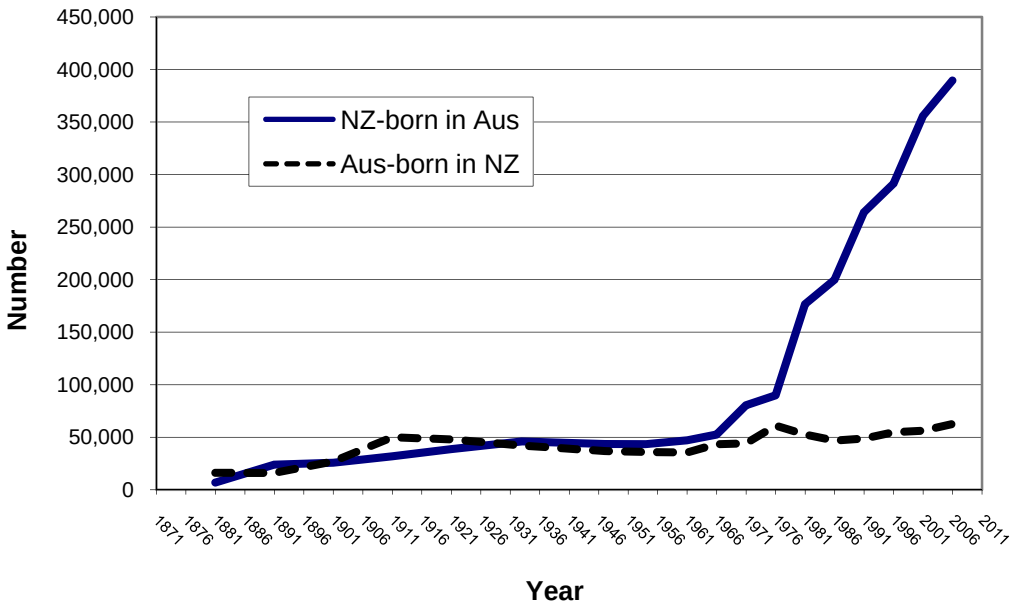
The right of New Zealanders and Australians to live and work in each other's country has been formally in place since the 1973 Trans-Tasman Travel Agreement (TTTA), but has been effectively operating since colonial times (Carmichael, 1993). As can be seen from Figure 1, the exchange of people between the two countries had been rather balanced for about a century until the late 1960s. The divergence which commenced at that stage led to public concern in the late 1970s and invoked the first demographic analysis of the phenomenon (Pool, 1979). The data for Figure 1 come from Pool (1979), but updated with subsequent quinquennial population census data. In 2006, there were 389,467 New Zealand-born residents in Australia and 62,634 Australia-born residents in New Zealand.

The distinction between the migration process before 1966 and after is so stark that it immediately begs the question: what kind of watershed led to 1966 heralding this divergence of flows east and west in trans-Tasman migration? The answer to that question is firmly rooted in New Zealand's economic history of the late 1960s, referred to as "the end of the golden weather" (Gould, 1982: 113). Similarly, Hawke (1985: 322) notes that "the date 1967-8 is of more than symbolic significance". At that time, New Zealand faced its first major post-World War II recession about which Gould (1982: 118) wrote:

> The 1967/68 period, then, can boast several claims to a dubious distinction: the first net migration loss and the highest unemployment rate since the depression of the thirties; the most rapid inflation (in 1967) since the Korean boom, the first important example of the practice of 'tinkering' with the economy by means of a 'mini-budget' in between the normal annual budgets; the first post-war devaluation of the New Zealand pound against the pound stirling.

Significantly, the devaluation of the New Zealand dollar by 19.45 percent in November 1967 (after decimal currency was introduced on the 10th of July that year) again brought parity with the Australian currency, after New Zealand's currency had been worth 24.27 percent more than Australia's since 1948. The relative change in the purchasing power of the two countries' currencies undoubtedly had an effect on people's perception of the relative fortunes of the two countries.

Figure 1: The Trans-Tasman Born Population, 1881-2006



The relative position of the two currencies, and economic conditions more generally, are of course neither the only reasons for the commencement of the divergence in 1967, nor for the continuation of the trend subsequently. Later, I will review a range of factors that have been shown by econometric modelling to be "drivers" of the flows. Suffice to say here that there was also a strong demographic undercurrent emerging in the 1970s of New Zealand's post war baby boom generation going on their "OE" as an expected rite of passage of young adults, before settling down.

Two additional features of Figure 1 are worth noting. Firstly, the number of Australia-born in New Zealand has been rather stable since 1911 at a level of around 40,000 to 60,000. Secondly, the intercensal increase in the New Zealand-born population of Australia since 1966 decelerates during the first half of any decade and then accelerates during the second half. This is the consequence of a cycle of departures of around a decade long. I will return later to this phenomenon.

Despite the geographical differences, Australia and New Zealand are by global standards and historically very similar societies. The migration flows may therefore be reasonably well described by the social science equivalent of Newton's gravity law, which has turned out to be a remarkably good predictor of flows in many forms of spatial interaction modelling, not only for migration but also for trade, commuting, shopping, etc. (see Nijkamp and Poot, 2007). In the case of migration, the simple behavioural explanation is that migrants

seek opportunities and that, among similar locations, opportunities are likely to be proportional to (or at least positively related with) population size.

Mathematically, in the simplest form, we write:

$$M_{rs} = \gamma \frac{P_r P_s}{D_{rs}^{\alpha}} \quad (1)$$

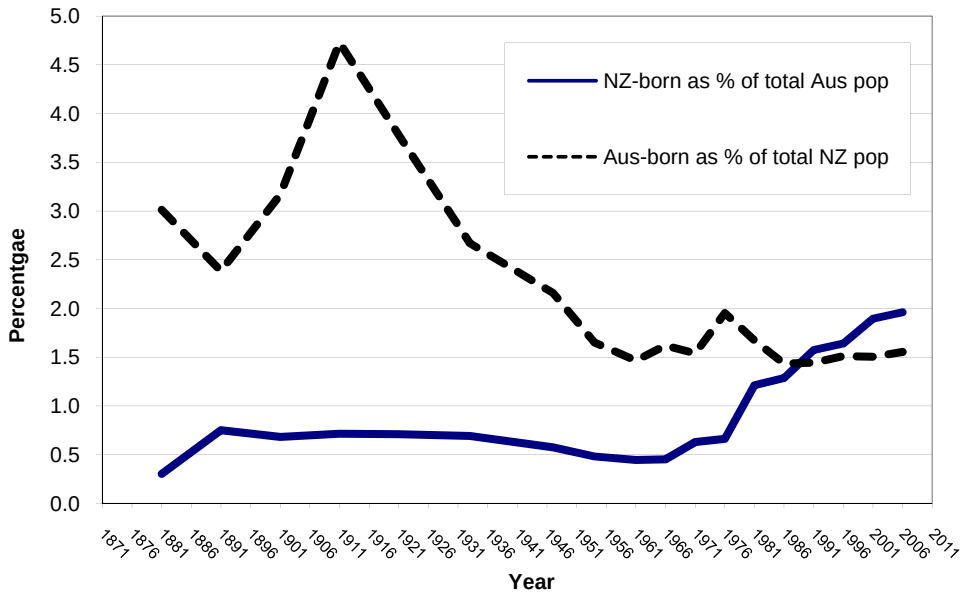
in which M_{rs} is the migration between locations r and s, P_r is the population of r, P_s is the population of s, D_{rs} refers to the distance between r and s and γ and a are constants. Although flows are inversely proportional to the squared distance in the physical gravity model ($a = 2$), in migration models it will depend on the geographical context. We find in Australasian migration models that a is about 0.5 (Poot, 1995).

