



Past Research on the Impact of International Migration on House Prices: Implications for Auckland

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IN CONFIDENCE

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Executive Summary

While conducting a strategic review of the New Zealand immigration system in terms of assessing its contribution to economic growth, the Ministry of Business Innovation and Employment (MBIE) noted that “some people are of the view that increases in net migration are impacting the housing market and infrastructure, especially in Auckland.....” and that “at this point in time, there is no conclusive evidence supporting these concerns...”. While MBIE has done some recent work in this area, the focus has tended to be on New Zealand as a whole. MBIE wanted therefore to advance this work with a specific focus on the impact of net international migration (usually measured as the difference between permanent and long term (PLT) departures and PLT arrivals) and, where possible, visa-controlled immigration (i.e. the numbers of people granted temporary or permanent visas) on the Auckland housing market. To this end MBIE engaged the University of Waikato to produce a concise review of the conclusions that can be drawn from the recent international and New Zealand literatures regarding the impact of net international migration on housing markets. The emphasis is of course on conclusions that would be relevant for, or that can be directly applied to, the Auckland housing market. This note provides this concise review of the literature. Trends in relevant core statistical indicators are also provided.

To focus the review, the following six hypotheses were considered (our conclusion concerning the veracity of the hypothesis in terms of available evidence in the literature is stated in bold):

1. The decrease of New Zealanders leaving in recent years, due to relatively strong economic growth and a subdued Australian economy, has had a bigger impact on rising house prices in Auckland than the growing number of migrants settling in Auckland.

Supported

2. The contribution of the inflow of Australians and of returning New Zealanders to population growth in Auckland has had a bigger impact on house price increases than other permanent and long-term (PLT) arrivals.

Inconclusive

3. Current and recent (5 years previous) net international migration trends (considering both PLT arrivals and departures) have had a minor impact on the Auckland housing market, relative to other factors.

Supported

4. Investor migrants are not having a disproportionate impact on the Auckland housing market as they are purchasing largely commercial property or a single individual residence.

Supported

5. Until comprehensive data become available on country of residence of buyers and sellers at the time of a sale, it cannot be established conclusively that offshore investors drive up house prices in particular areas in central Auckland.

Supported

6. Given the above and the time lags between immigration policy changes and impacts, it is unlikely to be useful to make changes to immigration policy to dampen Auckland house prices.

Supported

Overall we find that the literature and the available data on population change suggest that visa-controlled immigration into New Zealand, and specifically into Auckland, in the recent past has had a relatively small impact on house prices compared to other demand factors, such as the strongly cyclical changes in the emigration of New Zealanders, low interest rates, investor demand and capital gains expectations. Consequently, changes in immigration policy, which can impact only on visa-controlled immigration, are unlikely to have much impact on the housing market.

Introduction

This note aims to provide a brief review of the evidence concerning the impact of net international migration, and where possible visa-controlled immigration, on house prices; with specific reference to the likely implications of past overseas and New Zealand findings for the Auckland housing market. Immigration (visa and non-visa controlled), emigration and housing markets are affected by a wide range of economic and other factors, some of which they have in common. Buoyant macroeconomic conditions are likely to lead to a buoyant housing market and at the same time to more immigration and less emigration. It is therefore natural to expect a positive correlation between the rate of change in house prices and the rate of net international migration as a percentage of population. Fry (2014, p.25) shows that these two variables change indeed in tandem in New Zealand, certainly not perfectly but still quite convincingly.¹

Of course, correlation is not the same as causation. Nonetheless, a simple model of housing demand and supply would suggest that a sudden, and unexpected, increase in population in a particular region would push up the cost of housing; at least in the short run while the supply of housing is rather fixed. Hence theory points to a direct causal effect of additional net international migration leading to higher house prices and higher rents. This is not disputed in the literature. The key questions that the literature seeks to address are instead: firstly, the extent to which this effect can be separated from all other current influences on the housing market; secondly, the magnitude of this effect relative to the impact of other influences; thirdly, the impact of housing market-relevant characteristics of migrants vis-à-vis those of residents; fourthly, the extent of outward migration from the region that is triggered by the migrant influx; and, fifthly, the time horizon over which the impact is assessed.

Results and conclusions may also depend on the adopted methodology. A synthesis of the literature ought to be based then on a formal meta-analysis, a quantitative form of literature review that is becoming increasingly popular in economics (e.g., Poot, 2014). Such a meta-analysis has not yet been undertaken in the net international migration and housing literature, possibly because the available studies are still too few and too different to be combined in such a way. In the remainder of this research note, we therefore briefly summarise some

¹ Coleman and Landon-Lane (2007) suggest a simple correlation coefficient of 0.55 with annual national data over the period 1962-2006. However, Hall and McDermott (2007) found no statistically significant co-movement between net migration and regional business cycles in 14 New Zealand regions, including Auckland.

salient recent studies in the conventional way. First, we comment on the key trends regarding net international migration to and from Auckland and the Auckland housing market.

Trends in the Auckland housing market and migration

The relationship between net international migration and house prices has become of increasing concern as house prices have been growing faster in Auckland since around 2010 until the final quarter of 2015 than in other cities and regions of the country (see Figure 1).² Figure 2 shows that net international migration into the Auckland region has also been increasing in recent years, but not until 2013 (the previous peak was in the year ending March 2003).

The data which underpin the discussion of net international migration trends are the official permanent and long-term arrivals and departures (PLT) statistics regularly published by Statistics New Zealand. While the official PLT net migration series, based on passenger intentions as stated on arrival and departure cards, remains the best currently available estimate of net international migration, the data are not without their limitations. These limitations, and alternatives, are discussed in some detail in Statistics New Zealand (2014). While it is beyond the scope of this note to discuss the intricacies of the measurement of migration flows, the majority of the difficulties that affect the use of the current PLT data stem from the fact that the data are based on stated intent rather than actual observed behaviour.³ Despite these problems, when the current PLT data are compared to series derived using alternative methodologies, the general patterns are very similar, albeit with some differences in volumes. It is also worth noting that PLT migration data do not fully represent the inflows of visa controlled immigration, and should not be confused with the

² For a detailed and long-term perspective on trends in Auckland house prices relative to house price changes in other regions, see Kendall (2016).

³ This leads to a number of potential sources of error: (1) People may fill out the departure and arrival cards incorrectly; (2) Someone recorded as a PLT departure, who returns to New Zealand to live less than 12 months later is actually a New Zealand-resident traveller rather than a migrant; (3) Someone recorded as a New Zealand-resident traveller departure (i.e. someone intending to leave New Zealand for less than 12 months), but who ends up living overseas for 12 months or more is actually a PLT departure, etc.

numbers of people granted permanent residence visas which are managed under the New Zealand Residence Programme (NZRP).⁴

During the last two years net PLT migration into Auckland accounted for close to half of New Zealand's total net PLT migration (see Figure 2), whereas Auckland's population is only one third of New Zealand's population.⁵ Comparing Figures 1 and 2, it is clear that the recent situation is rather unique. In past years of high net inward PLT migration into New Zealand, combined with a disproportionate share going to Auckland, such as 1995-1997 and 2002-2004, the rate of growth in Auckland house prices was much less divergent from other cities and regions than in the recent situation.