With this model we can make two important predictions. Firstly, the equation is symmetric with respect to r and s, and hence $M_{rs} = M_{sr}$. The gravity model is a model of equilibrium in which migration is equal in both directions and net migration is zero. Secondly, it is easy to see that because $M_{rs} = M_{sr}$, it also follows that $M_{rs}/P_s = P_r/P_s \times M_{sr}/P_r$. In words, and in the Australasian context, the gravity model (or any other model of equilibrium migration) suggests that because Australia's population has been since the late 19th century about 4.5 to 5 times New Zealand's, the percentage of Australians in New Zealand should be in long run equilibrium about 4.5 to 5 times the percentage of New Zealanders in Australia.

Figure 2 shows what these percentages actually are. The percentage of New Zealand-born in Australia dropped a little from 0.7 to 0.5 between 1891 and 1966, before starting its upward trend to about 2 percent at present[1]. The percentage of Australia-born in New Zealand was historically much higher before settling down at around 1.5 percent since the 1980s. However, from about 1931 to 1966, the ratio of percentages was somewhere between three and four. While that is not exactly 4.5 (because the process is path dependent and past migration shocks continue to affect the foreign-born stocks for a generation), it is safe to conclude, even without using actual migration statistics, that for that period up to 1966, trans-Tasman migration was nicely balanced.

[1] The 1881-1891 decade was characterised by recession in New Zealand, which led to the first trans-Tasman net outflow to Australia. While Australia was plagued by droughts, conditions in New Zealand were booming at the beginning of the 20th century (fuelled by the impact of refrigerated exports of meat to the UK) and this explains that by 1911, almost 5 percent of New Zealand's population was Australia-born.

Figure 2: The Trans-Tasman Born as a Percentage of the Host Population, 1871-2006



But our simple gravity model can go further than that. It can be used to predict what the actual gross migration flows in equilibrium would be. For that, I first note that equation (1) has the unrealistic property that when the population of both countries doubles, gross migration is expected to increase fourfold. It is more realistic to assume that the percentage foreign-born is independent of population scale. That can be achieved in the gravity model by replacing the numerator on the right hand side of equation (1) by the square root of the product of populations. Then we can say that that if the gravity model truly described trans-Tasman migration, it would be according to:

$$M_{AU\,NZ} = M_{NZ\,AU} = \frac{\gamma}{\sqrt{D_{AU\,NZ}}}\sqrt{P_{AU}P_{NZ}} = constant \times \sqrt{P_{AU}P_{NZ}} \qquad (2)$$

The proportionality constant has been gradually increasing as populations have become more internationally mobile with the greater availability of air transportation and the decline in the real airfares. For example, for 1947-48, the proportionality constant was about 0.00067 (corresponding with migration in both directions of about 2,500) whereas by 1964-65, it had become 0.00185 (corresponding with gross migration of around 10,000 each way). In calendar year 2008, PLT arrivals from Australia were 13,100 while departures to Australia were a record 48,500. What would equilibrium PLT trans-Tasman migration have been if economic conditions would have been similar in both countries, as in the 1950s? Arrivals from Australia would increase considerably whereas departures to Australia would drop drastically. Taking the geometric average of the two observed gross flows as a rough estimate, we would expect equilibrium migration of about 25,000 each way and the proportionality constant would then have increased to 0.00259 in recent years.

A point to note is that the percentages depicted in Figure 2 show the trans-Tasman migration in relation to the host population. The New Zealand-born are only 2 percent of the Australian resident population and only about 8 percent of the immigrant population. Quite a different perspective is obtained when the migrant stocks of Figure 1 are related to the source country populations. To save space, the graph is not shown but it should be noted that after peaking in 1891 at 3.6 percent, the proportion of New Zealand-born residing in Australia actually declined until 1966, after which it started to increase to close to 10 percent of the population of New Zealand by 2006. The Australians living in New Zealand were at most 1.1 percent of the Australian population (in 1911) and the percentage has been sliding ever since down to 0.3 percent in 2006. Clearly, from this demographic perspective, trans-Tasman migration matters much more to New Zealanders than to Australians. Additionally, many of the 63,000 Australia-born in New Zealand would be children of New Zealand-born parents. Since birthplace of parents is not recorded in the New Zealand census, the exact percentage is not known but Bedford and Lowe (1993) found, for example, that among the 3,780 families consisting of a New Zealand-born couple with children returning from Australia between 1981 and 1986, there were 1,302 Australia-born children.

Besides the growth in the total New Zealand-born population in Australia depicted in Figure 1, it is noteworthy that the Maori population among the New Zealanders there exhibited an even more rapid increase, although the enumeration in the Australian census has been irregular and problematic. Hamer (2007) cited an estimate produced by Jeremy Lowe of 27,000 Maori in Australia in 1986, increasing to an official estimate of 73,000 in the 2001 census and 92,912 in 2006. These numbers are undoubtedly undercounts compared with enumeration of ethnicity on the same basis as in New Zealand. About two thirds of Maori in Australia were born in New Zealand (Bedford et al. 2004). About one in seven Maori may be living in Australia (as compared with about one in eight non-Maori New Zealanders) and their propensity to migrate to Australia has been therefore greater than that of the rest of the population. Within Australia, their mobility is high and survey evidence suggests that many plan to return to New Zealand (Hamer, 2007), although the more skilled and white collar workers are more likely to remain in Australia (Forrest et al., 2009).