The recent increase in Auckland prices is particularly problematic from a public policy perspective given that income growth has not been sufficient to avoid declining housing affordability, despite low interest rates. Figure 3 shows that housing has become particularly less affordable in Auckland since 2012, compared with Wellington and even with Canterbury where the earthquakes have reduced supply.⁶ Moreover, residential construction (in terms of the number of dwellings constructed) declined faster in Auckland than elsewhere between 2005 and 2009, and has since then remained at a *relatively* lower level of activity in Auckland – with house building in Auckland only just recovering a 1990 baseline by 2014, whereas house building elsewhere in 2014 exceeded the 1990 baseline (see Figure 4).

Homeownership rates are lower in Auckland than in the rest of the country. While homeownership rates have been declining everywhere since the 1990s, the decline in Auckland has been in recent years relatively faster than elsewhere (see Figure 5). Consequently, the impact of net international migration on homeownership (the proportion of households in owner-occupied dwellings) and on rents is also of considerable interest.

The precise factors that underpin the supply and demand for housing, and hence the price of housing, either owning or renting, are many and varied. Migration, be it domestic (i.e.

⁴ In practice, within a calendar year, the NZRP does not have a strong correlation with PLT arrivals, as most NZRP places are filled by people who already hold a visa and have applied for residence from within New Zealand. However, high levels of PLT arrivals can signal future pressure on the NZRP. For example, the recent increases in student and worker numbers may put pressure on the skilled and family categories in coming years as temporary migrants transition to permanent residence.

⁵ However, note that it is clear from Figure 2 that Auckland's share of New Zealand's net PLT migration fluctuates widely and in some years even has the opposite sign of net PLT migration to the other regions.

⁶ See also Eaquad and Eaquad (2015, Figure 1.5) for comparing house-price affordability by region in 2014.

internal) or international (i.e. external), is just one potential causal factor in a complex web of interrelationships in the housing market. This makes it very difficult to ascertain what the dominant factors are in house price changes at any point in time and what the contribution of net migration has been to the overall change in prices. Figure 6 provides a representation of the many factors potentially involved.

When assessing the impact of net international migration on New Zealand economic outcomes, such as on housing markets, it should always be kept in mind that much of the overall change in aggregate net international migration in New Zealand is due to the sharp cyclical fluctuations in the net movements of New Zealanders (citizens and permanent residents) rather than changes in the net inflows of foreign citizens. This is clear from Figure 7. The rate of net PLT migration of foreign citizens per 1000 estimated New Zealand total population is cyclical but shows a long-term upward trend, with peaks around 1996, 2003 and in 2015. Net PLT migration of New Zealand citizens is also cyclical but persistently negative at an average rate of about 5 per 1000 population, hence depressing New Zealand's population growth by 0.5 percent per annum on average. However, net PLT migration of New Zealand citizens is even more cyclical than net migration of foreign citizens and the peaks do not always coincide. It could even be argued that the 2015 situation of lowest net outward migration of NZ citizens coinciding with peak net inflows of foreign migrants is a rare occurrence.

For the present research note, it is important to calculate the net PLT migration rates of Figure 7 for Auckland only and to also consider the difference between trans-Tasman net PLT migration and net PLT migration with respect to countries other than Australia. Figures 8a and 8b provide the relevant information. Because of data limitations, the Auckland net PLT migration rates can only be calculated from 1997 onwards. Comparing Figure 7 with Figure 8a, it is clear that the net PLT migration rate of New Zealand citizens from 1997 onwards in Auckland shows a very similar pattern of change as the national net PLT migration rate of New Zealand citizens. Figure 8a shows that the 2015 situation with respect to the net PLT migration of New Zealand citizens in Auckland is mostly due to a sharp decline in PLT departures of New Zealanders in recent years. The rate of PLT arrivals of New Zealand citizens (predominantly from Australia) per 1000 Auckland population has increased, but remained by 2015 lower than it was in the late 1990s. Figure 8a clearly demonstrates that the volatility in net PLT migration of New Zealand citizens in Auckland is

almost entirely due to whether New Zealanders decide to depart New Zealand for twelve months or more or not. The return PLT migration of New Zealand citizens is remarkably stable over the years. The very low level of PLT return migration of New Zealand citizens in March year 2011 (at the peak of the resources boom in Australia) was rather unique.

Figure 8b shows that these fluctuations in net PLT migration of New Zealand citizens in Auckland are predominantly determined by net PLT trans-Tasman migration. The rate of net outward PLT migration of New Zealand citizens from Auckland to the rest of the world has been rather small. In fact since 2010, there has been more return PLT migration of New Zealand citizens from those destinations to Auckland than outward PLT migration, resulting in a slightly positive net PLT migration rate of New Zealand citizens. The trans-Tasman net PLT migration rate of non-New Zealand citizens (who are predominantly Australian citizens), has been increasing in recent years but also remains very small. The rate of net inward PLT migration into Auckland of foreign citizens has been increasing strongly since 2011, but had not yet reached in March year 2015 the peak rate of the year ending March year 2003.

It is important to note that the 2015 peak in net PLT migration of foreign citizens is different from previous peaks in that the growth in inward PLT migration of foreign citizens in recent years has been particularly due to a growing number of foreign citizens entering New Zealand on a *temporary* visa either to work (for example as construction workers contributing to the Christchurch rebuild), under a working holiday visa arrangement, or for study for 12 months or more. This is shown in Figure 9, which compares PLT arrivals numbers and shares for Auckland and total New Zealand. The trends in Auckland are largely similar to those in the rest of the country. The figure shows that the most noticeable feature of PLT arrivals has been the growth in the arrival of international students since 2013, both in absolute terms and as a share of the total. PLT arrivals of Australian and New Zealand citizens have been increasing in level but declining in share. The number of PLT arrivals on a temporary work visa has been steadily increasing since 2011 both in Auckland and in New Zealand generally, but the share of temporary work visas in total PLT arrivals has been static since 2013.

Figure 10 shows the decomposition of Auckland population change into estimated net migration (combining estimated net internal migration between Auckland and other regions and estimated net international migration between Auckland and the rest of the world) and

natural increase (births less deaths) for the Auckland region.⁷ This figure shows that, given that Auckland is a relatively youthful city, a large proportion of total population change is in many years due to natural increase. In fact, adding the components of growth together between 2008 and 2013, natural increase accounted for 87 percent of Auckland's population growth in this period. It is therefore wrong to argue that Auckland population growth is always predominantly driven by net PLT migration, although this has been the case since June 2013 (and previously in 1995-1997 and 2001-2003).

In any case, positive net international migration in Auckland is partially offset by negative net internal migration in recent years. The components of 2008-2013 Auckland population change are shown in Figure 11. Net internal migration (-4,892) over this period can be obtained from census data. Net PLT migration was 34,001. The sum of these two is therefore 29,109. However, using Statistics New Zealand's official estimated resident population (ERP) data and official vital statistics, it can be easily shown that there is a statistical discrepancy (referred to as the "residual component of migration" in Figure 11) between estimated net migration and what is reported in the census and the international travel statistics ("net known migration"). This is for example due to the flaws in the PLT migration statistics mentioned earlier.⁸

The data presented suggest that the demographic impact of growing net inward PLT migration of non-New Zealand citizens on the Auckland population in recent years has been no more important than the sharply declining net outward PLT movement of New Zealanders. Moreover, their joint impact is, when averaged over a number of years, small relative to natural increase. Given its relatively modest impact on population, immigration's impact on the change in the number of households in the Auckland region may be expected to have been relatively modest as well. Additionally, as noted by BERL (2008), the changing

⁷ The figure is based on unpublished estimates produced by Natalie Jackson and Shefali Pawar at NIDEA. Due to data issues, the migration component and the net change could not be calculated for the year ending March 1996.

⁸ This figure is also based on unpublished estimates produced by Natalie Jackson and Shefali Pawar at NIDEA. The "residual component of migration" in Figure 11 is due to the fact that while total net migration can be estimated quite accurately, this estimate is not directly comparable with net internal migration (derived from census data) and net international migration (derived from arrivals and departures statistics). The residual component of migration is simply the difference between the "correct" level of estimated net migration and net known migration (the sum of observed net internal migration in the census and observed net PLT migration from arrival and departure statistics). The negative residual component suggests that "true" net internal migration was probably more negative and "true" net international migration was probably less positive than the official statistics suggest.

composition of housing demand in terms of the household sizes and tenure may have a much bigger impact on the housing market than the change in the total number of households. Of course, the earlier noted sharp increase in the number of international students in recent years may be expected to have led to an increased demand for small apartments, or shared housing, particularly in the central city.

An increase in the number of households – whether due to net international migration or due to other demographic factors – is likely to put upward pressure on house prices given that housing supply takes considerable time (between three months to two years) to respond to an increase in demand (in economic terms, housing supply is relatively price inelastic). In the next section we report on New Zealand evidence regarding this price response. The following section of the note reports on salient international evidence, particularly regarding other developed countries that have also experienced high levels of net international migration.

The final section of the note formulates six key hypotheses and assesses, in the form of an informal and qualitative synthesis of the available evidence in New Zealand and abroad, to what extent the literature supports these hypotheses. Some suggestions for further New Zealand-based research are also given.

It should be understood by the reader that this short review has a number of limitations. Firstly, we review only the New Zealand literature that focuses explicitly on this topic and give no consideration to studies of the broader macro-economic impacts of net international migration, which may have implications for housing markets. Secondly, the review of the local literature is accompanied by a brief consideration of some representative contemporary studies from the international literature, particularly with respect to countries for which a comparison with New Zealand can be considered appropriate. Hence we do not provide a review of the whole corpus of this literature. Lastly, and perhaps most importantly, this research note makes no new contribution to research in this area beyond reviewing existing evidence, i.e. no new empirical research has been undertaken in the preparation of this work. Instead we provide a review and synthesis based on our professional judgement.

New Zealand Research

This section reviews some of the existing contemporary research on the impact of international migration on house prices in New Zealand. In general, studies that use aggregate national level (macro) data have tended to find larger effects than those conducted with more disaggregated (micro) level data. Hodgson & Poot (2010, p.26) suggest that in the national level studies this may be a consequence of omitted aggregate time series factors that raise both immigration and house prices. For example, below long-run average interest rates may lead to expectation of increases in house prices, and therefore in wealth, that will stimulate more construction activity and also higher levels of consumption. The associated economic expansion will cause *both* net international migration (more inward migrants and fewer New Zealanders leaving) and an increase in property prices (particularly before housing supply has had time to catch up and less so later). This is a case of “co-movement” rather than of causality running from migration to house prices.

Fry (2014, p.26) acknowledges that national level studies may overstate causal effects but she also argues that studies using local or regional data may understate effects as they do not take sufficient account of how local markets interact, which may offset some of the initial effects (for example net outward migration of Auckland residents to other regions offsetting initial house price increases associated with net inward international migration). Based on her review of earlier studies, Fry concludes that “on balance, the available evidence suggests that migration, in conjunction with sluggish supply of new housing and associated land use restrictions, may have had a significant effect on house prices in New Zealand.” (pp. 26-27).

Bourassa et al. (2001) search for evidence of housing market bubbles in Auckland, Wellington and Christchurch by means of time series econometric models. Their regression model includes a variable called ‘population growth due to exogenous arrivals’ (i.e. visa-controlled immigration) and its lag. The model suggests that when the population growth rate is 1 percentage point higher than it would be otherwise as a result of exogenous immigration; this triggers an additional 1 percent growth in house prices. Interestingly, this estimate is identical to that of the most commonly cited US evidence reported in the next section.

BERL (2008) makes the important point that, while in the short-run many factors influence housing demand and supply, in the long-run the dominant factor is net household formation. The monthly PLT migration statistics are therefore misleading as an indicator of additional

housing being needed, given that PLT statistics refer to individuals and contain no information on how these individuals are organised into households. Given the deficiencies of the PLT data, insight into the impact of net international migration on changes in the number of household (and therefore dwelling) numbers can be more effectively gauged from comparing 2006 and 2013 census data, i.e. effectively an update the BERL (2008) analysis, but such an exercise lies outside the scope of this report.

Housing behaviour of migrants has basically the same determinants of that of comparable locals in terms of household composition and income. BERL finds in fact that migrant-native born differences, as measured by census data, converge within 15 years of settlement of the former. Based on an assessment of long-term population and household formation trends, BERL concludes that there is unlikely to be a housing supply constraint at the *national* level in the *long run*, but there could be in particular areas and for particular dwelling types, such as rental accommodation for single personal households. The observed short-run excess demand for housing in certain sub-markets (by type and location) in the Auckland housing market is therefore not inconsistent with the BERL analysis. However, international migration and other demographic changes play a much bigger role in determining the effective housing stock in the long run than in the short run.

Using a macroeconomic structural vector auto-regression model, Coleman and Landon-Lane (2007) analyse the relationship between PLT international migration flows, housing construction and house prices in New Zealand in the period 1962-2006.⁹ They find that a net inward PLT migration flow equal to 1 percent of the population is associated with 8-12 percent increase in house prices after one year; and with this effect being slightly larger after three years (p.43). Coleman and Landon-Lane are unable to account for why the relationship between net inward international migration and house prices is so strong. In fact, as they note, this relationship is an order of magnitude greater than that implied by the long-run relationship between house prices and net migration (p.41). They speculate that the reasons for this might be found in short-run housing supply constraints and in the future income expectations of those who are already resident in an area (p.40).

⁹ Coleman & Langdon-Lane actually estimate two sets of regressions, one for the period 1962-1982 and one for the period 1991-2006 (p. 12).

Expectations regarding future house prices are important. Given that it is well known that housing supply does not respond immediately to an increase in population through inward international migration, owners and developers may expect an initial increase in house prices following a sharp increase in net international migration. Importantly, house prices do not fall back to their original level once additional housing has been built. There are several reasons for that. Firstly, house owners may have adjusted their expectations of their properties value to the higher price. Secondly, the additional population increases the demand for land and also the productivity of land (due to agglomeration effects). This translates into higher land prices and therefore property prices. Thirdly, the cost of new residential development tends to increase faster than general price inflation. Subsequent waves of migration repeat this process and create an upward ratcheting effect (Fry, 2014, p.25-26).

Stillman and Maré (2008), using house price data from Quotable Value New Zealand and census data 1986-2006, explore how population change, international migration (including the return migration of New Zealanders abroad), and internal migration affect rents and sales prices of both apartments and houses in different housing markets in New Zealand. They obtain, using a log linear regression model, an estimate of a between 0.2 and 0.5 percent increase in local housing prices for a 1 percent increase in an area's population. However, once they split population growth into its components, they do not find any evidence for foreign-born migrants positively impacting on local house prices. Stillman and Maré (2008) were able to distinguish in their modelling between the impacts of foreign-born migrants and returning New Zealanders on local housing prices. Their results indicate that returning New Zealanders have a large impact on local house prices. A 1 percent increase in the local population consisting purely of returning New Zealanders is associated with a 9.1 percent increase in house prices (p.14). However, the data reported in the previous section show that there is generally not as much fluctuation in return migration as compared with the number of New Zealanders moving abroad. Consequently, the results of Stillman and Maré (2008) appear to suggest that the sharp reduction in the number and rate of New Zealanders leaving Auckland to go abroad for twelve months may have had a bigger impact on Auckland house prices than the increase in net PLT migration of foreign citizens.