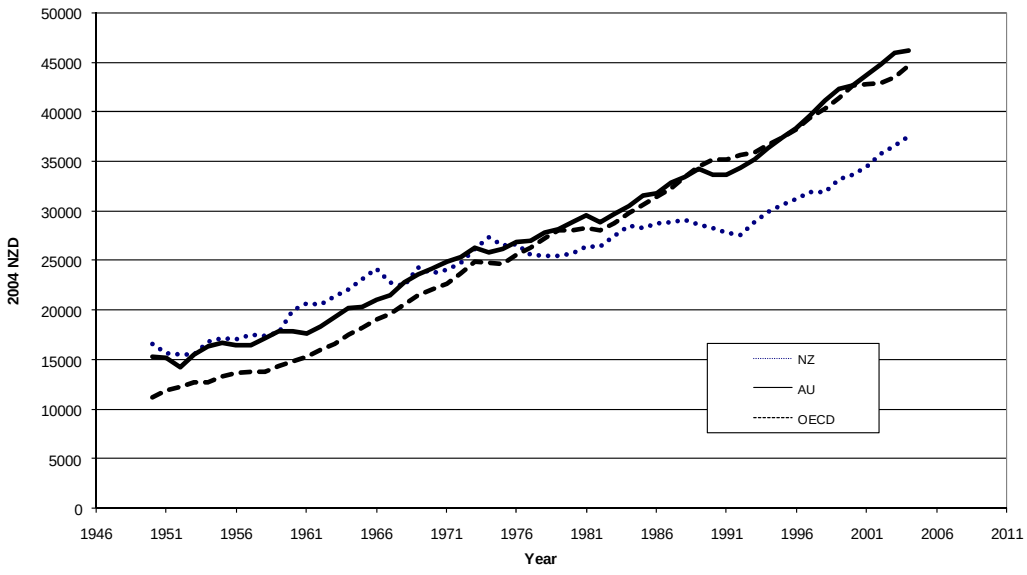
3 Migration and Long-run Economic Development

While there are many push and pull factors affecting the migration decisions of individuals, the difference in the standard of living between two locations is a major macro-level determinant of net migration, particularly when migration flows are not restricted. Figure 3 depicts, using OECD data, the standard of living as measured by GDP per capita in Australia, New Zealand and the average for the OECD since 1950. To control for

differences in wage and price levels between countries, this is done in purchasing power parity terms rather than using nominal exchange rates[2].

Average annual economic growth in the OECD countries has been about 2.6 percent. Until the late 1970s real income in Australia and New Zealand exceeded the OECD average; in the "Golden Years" of the 1950s by as much as a quarter or more. Other OECD countries were simply gradually catching up to Australasia. Australia and New Zealand's GDP per capita were generally similar, except for the 1960s (up to 1967) when New Zealanders had a higher real income than Australians. Since the mid-1970s, however, the paths of Australia and New Zealand diverged. Australia has been able to maintain a rate of economic growth equal to the OECD average, while New Zealand's declined or stagnated during the late 1970s and again during much of the 1984-94 decade of drastic economic reforms. One of the objectives of the reforms was to raise the rate of economic growth of New Zealand and Figure 3 indicates that this has been indeed the case since the 1990s, but insufficiently to ensure a "catching up" or "overtaking" of Australia and the OECD average in the way that small countries such as Ireland, Finland or Norway have achieved. Real GDP per capita in New Zealand remains at about 80 percent of that in the OECD and Australia.

Figure 3: Real GDP per Capita: Australia, New Zealand and OECD, 1950-2004



We can conclude that, seen alongside Figure 1, there is a remarkable correspondence between the migration trends and the standard of living trends in that the

[2] Alternative data sources, such as the World Bank or the Penn World table, show very similar trends.

stagnation of real income in New Zealand in the late 1960s triggered the first major outflow to Australia (and to the UK as well) while the post-1979 divergence between real income on both sides of the Tasman depicted in Figure 3 corresponds with the divergence in trans-Tasman migrant populations in Figure 1. This simple graphical comparison is not to suggest that GDP per capita is the only factor to consider; but it is clear that the relative economic wellbeing in the two countries has been the main driver of the long-term change.

4 The Cyclicality of Trans-Tasman Migration

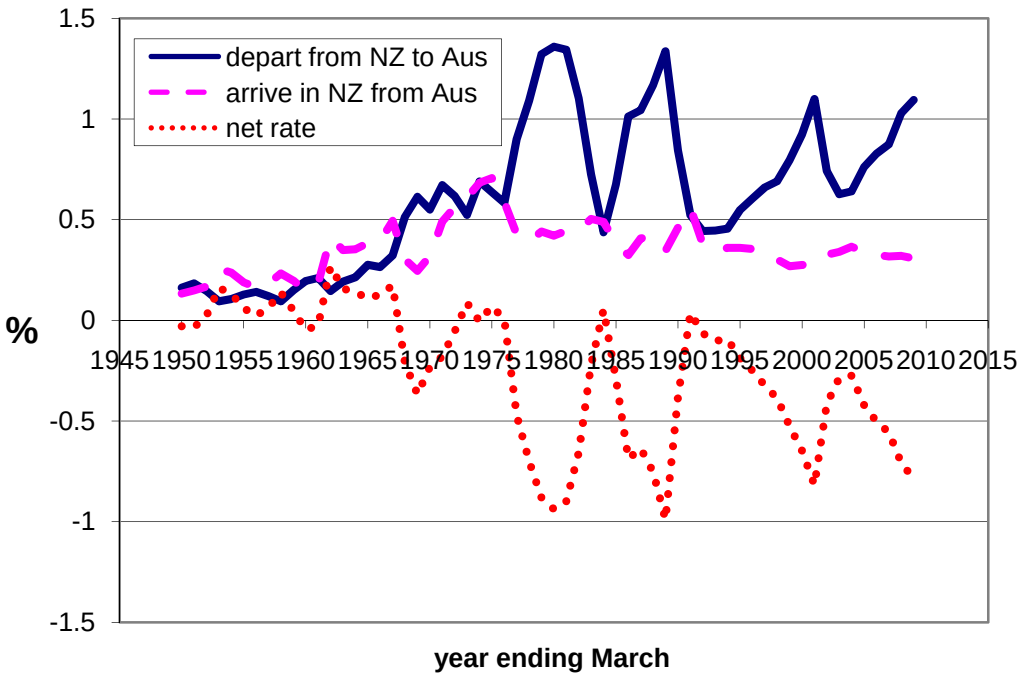
Besides the long-term "population drift west" in Australasia (e.g., Bushnell and Choy, 2001), the cyclicality of trans-Tasman migration is another striking feature of the process. As Figure 4 shows, the cycle has been remarkably regular since the 1960s with peak net outflows to Australia being recorded toward the end of every decade (1969, 1979, 1989, 2008), with only the late 1990s net outflow not peaking until early in the new millennium (2001). In absolute terms, the highest net outflow to date has been recorded in calendar year 2008, but it can be seen from Figure 4 that the peak departure rate (PLT departures as a percentage of the New Zealand population) was experienced much earlier in March year 1980 (closely followed by the peak in March year 1989). It is clear from Figure 4 that the cyclical aspect is predominantly due to the cycle in New Zealand departures because the arrival rate has exhibited a gradual downward trend since the mid-1970s. The pronounced cycle in departures does, however, also generate some cyclicality in arrivals (of which on average two thirds are New Zealanders returning). Statistical analysis shows that the arrival rate is correlated with the departure rate of two years' earlier (with a correlation coefficient of 0.49). Other lags are not statistically significant. This suggests that a common pattern is for trans-Tasman migrants to return after two years. Figure 4 also shows that the mobility rates (PLT departure and arrival rates) increased until the 1980s and that since then, across the cycles, the average emigration rate remains high, undoubtedly facilitated by one-way airfares that reduced from three weeks' pay in the 1950s to less than two days' pay at present.

The decadal cycle did not exist before the 1970s, nor is there any scientific reason why it should continue in this regular fashion. However, for the last forty years, it has been a defining feature of New Zealand's migration system and a major contributor to the volatility of New Zealand's population growth overall (Bedford and Poot, 2009).

There are several drivers of the cyclicality. One is the somewhat asynchronous nature of the business cycle on both sides of the Tasman. While both countries have open economies that are sensitive to global economic conditions, and specifically to the demand for their natural resources-based exports, economic structures and economic policies are not the same in the two countries and the business cycles can be more out of phase than may be expected among regions within a single country. Consequently, quarterly growth in the ratio

of Australia-over-New Zealand GDP, as well as Australian quarterly unemployment growth, turn out to be useful predictors of short-term fluctuations in net trans-Tasman migration (Gorbey et al., 1999). Alternative measures, such as differences in purchasing-power corrected earnings and in employment growth have also shown to be drivers of migration fluctuations (Brosnan and Poot, 1987).

Figure 4: PLT Trans-Tasman Migration as a Percentage of the New Zealand Population, 1950-2009



Another economic indicator that has some association with the trans-Tasman migration cycle, at least over the last two decades, is the exchange rate. At the time of relatively high emigration rates (1989-90, 1999-2000 and 2008) the value of the New Zealand dollar reached a local minimum relative to the Australian dollar. Conversely, when the Kiwi dollar was relatively high (mid 1990s and around 2004-05), the emigration rate was relatively low. No causal link is necessarily implied by observing this association but some form of "money illusion" does appear plausible in which a high Australian dollar raises the gap in New Zealand dollar terms between wages available in Australia and New Zealand, thereby making emigration seemingly more attractive from the New Zealand perspective.

Wave-like changes in the size of the most mobile population group, those aged in their 20s and 30s, due to past fertility and migration fluctuations (e.g. Pool, 2003) have also contributed to the cyclicality in trans-Tasman migration (and, incidentally, also to cyclicality

in the birth rate), with this demographic effect being most pronounced when the baby boomers reached peak mobility ages in the late 1970s.

A final contributor to the volatility in net migration is the openness of the New Zealand population with respect to international movement. In the 1950s, when the population was around 2 million, total international arrivals and departures were around 60,000 each. Since then, the population has doubled to 4.3 million but arrivals and departures have increased sixty fold to about 4.5 million. Hence total arrivals and departures each exceed the size of the entire population. In Australia, total arrivals and departures are only about half the size of the population. While short-term travel should largely cancel out over any 12 month period, it is clear that even small asynchronous percentage changes in either arrivals or departures could lead to fairly large fluctuations in net migration.

5 Globalisation and Immigration Policy

Like Australia and Canada, New Zealand embarked since the early 1990s on a policy of higher immigration, specifically the international recruitment of highly-skilled workers, partly to contribute to higher economic growth (e.g., Poot et al., 1988) but in the New Zealand case also undoubtedly to offset net emigration to Australia. The extent to which immigration has substituted for the loss of New Zealand high-skilled workers cannot be addressed here (see, e.g., Bryant and Law, 2005), but Table 1 shows the numerical impact of trans-Tasman migration and other migration on overall net migration. The three decades since 1980 are considered separately. The economically turbulent period 1980-89 had net PLT emigration of about 145,285 overall. The 1990s are characterised by net immigration of 99,305, further increasing to 117,611 in the most recent decade. The table shows how this overall outcome is made up of net migration of New Zealand citizens and citizens from other countries, in terms of flows to and from Australia and to and from the rest of the world.

It can be seen from Table 1 that the magnitude of the net outflow of New Zealand citizens to Australia is similar in the 1980s compared with the 2000-2009 period. The trans-Tasman inflow of Other Citizens is relatively small and consists predominantly of Australia-born children and partners of New Zealand return migrants. Net emigration of New Zealanders to the Rest of the World is also very similar in the 1980s as in 2000-2009. The 1990s stand out in two ways with respect to the migration of New Zealand citizens. Firstly, net trans-Tasman emigration in the 1990s was half the previous and subsequent decades and, secondly, net emigration further afield was about a third higher than in the other two decades. This signals the impact of the strong forces of globalisation during the 1990s of New Zealanders being attracted to jobs in particularly Europe, Asia and North-

America, even though net emigration of New Zealanders was overall much less during this decade than before or after.

TABLE 1
PLT NET MIGRATION TO NEW ZEALAND FROM AUSTRALIA AND THE REST OF THE WORLD, MARCH YEARS 1980-2009

	1980-1989	1990-1999	2000-2009
From/To Australia			
NZ Citizens	-195,693	-98,989	-228,069
Other Citizens	492	15,370	8,661
Total	-195,201	-83,619	-219,408
From/To Rest of the World			
NZ Citizens	-34,181	-47,240	-35,582
Other Citizens	84,097	230,164	372,601
Total	49,916	182,924	337,019
All Countries			
NZ Citizens	-229,874	-146,229	-263,651
Other Citizens	84,589	245,534	381,262
Total	-145,285	99,305	117,611

Source: Statistics New Zealand, *Infoshare*.

However, the most striking feature of New Zealand's immigration system of the last three decades is that net immigration of Other Citizens from all countries but Australia increased since 2000 more than fourfold from what it was in the 1980s! A sharp increase in the number of approvals for permanent residence and for temporary residence has been responsible for this. The combination of the trans-Tasman and other inward and outward migration flows puts New Zealand in a unique position among OECD countries in that it can claim to have had in recent years the highest rate of per capita immigration but also the highest rate of per capita emigration.