To test whether their results were consistent over time Stillman and Maré repeated their estimation for various sub-periods (p.17-18) and found that there is considerable variation in estimated impacts across time periods. This led them to conclude that this lack of consistency

was indicative of a higher level of complexity in the relationship between population change and house prices than had been allowed for in their modelling (p.18). This once again suggests that market conditions other than purely demographic changes have a major impact on the housing market in the short to medium term.¹⁰

McDonald (2013) analyses the relationship between different types of PLT migration and the housing market, using a vector auto-regression framework and various measures of migration.¹¹ McDonald explicitly acknowledges that it is unlikely that his small macro model will control for the many factors that affect international migration and its impacts, with the consequence that the reported impacts may be attributable, in part, to other factors.

He identifies three main results from his modelling (p.2). Firstly, changes in net international migration are associated with large housing market effects. A net international migration inflow of 1 percent (of the existing population) leads to an 8 percent increase in house prices over the following three years. Hence this is consistent with the Coleman and Landon-Lane research. Furthermore, an additional house will be constructed for approximately every six new migrants. Given that the average household size was 2.7 at the time of the 2013 census, and unlikely to be much more for migrants, this suggests a crowding effect, i.e. an inadequate supply response that can contribute to increasing house prices.

Secondly, McDonald finds that the impact of PLT arrivals and departures differs with a 1000 person increase in monthly PLT arrivals being associated with a 4 percent increase in house prices while a decline of a similar magnitude in the number of monthly PLT departures raises house prices by half this amount (2 percent). The difference in the respective impacts may be related to the difference in *composition* of the flows in terms of household size, income, etc. McDonald's results suggest that changes in foreign-citizen migration have a larger effect at the *national* level than changes in New Zealand citizen migration (but recall that Stillman and Maré (2008) found a larger effect for New Zealand citizens at the *local* level). The origin of

¹⁰ The composition of visa-controlled migration by type of visa is likely to play a role as well. Recent research by the Reserve Bank of New Zealand concludes that recent record PLT net international migration is driven by student and work visa arrivals of young people aged 17-29 and that this migration has had a more subdued impact on the New Zealand economy than previous migration cycles (Vehbi, 2016).

¹¹ McDonald estimates his model using four different measures of migration: net PLT immigration, arrivals and departures separately, the net flow of New Zealand citizens and the net flow of foreign citizens separately; and the net flow of New Zealand citizens and foreign citizens split by country of origin (Europe/UK and Asia separately) (p.5).

the international migration flow would also seem to matter. McDonald found that a 1000 person increase in monthly flows originating from a UK or European source appears accompanied by an 8 percent increase in house prices after 2 years, while for flows with Asian origins this increase is less: around 6 percent.

In general, it is clear from the above findings that the impact of international migration on house prices will depend on the income and size of the household. A particular group that could impact on house prices is the migrant investors, those admitted to New Zealand as part of the investor migration policies. However, a recent MBIE study suggested that the investments of this type of migrants consist mostly of bond holdings, terms deposits, commercial property and personal residential property, not rental properties (MBIE, 2015b).

Selected Overseas Studies

The following articles are drawn from the recent international literature. They were obtained by a detailed search by means of Google Scholar. Search strings included “immigration” combined with “house price”, etc. Qualitative studies were not considered. Moreover, an attempt was made to identify the most recent and well-cited sources. While a considerable volume of literature was consulted, the articles below should be considered as indicative of the existing literature.

A large proportion of migration into the US (68 percent in the mid 2000s) has been concentrated into six states: California, New York, Florida, Texas, New Jersey, and Illinois. This led Saiz (2007) to consider the local impact of immigration inflows on the housing market in American international migrant gateway cities. To avoid the possible endogeneity of immigration with respect to other omitted factors that generate rent and house price growth, Saiz used an instrumental variable approach with instruments based on general changes in the national levels of immigration, on changes in the characteristics of the immigrants’ countries of origin, and on the distribution of immigrants in earlier periods (Saiz, 2007, p.346). He finds that immigration pushes up the demand for housing in the destination areas with rents increasing in the short run and with house prices catching up with the passage of time. The magnitude of the effects is such that an immigration inflow equal to 1

percent of the initial metropolitan area population is associated with, approximately, a 1 percent increase in rents and housing values (Saiz, 2007, p.364).¹²

Sá (2015) considers the effect of immigration on house prices in the UK. The model used by Sá is closely based on Saiz (2007), extended to include income effects in housing consumption and the possibility that the native born population may move away from those cities that have a relatively large influx of immigrants. The elasticity of supply is expected to be crucial in determining the response of house prices to immigration. Essentially, where housing supply is less elastic the increase in demand for new housing created by new migrants will spur less construction and higher price increases than in cities with high elasticities of housing supply. Similarly, in cities with low elasticities of supply, adverse demand shocks (such as net outward migration), will see a relatively small reduction in construction and greater reductions in prices.

In the empirical section of the paper Sá uses OLS and instrumental variable techniques with official statistics for 170 local authorities in England and Wales to estimate the impact of migration on house prices. She finds that immigration has a *negative* effect on house prices. In terms of the order of magnitude of this effect, an increase in immigrant population equal to 1 percent of the local population *reduces* house prices by 1.7 percent. One explanation for this advanced by Sá is the mobility response of the native born with an almost one-for-one displacement of natives by migrants. An increase in immigrant population equal to 1 percent of the local population increasing the native net out-migration rate by 0.048 percentage points. The reason why this might lead to lower house prices appears to lie in the differential sorting of the native population across local authorities. Natives at the top of the wage distribution leave high immigration cities and generate a negative income effect on housing demand which pushes down house prices in local areas where immigrants cluster. Sá notes that much of the negative effect is related to the clustering of migrants with low educational attainment in certain areas in England and Wales. This would suggest that in local areas where immigrants have higher educational attainment (such as in London in the United Kingdom) immigration will exert upward pressure on housing demand, counteracting the negative

¹² In an earlier paper, Saiz (2003) used a so-called natural experiment: the changes in rental prices in Miami and three comparison groups after the Mariel boatlift (a sudden and huge migration from Cuba to Miami in 1980). This immigration shock added an extra 9% to Miami's renter population and an increase in rents in Miami that was 8-11% more than in comparable cities. Hence this again suggests a roughly 1% immigration growth leading to a roughly just 1% house price increase.

income effect from native out-migration. A negative impact on house prices does not necessarily mean that rents will decline as well. Using, like Sá, data on local housing markets in England and Wales, Aitken (2014) finds that an inflow of immigrants equal to 1 percent of the initial population is associated with a 0.14-0.18 percent increase in average housing rent. Hence rents do increase in the UK context, but only modestly so.