With respect to the demographic impact it is better to focus on the long run and consider how immigration into New Zealand has acted as a means to substitute for those New Zealanders leaving. Using data on headcount flows rather than PLT data that are based on self-declared intentions, it can be shown that between 1 April 1979 and 31 March 2009, there has been a net outflow of 525,943 New Zealand citizens (PLT: 639,754), while there has been a net inflow of 762,235 citizens from other countries (PLT: 711,385). Another way of interpreting this is to say that for every 10 New Zealanders leaving, the country recruits 15 immigrants to replace them. The net effect has been net migration of a little under 8,000 per year. This of course implies that migration is only a minor contributor to population growth

in New Zealand. Since 1979, about three-quarters of population growth has been due to natural increase. However, this does not mean that migration is not important demographically. The substitution process has led to a major increase in the diversity of the population, with New Zealand now having caught up with Australia in having a population of which one quarter is foreign-born. There is, of course, significant regional variation and in the Auckland region more than 40 percent is foreign-born.

During the late 1990s, Australia became concerned about what it perceived as the fiscal burden of New Zealanders residing there and the extent to which the inflow consisted of an increasing number of New Zealand immigrants who, after obtaining New Zealand citizenship, moved on to Australia. With respect to the second concern, I note that this type of 'stepping stone' migration does of course occur, but the share of overseas-born New Zealand migrants to Australia is only a few percentage points greater than the percentage of foreign-born living in New Zealand. Thus, it is an exaggeration to say that foreign-born New Zealand citizens are considerably overrepresented in the trans-Tasman flow, although the foreign born would have a somewhat greater propensity to move to Australia than the New Zealand born. The interesting economic issue is here that Australia and New Zealand compete for the same global "talent" and that the current instrument used by both, the points system, determines the relative "price" at which entry can be gained to either country. The larger the price differential, the more trans-Tasman migration acts as an internal adjustment mechanism.

With respect to the former concern, it can be noted that, as part of a review of social security arrangements between Australia and New Zealand in 2000, it was concluded that there is a significant net fiscal benefit to the Australian government of allowing open entry of New Zealanders to Australia (NZIER, 2000).

Despite this positive fiscal impact, Australia removed between February and June 2001 from trans-Tasman migrants the automatic right to labour market related social security and eligibility for Australian citizenship or sponsored migration of family members in 2001. Trans-Tasman migrants wishing to have these rights need to apply for permanent residency formally under the normal immigration regulations, using the points system.

The impact of this change on the trans-Tasman relationship has been relatively mild. This is perhaps not surprising given that, firstly, there is a two-year stand down period for all migrants to obtain social security in any case; secondly, every New Zealander who first migrated to Australia before 2001 is exempt; and thirdly it is possible for more recent migrants to also apply for a Protected Special Category Visa status. So, for all practical purposes, the rights of New Zealanders living in Australia seem to have changed little, although it remains to be seen to what extent the deteriorating Australian labour market

since 2008 will impact on return migration of those vulnerable to unemployment. As noted in the introduction, since the beginning of 2009, return migration appears to have increased somewhat.

Such a trend would be consistent with econometric research on the mobility behaviour of longitudinal samples of immigrants arriving in Australia for the first time between 1 August 1999 and 31 July 2002 (see Poot and Sanderson 2007). To assess the impact of the policy changes, three groups were compared with a group of New Zealand migrants who arrived June/July 2001 after the policy changes were implemented: New Zealand migrants who arrived in June/July 2000 (before the policy changes were announced), UK migrants to Australia arriving at the same time, and UK migrants arriving in June/July 2001. The policy changes did not impact on any of the three "control groups". The difference in behaviour between the policy-affected group and the three control groups can be attributed to the policy itself, because other measurable differences between the groups were incorporated in the statistical analysis and the various groups also faced similar relative economic conditions. It was found that the 2001 policy changes did increase slightly the probability of remigration from Australia among New Zealanders who had intended to settle there permanently. In addition, New Zealanders arriving after the policy changes made more overseas trips than earlier migrants and also spent a little more time abroad per year. In conclusion, the changing social security arrangements have encouraged New Zealand migrants to Australia to remain somewhat more attached to their home country, although the increased mobility is also consistent with a global trend of transnationalism leading to an increase in international travel to visit relatives and friends (CAA, 2009).

6 The Economic Geography of Trans-Tasman Migration

Given that trans-Tasman migration is free movement between very similar countries among very similar people it is reasonable to ask to what extent this migration is any different from migration from Sydney to Perth or indeed from Invercargill to Auckland[3]. Some trans-Tasman distances are certainly less than those within Australia, with for example Sydney being geographically closer to Auckland (2,200 km) than to Perth (3,200 km). The trans-Tasman population flows respond to the same set of factors that determine relative opportunities in origin and destination within Australia, although the responsiveness of migrants to potential gains from migration is somewhat less in the case of migration involving a border crossing as compared with the case of internal migration (Poot, 1995).

Grimes (2005) compared the economic performance of New Zealand with those of the Australian states, effectively replacing the line for Australia in Figure 3 with one for

[3] Once there is a control of differences in age composition, Hugo (2004) concludes that there are few differences between the Australia-born and the New Zealand-born populations of Australia.

each of the States. He found that New Zealand is a relatively poor region within Australasia, but ranked mid-way in the period 1990-2003 in real GDP per capita growth. Consequently, New Zealand has been growing since the 1990s similar to the average of other regions in Australasia, consistent with the parallel paths of the two countries' GDP per capita since the mid-1990s in Figure 3. Grimes also noted that employment growth in New Zealand was negatively affected by the job shedding during the restructuring years, but subsequently continued to lag behind Australia. Moreover, the sectoral structure of New Zealand includes a bigger share of primary and related employment and a lesser share in investment sectors and business and financial services, which have seen the fastest growth. These factors, and the persisting real income gap, contributed to the net migration to the other states of Australasia.

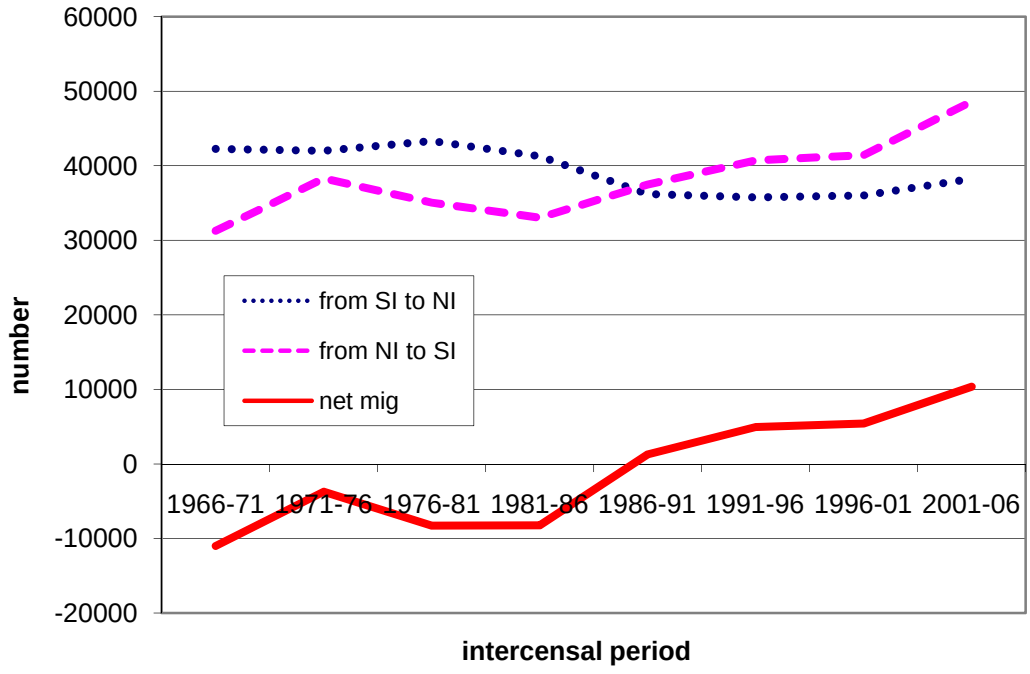
In conclusion, in terms of real incomes, job creation, investment and sectoral changes, it appears that migrant flows between the states of Australasia have been interregional labour market readjustments with migrants moving on average from less buoyant to more buoyant regions, irrespective of whether the move was transnational or not. The major attractors of migrants have been particularly metropolitan Brisbane, Perth and Sydney. Due to population redistribution in Australasia, and despite higher fertility in New Zealand and relatively greater immigrant recruitment, the New Zealand share of the population of Australasia reduced from 20 percent in the 1950s to less than 17 percent in 2009.

The long-term lagging economic performance of New Zealand, and the associated redistribution of the population of Australasia, is no puzzle when we consider the forces of globalisation, technological change, and the associated impacts on economic geography. McCann (2009) argues that the poor productivity performance of New Zealand, despite the implementation of many economic policies during and after the reform years that were meant to enhance efficiency and productivity, is no conundrum when economic geography is taken into account. The growing complexity of production and international transactions, together with increasingly important roles of agglomeration, innovation and knowledge-intensive services, are a set of external forces that put New Zealand, with its small scale population, low density and geographic isolation in an increasingly disadvantageous position. Essentially, it was external factors such as the introduction of refrigerated meat exports, the natural advantages in agricultural production, and the security of sales to the "motherland", that gave New Zealand its economic advantage a century ago and it is again the external forces of globalisation and technological change that have created the low productivity growth, and the associated net outward migration of its citizens, in the current era. Like New Zealand, Australia is also facing difficulties in adjusting to this new global environment, but its greater population scale generally, and the greater scale of its

major agglomerations, put it in a relatively better position. Essentially, net migration within Australasia is simply the barometer of relative economic advantage in a core-periphery setting, with New Zealand being – like South Australia and Tasmania – a periphery. Theories of economic geography (Krugman, 1991) and of endogenous economic growth (Nijkamp and Poot, 1998) suggest that such processes are reinforcing until some form of capacity constraints, congestion and environmental impacts, or social and demographic processes, lead to spatial convergence.

In this context, an interesting comparison can be made with the kind of adjustment that has been going on within New Zealand. For much of the 20th century, the North Island, and particularly Auckland, has been having faster economic growth than the South Island, contributing to the well-known population drift north, with the Auckland agglomeration being the major attractor. In recent decades, however, this trend has been reversed with North Island to South Island migration now exceeding migration from the south to the north. Figure 5 shows that particularly since the mid 1990s, north-south migration has increased faster than south-north migration.

Figure 5: Intercensal Inter-Island Migration in New Zealand, 1966-71 to 2001-06



However, this does not imply that the South Island's population is growing faster than the North Island's population, as net international migration is still disproportionally towards the North Island, and natural increase is higher in the north as well. Nonetheless, if North Islanders are increasingly moving to the South Island in search of cheaper housing

and less congestion, or for retirement or tertiary education, the same kind of phenomenon may affect migration from Australia to New Zealand. However, return migration from Australia is dominated by New Zealand citizens whereas it is not known to what extent the South Island born dominate in the north-south migration.

In any case, net outward internal migration is not necessarily inconsistent with continuing agglomeration. The case of net outward internal migration from the Auckland region is no different from that of New South Wales, which includes the greatest agglomeration in Australasia (Wilson et al., 2009). In any case, these observed net outward migrations may simply result from the agglomeration spilling over the predefined geographical boundaries. Most internal migration occurs at relatively short distances. Given their major international airports, networks, higher productivity and associated higher incomes, agglomerations continue to attract a large proportion of international migrants. Stillman and Maré (2007) found that there is little evidence that this immigration itself leads to outward migration of the locals from the agglomerations.

7 Final Remarks

In conclusion, the nature of international migration is changing radically and trans-Tasman migration fits in well with this new migration paradigm. A significant proportion of migrants will seek better economic opportunities elsewhere, but migration flows also include working holiday visitors, staff on temporary secondment, seasonal workers, students, retired people, people who commute between abodes on both sides of the Tasman, etc. So even if the number of New Zealanders in Australia would remain about half a million as it is at present, one third would be different people in four years' time from those who are there at present.

The international mobility of New Zealanders is very high. Recently, for the first time, lifetime retrospective mobility rates have become available from a representative sample survey[4]. Of the New Zealand population aged 65 and over in 2007, 18 percent have lived abroad for a year or longer. Of those aged 40-64, one quarter lived abroad for a year or longer. No statistics are available for those under 40, but the percentage is undoubtedly even higher than those of the former two groups and even more so by the time the latter cohorts reach age 65.

The high mobility of New Zealanders affects both gross migration and fluctuations in net migration. More than half of the New Zealand international population exchange is with Australia. There are 1.3 million New Zealand citizen arrivals in Australia per

[4] This survey focuses on enhancing wellbeing in an ageing society. The quoted statistics are unpublished. For information about the survey, see www.ewas.net.nz

year. Most of these are short-term visitors, and only about 3 percent declare that they wish to stay for 12 months or more. Of those who do stay, as noted above about one third re-migrates within four years. However, as may be expected, the New Zealand citizen migrants who were not born in New Zealand are less likely to return to New Zealand after migrating to Australia.