With panel data for the period 1996 to 2006 at census division level, Akbari and Aydede (2011) analyse the impact of migration on house prices in Canada.¹³ The extent of migration to Canada is quite large with around 1.1 million immigrants settling in Canada between 2001 and 2006 (Akbari and Aydede, 2011, p.1656).¹⁴ Akbari and Aydede's model contains a wide variety of immigration, labour market, demographic, cost and supply side variables and is estimated using a one-way within-fixed-effect model. They conclude that, in the period considered (1996 to 2006), a 1 percent difference in the immigration ratio would explain only 0.10-0.12 percent of the difference in prices among Canadian regions (Akbari and Aydede, 2011, pp. 1653-1657). This impact arises only from migrants who had been resident in Canada for 10 years or more (Akbari and Aydede, 2011, p.1657). While providing no additional empirical evidence, Akbari and Aydede speculate that the probable causes of their results could include out-migration of original residents.

Between 2000 and 2010 Spain experienced sustained growth in the working age population of an estimated 1.5 percent per annum through net international migration.¹⁵ Contemporaneously, housing prices appreciated rapidly, rising by 175 percent between 1998 and 2008, and construction of new dwelling rose from around 250,000 to 600,000 units per year (Gonzalez and Ortega, 2013, p.38). Gonzalez and Ortega (2013) investigate the potential role played by the high levels of migration in the increase of house prices. The mechanism they postulate for the link between migration and house prices/residential construction is simple: large increases in working age immigration lead directly to increases in the demand

¹³ For census purposes Statistics Canada divides the country into 289 census divisions. These are intermediate in the spatial hierarchy between municipality (smaller) and province/territory (larger) (Akbari and Aydede, 2014, p.1649).

¹⁴ This is equivalent to an annual inflow rate of about 0.6 percent of the Canadian population.

¹⁵ In the period 1998-2008, the foreign-born share in the Spanish working-age population increased from 2 to 16 percent. In absolute terms, the foreign born population increased from barely 0.5 million to 5 million over the course of the decade. The 2000-2005 increase in the foreign-born share in the population of Spain was the largest increase in the world (Gonzalez & Ortega, 2013, Figure 1).

for housing as a considerable proportion of working age migrants are home owners (40 percent in 2007). The 60 percent of non-home owning migrants then raise demand in the rental market, encouraging higher demand for housing as an investment (Gonzalez & Ortega, 2013, p.39). Gonzalez and Ortega adopt an instrumental variables approach to guard against endogeneity bias arising from simultaneity in house prices and migration flows. They estimate two models: one for the logarithm of the price of housing (price per square meter) and the other for the logarithm of the stock of housing units.¹⁶ They find large effects of migration on the Spanish housing market with migration being responsible for about 25 percent of the increase in housing prices and more than 50 percent of the increase in the housing stock (Gonzalez & Ortega, 2013, p.57). Annually, migration was responsible for an increase in housing prices of about 2 percent and a 1.2–1.5 percent increase in housing units (Gonzalez & Ortega, 2013, p.37). Note that this suggests a housing supply curve price elasticity of 1.3 to 1.6 (which is only slightly greater than Saiz’s elasticity of 1.0).

Accetturo, Manaresi, Mocetti, and Olivieri (2014) develop a model that shows how an immigrant inflow in a district affects local housing prices through changes in how natives perceive the quality of their local amenities and how this influences their mobility (Accetturo et al, 2014, p.45). This model gives rise to a number of predictions (Accetturo et al, 2014, p.48): First, migration increases the average price of housing at the city level; second, the impact of migration at the district level, in relation to the city average, is negative (positive) if migration deteriorates (improves) the perception of the quality of local amenities; third, migration encourages the outflow of natives; and, fourth, a lower (higher) housing supply elasticity in the area affected by immigration implies a larger (smaller) outflow of natives without affecting the house price differentials within the city.

These predictions are then tested with reference to a group of 20 large Italian cities with the data being available at district level for the period 2003–10. Estimation of a series of models, one for each of the predictions, is carried out using both OLS and instrumental variable techniques. With respect to the first of the predictions, a 10 percent increase in the stock of immigrants (approximately the annual average growth 2003-2010 in the cities considered) would increase average house price by 5 percent (the implied price elasticity of supply is

¹⁶ Two instruments are used; one based on the settlement patterns of past migrants (ethnic networks) and another based on geographic accessibility (“gateways”) (Gonzalez & Ortega, 2013, p.42-43).

therefore about 0.5). Generally, the results are similar to those obtained in studies such as Akbari and Aydede (2012) and Saiz (2007) (Accetturo et al, 2014, p.52).

For the second of their predictions, both OLS and instrumental variable estimations show that prices tend to grow at rates below the city average for areas in which migrants settle. Quantitatively a 10 percent increase in migrant numbers in an area is found to *lower* local prices by about 2 percentage points relative to the city average (Accetturo et al, 2014, p.53).

The third of the predictions is also supported by the empirical results with the instrumental variable estimates indicating that 10 additional immigrants in a district above the city-year average induce 6 natives to relocate to other areas of the city (Accetturo et al, 2014, p.53).

Lastly, the fourth prediction is likewise confirmed with a 10 percent increase in immigrant population decreasing local house prices by about 2 percentage points with respect to the city average. However, there is some heterogeneity within cities with areas with a low elasticity of housing supply reacting more strongly to migrant in-flows (with 7 natives leaving for every 10 migrants there), than areas with higher elasticities of housing supply (where 4 natives leave for every 10 migrants, Accetturo et al, 2014, p.53).

Moos and Skaburskis (2010) examine the effects of immigration on the housing market in Vancouver. The housing market in Vancouver has become increasingly open to global influences and has seen the arrival of large numbers of skilled and wealthy migrants (Moos & Skaburskis, 2010, p.724). The study itself focuses on the developing relationship between housing demand and income and how this relationship impacts on neighbourhoods in Vancouver in the period 1981-2001. Moos and Skaburskis advance the argument that the arrival of skilled and affluent migrants has decoupled the housing market from the local labour market with the result that Vancouver has been transformed from a resource centre to a gateway city (Moos & Skaburskis, 2010, p.726). Their empirical findings show that, at the local level, the presence of recent immigrants was positively associated with higher dwelling value appreciation. Interestingly, they found that post-1990 immigrants tended to arrive with already established wealth and continuing earnings from overseas, resulting in a decoupling of recent migrants housing consumption from local labour market conditions. Hence such migrants were not solely dependent on income derived from the local labour market to fund their purchases of housing.

A Synthesis

We consider six hypotheses as suggested by preliminary discussion and we assess our support or otherwise for these based on this brief review of the New Zealand and international literature.

1. The decrease of New Zealanders leaving in recent years, due to relatively strong economic growth and a subdued Australian economy, has had a bigger impact on rising house prices in Auckland than the growing number of migrants settling in Auckland.

Our conclusion:

This hypothesis appears supported by the New Zealand data and the literature review. The data show that much of the change in net international migration has been due to the changing migration of New Zealanders. Moreover, the growth in inward migration has been particularly in temporary visa-controlled immigration (e.g. international students, temporary workers – including working holiday makers), as could be seen in Figure 9. The latter types of international migration flows are likely to have had a quantitatively smaller impact on house prices and to have contributed little to house price increases observed recently. The lesser demand on the housing market of temporary migrants has been shown with respect to students by BERL (2008). Generally, research on the differential impact on housing markets between those arriving and staying on temporary visas, compared with those arriving on, or subsequently obtaining, permanent visas still needs to be undertaken.

2. The contribution of the inflow of Australians and of returning New Zealanders to population growth in Auckland has had a bigger impact on house price increases than other permanent and long-term (PLT) arrivals.