With respect to the prospects for the future, the number of New Zealanders in Australia is likely to continue to increase in the foreseeable future. Certainly there is no reason to expect that the consistent trend that we observed in Figure 1 will not continue at least the next census headcount in 2011. While the long economic boom in Australia has come to a temporary halt during the global economic downturn, the long-term relative advantage of Australia in terms of the forces of economic geography, globalisation and technological change, combined with the global competition for skilled workers, referred to as the recruitment of talent in the international business jargon, implies that trans-Tasman migration will continue to be seen by Australians as one means of addressing labour shortages in the future. It must be stressed, once again, that the phenomenon remains demographically and economically far more important to New Zealand than to Australia.

The long-term population distribution of Australasia will continue to depend on relative economic performance, despite differences in demographic dynamics on the two shores of the Tasman Sea. Both countries will benefit from further growth in Asia and the Indian sub-continent but crucial to any reduction in real wage differentials will be New Zealand's ability to boost productivity growth.

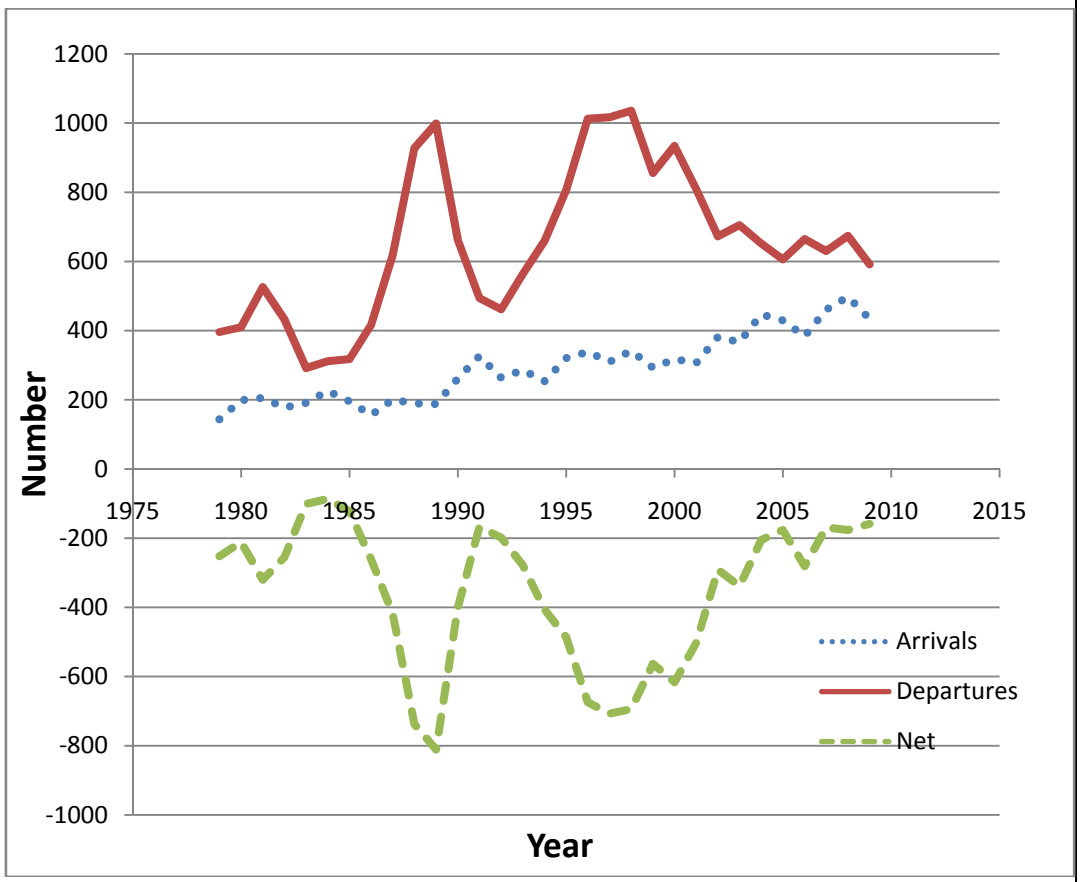
Current economic theory suggests in this context that further intensifying of economic integration of Australia and New Zealand may contribute to economic convergence (see also McCann, 2009), although at the same time there may be a growing gap between the economies of the metropolitan areas on both sides of the Tasman on the one hand and each country's peripheral hinterland on the other. In terms of further integration of the two economies, it is also interesting to consider the role that the Kiwi diaspora may play in economic transformation through developing business linkages, the diffusion of innovation, etc. (e.g., Gamlen, 2007).

Future mobility trends depend also on travel costs. Here two opposite forces are at work. On the one hand, high and volatile oil prices, combined with an increasing awareness of the need to take the "carbon footprint" of air travel into account in terms of pricing and attitudes, in efforts to address global climate change, may lead to more expensive air travel. On the other, new aircraft materials, technologies, airline innovations and global competition may reduce fares even further. On balance, it seems likely that global and trans-Tasman mobility will continue to increase.

Of course, the situation may change drastically if the Trans-Tasman Travel Agreement were to be withdrawn, but there is little political interest in going against the trend of greater economic integration among similarly developed nations. Indeed, plans are underway to make trans-Tasman travel in terms of processing of passengers as close to domestic travel as possible.

One interesting long-term issue is the locational choice of New Zealanders in Australia once they have reached retirement, i.e. the extent to which retired New Zealanders in Australia might wish to come home at the final stage of life, during which access to health care and support – including cultural and emotional support – becomes increasingly important.

Figure 6: PLT Trans-Tasman Migration of Persons Aged 65 and Over, 1979-2009



Besides ageing of the New Zealand resident population of Australia there is also evidence of retirement migration to Australia. The fastest growing New Zealand-born age group in Australia between 2001 and 2006 was those aged 55-64, which is the combined effect of the first wave (of the late 1970s) reaching these ages, as well as net retirement

migration. Figure 6 shows that the migration of New Zealanders 65 and over has exhibited an upward trend until 2000, but with a similar cycle as migration overall. Interestingly, the high migration to Australia of recent years has not been the case among those 65 plus. Migration of those 65 plus from Australia, again predominantly return migration, is showing an upward trend. The relative cost of housing, the location of children and the extent of support networks on both sides of the Tasman will undoubtedly play a role in the extent to which return migration of older persons continues to increase, perhaps eventually leading to positive net retirement migration to New Zealand. For older Maori in Australia, there may be additionally a desire to meet Maori cultural needs more than is feasible there (Hamer, 2007).

A final issue is the impact of global climate change. If Australia is to be affected more adversely by climate change than New Zealand, as the drought in south-east Australia suggests in recent years, this may increase migration to New Zealand. Even those in urban areas may seek to migrate to cities where water is less scarce and the surrounding environment more desirable. Generally, quality of life or lifestyle aspects have become increasingly important motivators of internal and international mobility, particularly among the highly skilled (Florida, 2002). Nonetheless, the local implications of climate change are complex and within Australasia some regions may be adversely affected while others may benefit.