Our conclusion:

The evidence reported in this research note appears inconclusive in this respect. While Mare and Stillman (2008) would answer in the affirmative, inspection of Figure 8a shows that the PLT arrival rate of New Zealanders in Auckland has been relatively steady over the period 1997-2015 (except for 2011, when it was very low). The vast majority of the volatility in net PLT arrivals by New Zealanders in Auckland stems from changes in the

number of departures. However, Figure 8b shows that the net PLT arrival rate of non-New Zealanders in Auckland has grown since 2013 at a rate similar to that of the net PLT trans-Tasman (declining) departure rate of New Zealanders. While the former growth has been dominated by temporary visa-controlled immigration as noted above, the relative impact on housing of the two components cannot be assessed without further research.

3. Current and recent (5 years previous) net international migration trends (considering both PLT arrivals and departures) have had a minor impact on the Auckland housing market, relative to other factors.

Our conclusion:

This hypothesis appears supported by the New Zealand data and the literature review. Fry (2014) reviews the case for large positive (pg. 21-37) and large negative impacts (pg. 8-20) from international migration finding that, on consideration of the existing evidence, “The macroeconomic effects of immigration in New Zealand are uncertain. There are plausible arguments but as yet no evidence for large positive or negative impacts of immigration” (p.41). The econometric evidence is almost exclusively based on analysis with PLT migration statistics, not on data regarding visa approvals. Evidence with PLT migration data such as that provided by Coleman and Landon-Lane (2007) of large housing market effects for international migration would seem to overestimate the effect size and, as the authors note, be upwardly biased. This is supported by the work of Stillman and Mare (2008) which finds that there is little evidence of higher house price inflation in areas where new migrants settle. However, to permit a quantitative assessment of the extent to which the overall effect may be considered “minor” requires modelling of the Auckland housing market. This modelling should also take into account investor demand, for example due to the increase in rents associated with growing student migration, and many other influences (see Figure 6). All the international research reviewed is suggestive of rather quantitatively small positive (or even negative) impacts on house prices and therefore consistent with the hypothesis.

- Investor migrants are not having a disproportionate impact on the Auckland housing market as they are purchasing largely commercial property or a single individual residence.

Our conclusion:

This hypothesis is supported by MBIE research that suggests that investor migrants undertake investment primarily in commercial property and in their personal residence rather than in residential investment properties. We are not aware of other research in this area.

- Until comprehensive data become available on country of residence of buyers and sellers at the time of a sale, it cannot be established conclusively that offshore investors drive up house prices in particular areas in central Auckland.

Our conclusion:

This hypothesis is supported. The dearth of reliable data identified in MBIE (2014) and MBIE (2015b) means that there is no obvious way to conduct any scientific empirical estimation of this at the present time. Given the changes in policy regarding residential property investments implemented in 2015, that include registration of foreign investors for tax purposes, research on the role of offshore investors in the Auckland housing market may become feasible in the years to come.

- Given the above and the time lags between immigration policy changes and impacts, it is unlikely to be useful to make changes to immigration policy to dampen Auckland house prices.

Our conclusion:

For a change in immigration policy to effectively dampen house prices, there would have to be a quantitatively large effect of an increase in net immigration on house prices. The New Zealand and international literature reviewed in this paper is not conclusively and consistently showing such an effect. Moreover, the data show that visa-controlled immigration is not always the dominant component in the fluctuations in net migration. Hence this hypothesis appears supported by the New Zealand data and the literature

review. This is particularly true given that New Zealand pursues a migration policy targeting skilled migrants. While the mechanisms have not been reviewed in this paper, it is plausible that any policy-driven reduction to the inflow of migrants to offset housing demand is likely to exacerbate skills shortages with likely negative knock-on effects on productivity and economic growth. The trends in recent months appear consistent with the perspective that the Auckland housing market has been influenced less by international migration than by other factors. On order to reduce speculative forces in the Auckland housing market, assumed to have been partly driven by foreign buyers, the New Zealand government and the Reserve Bank of New Zealand have implemented measures, respectively requiring foreign owners to file New Zealand tax returns (since 1 October 2015) and requiring a 30 percent deposit on Auckland investment property purchases (since 1 November 2015). Since these measures have come into force already some dampening of demand and prices has been observed in the market, as can be seen in Figure 1, even though net international migration continues to be at a record high level. Unfortunately, as we know little about foreign investors in New Zealand property markets at present, we are unable to access the role (if any) of such investors in driving property prices in Auckland, in particular, or New Zealand in general.

Our literature review and our tentative conclusions regarding the hypotheses discussed above suggest a number of areas in which further research is likely to be beneficial for a better understanding of the linkages between international migration and the Auckland housing market. The feasibility of New Zealand research that focusses specifically on the Auckland housing market would depend on the availability of data and the preferred modelling infrastructure. Studies could, at least in principle, range from macro-level Auckland-specific time series analysis of the Auckland real estate market to simulations with a fully specified computable general equilibrium (CGE) model of the Auckland economy. Partial or full replication with New Zealand data of the recent studies by Gonzalez & Ortega (2013) for Spain, Accetturo et al. (2014) for Italy, and Sá (2014) for the UK, would also appear feasible.

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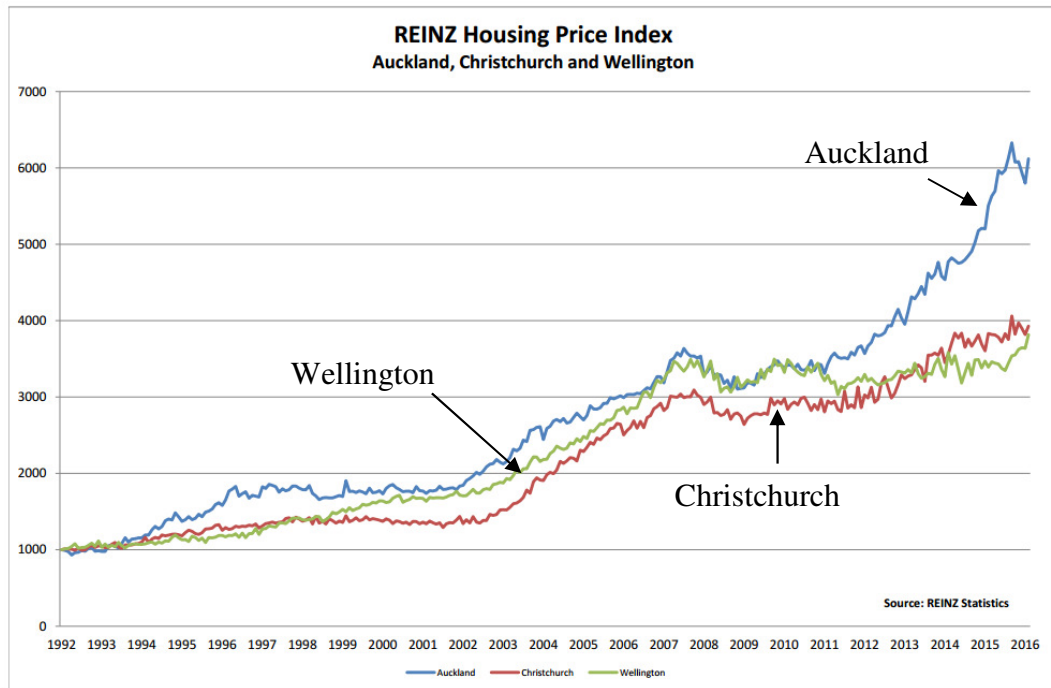
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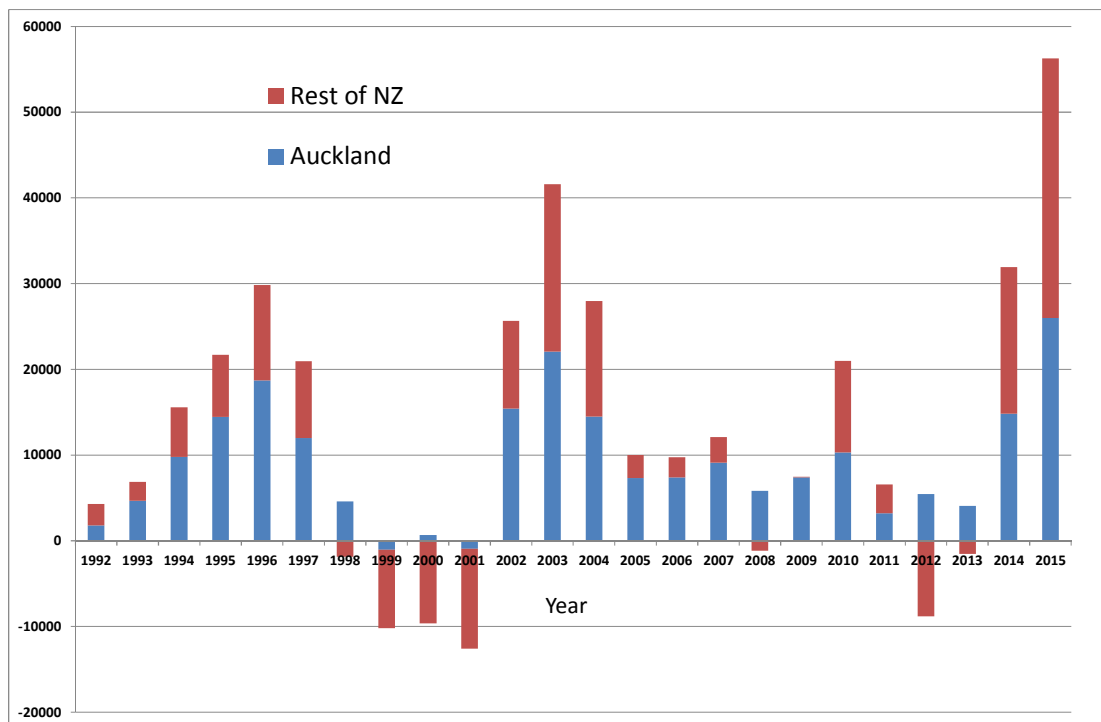
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Figure 1 Main Centre House Price Index 1992-2016 (1992=1000)



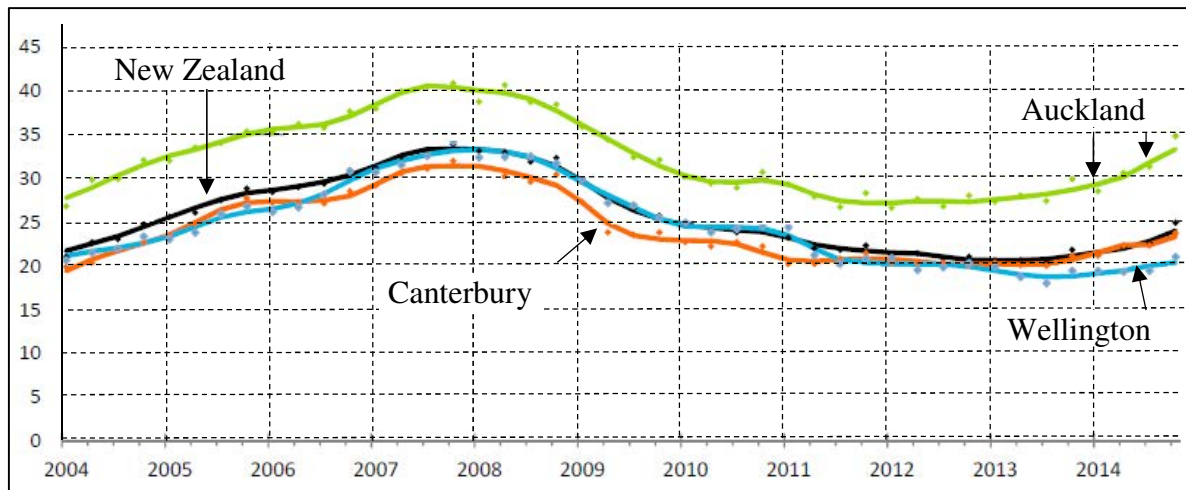
Source: REINZ (2016)

Figure 2 Net Permanent and Long-Term Migration, Auckland and the Rest of New Zealand Years ending March 1992-2015



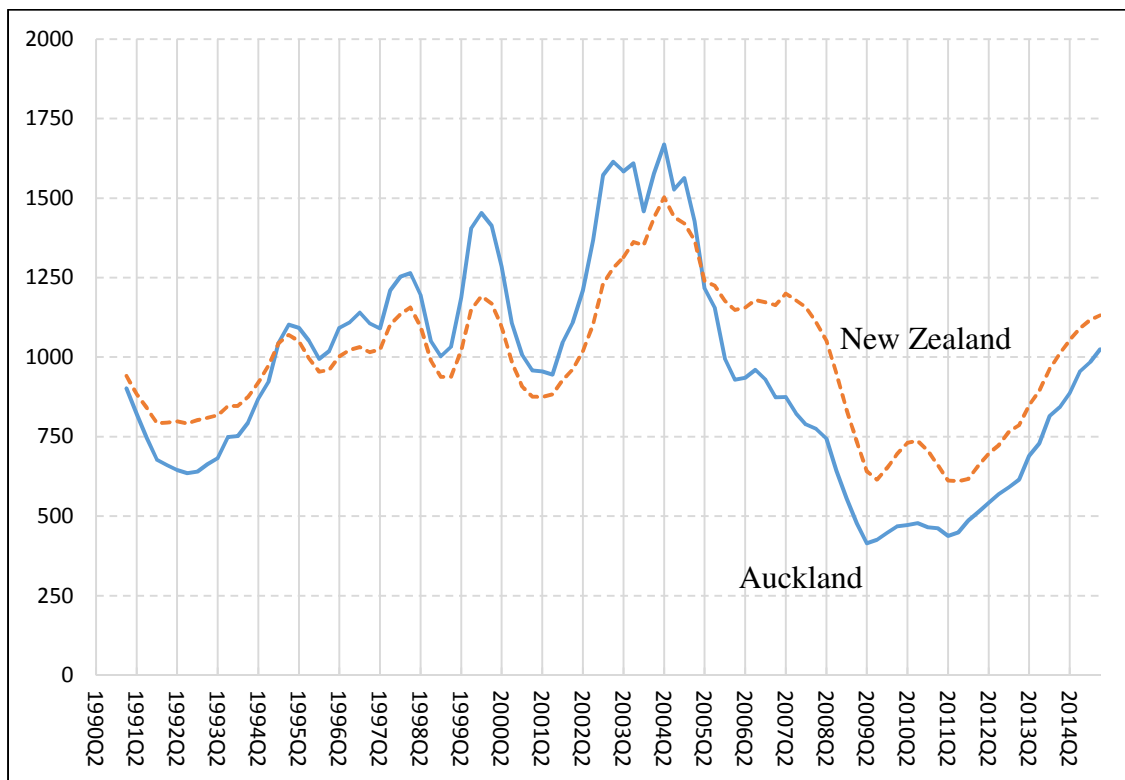
Source: Statistics New Zealand, *Infoshare*