There are clearly still many uncertainties. As the international travel and migration statistics continue to be rolled out on a monthly basis, people will continue to try to understand the short-term fluctuations. By looking at a much longer term perspective, this review has attempted to make clear that there are long-term forces at work that are ultimately far more important in shaping the populations of Australia and New Zealand than the business cycle and other selected current events, that are associated with the short-term migration fluctuations, may suggest.

8 References

Bedford, R., Didham, R., Ho, E. and Hugo, G. 2004. "Maori Internal and International Migration at the Turn of the Century: An Australasian Perspective", *New Zealand Population Review*, 30(1&2): 131-141.

Bedford, R. and Lowe, J. 1993. "Migration from the 'Lucky Country': A Perspective on Former Residents of Australia in New Zealand". In Carmichael, G. (ed.) *Trans-Tasman Migration: Trends, Causes and Consequences*. Canberra: Australian Government Publishing Service

Bedford, R.D. and Poot, J. 2009. "Changing Tides in the South Pacific: Immigration to Aotearoa New Zealand". In U.A. Segal, N.S. Mayadas and D. Elliott (Eds) *Immigration Worldwide: Policies, Practices and Trends*. New York: Oxford University Press.

Brosnan, P. and Poot, J. 1987. "Modelling the Determinants of Trans-Tasman Migration after World War II", *The Economic Record*, 63(December): 313-329.

Bryant, J. and Law, D. 2005. "New Zealand's Diaspora and Overseas-born Population, *New Zealand Population Review*, 31(2): 57-72.

Bushnell, P. and Choy, W.K. 2001. "'Go West, Young Man, Go West!'?" Treasury Working Paper 01/07. Wellington: New Zealand Treasury.

Carmichael, G. (ed.) 1993. *Trans-Tasman Migration: Trends, Causes and Consequences*. Canberra: Australian Government Publishing Service.

Civil Aviation Authority (CAA). 2009. *International Relations: The Growth in Air Travel to Visit Friends or Relatives*. London: CAA.

Department of Immigration and Citizenship. 2008. *Fact Sheet 17 - New Zealanders in Australia.* Revised on 17 November. Canberra: Department of Immigration and Citizenship.

Department of Labour. 2009. *Financial Crisis and Global Slowdown – Emerging Impacts on New Zealand Immigration*, Report 6- 13 March 2009. Wellington: Department of Labour.

Florida, R. 2002. *The Rise of the Creative Class*. New York: Basic Books.

Forrest, J., Poulson, M. and Johnston, R. 2009. "Temporary and Disadvantaged? The Economic and Spatial Assimilation of New Zealand Maori in Sydney", *Population, Space and Place,* 15 (forthcoming).

Gamlen, A. 2007. "Making Hay While the Sun Shines: Envisioning New Zealand's State-Diaspora Relations", *Policy Quarterly,* 3(4): 12-21.

Gorbey, S., James, D. and Poot, J. 1999. "Population Forecasting with Endogenous Migration: An Application to Trans-Tasman Migration", *International Regional Science Review*, 22(1): 69-101.

Gould, J. 1982. *The Rake's Progress? The New Zealand Economy Since 1945*. Auckland: Hodder and Stoughton.

Green, A.E., Power, M.R. and Jang, D.M. 2008. "Trans-Tasman Migration: New Zealanders' Explanations for Their Move", *New Zealand Geographer*, 64: 34-45.

Grimes, A. 2005. "New Zealand: A Typical Australasian Economy?". In A. Ladley and J. Martin (eds) *The Visible Hand: The Changing Role of the State in New Zealand.* Wellington: Institute of Policy studies.

Hamer, P. 2007. *Maori in Australia. Nga Maori i Te Ao Moemoea.* Te Puni Kokeri: Wellington.

Hawke, G.R. 1985. *The Making of New Zealand. An Economic History*. Cambridge: Cambridge University Press.

Hugo, G. 2004. New Zealanders in Australia in 2001, *New Zealand Population Review*, 30 (1&2): 61-92.

Krugman, P. 1991. "Increasing Returns and Economic Geography", *Journal of Political Economy,* 99(3): 483-499.

McCann, P. 2009. "Economic Geography, Globalisation and New Zealand's Productivity Paradox", *New Zealand Economic Papers*, 43.3 (forthcoming).

New Zealand Institute of Economic Research (NZIER). 2000. The Opportunity Cost of Unrestricted Trans-Tasman Migration. Report to the Ministry of Social Policy. Wellington: NZIER.

Nijkamp, P. and Poot, J. 2007. Mathematical Models in Regional Economics. In W-B Zhang (ed.) *Mathematical Models in Economics – Volume II, Encyclopedia of Life Support Systems (EOLSS)*. Developed under the Auspices of the UNESCO. Oxford UK: Eolss Publishers.

Nijkamp, P. and Poot, J. 1998. "Spatial Perspectives on New Theories of Economic Growth", *Annals of Regional Science*, 32(1): 7-37.

Pool, I. (ed.) 1979. *Trans-Tasman Migration*. Hamilton: Population Studies Centre, University of Waikato.

Pool, I. 2003. Ageing, Population Waves, Disordered Cohorts and Policy. *New Zealand Population Review*, 29(1): 19-40.

Poot, J. 1995. "Do Borders Matter? A Model of Interregional Migration in Australasia", *Australasian Journal of Regional Studies*, 1(2): 159-182.

Poot, J., Nana, G. and Philpott, B. 1988. *International Migration and the New Zealand Economy: A Long-Run Perspective*. Wellington: Institute of Policy Studies.

Poot, J. and Sanderson, L. 2007. Changes in Social Security Eligibility and the International Mobility of New Zealand Citizens in Australia, CReAM Discussion Paper No 12/07, London: Centre for Research and Analysis of Migration.

Poot, J., Waldorf, B. and van Wissen, L. (eds). 2008. *Migration and Human Capital*. Cheltenham UK: Edward Elgar.

Sanderson, L. 2006. International Mobility of Recent Migrants: Theory and Application to New Zealand and British Citizens in Australia. MPhil thesis, Population Studies Centre, University of Waikato.

Stillman, S. and Maré, D.C. 2007. "The Impact of Immigration on the Geographic Mobility of New Zealanders", Motu Working Paper 07-05, Wellington: Motu Economic and Public Policy Research.

Wilson, T., Rees, P. and Poot, J. 2009. "Migration and the Labour Force". In M. Bell, G. Hugo and P. McDonald (eds) *Australian Mobility Beyond the Millenium*. Aldershot UK: Ashgate (forthcoming).

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