Figure 3 Massey University Housing Unaffordability Index to December 2014



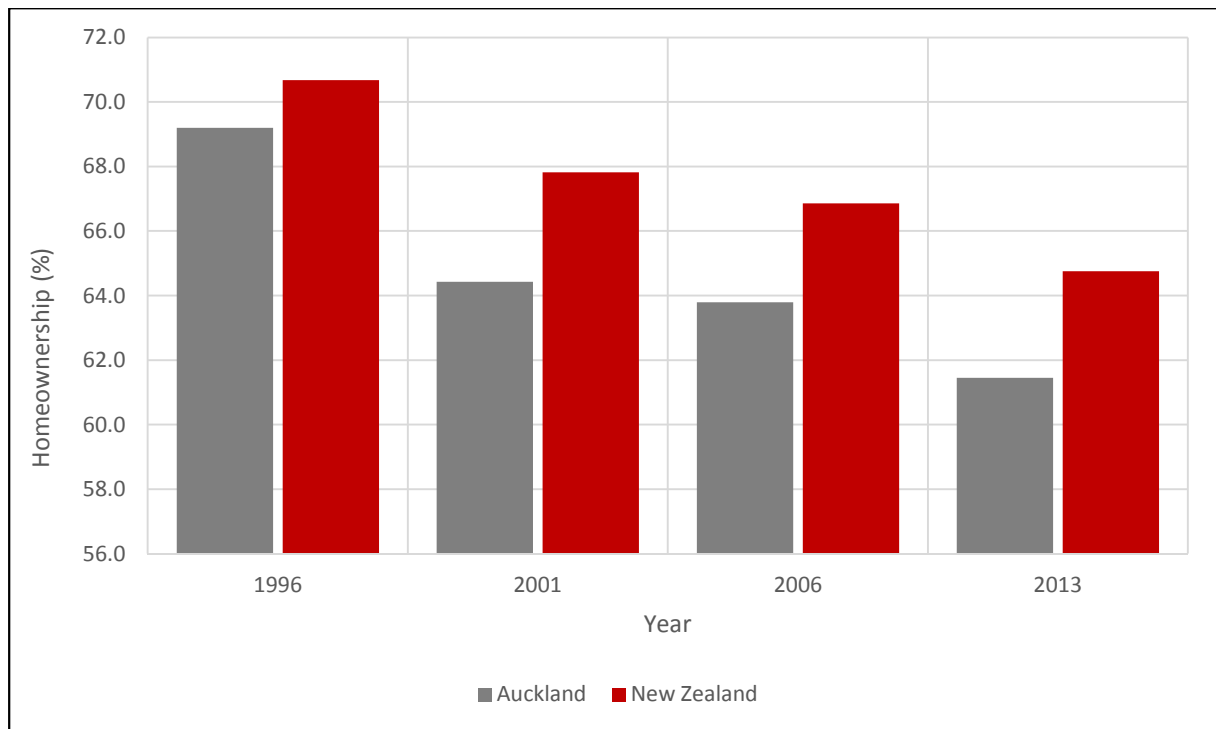
Source: MBIE (2015c)

Figure 4 New Residential Construction (Number of Dwellings) for New Zealand and Auckland (Index, 1990Q2=1000, Four Quarter Moving Average)



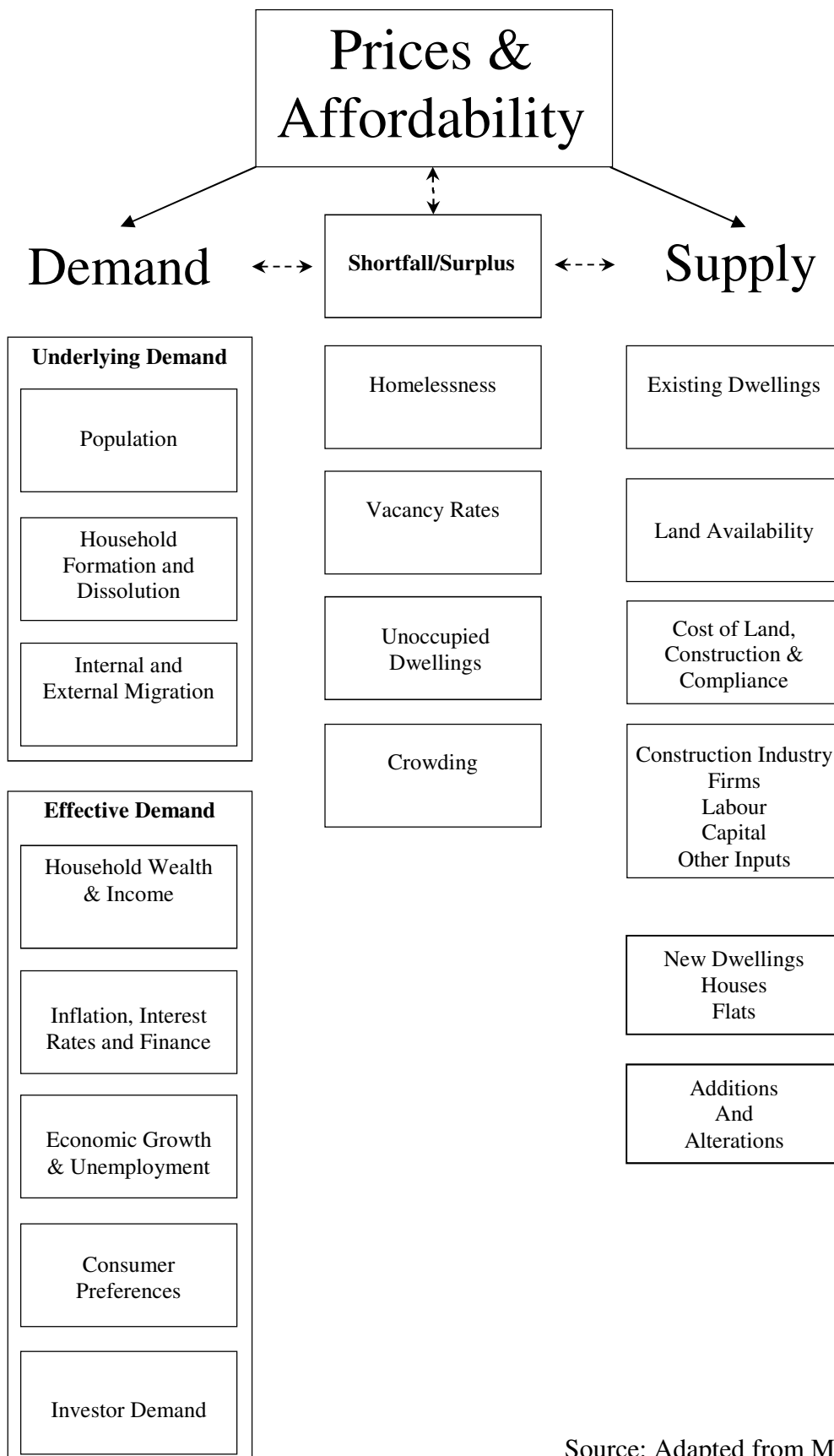
Source: Statistics New Zealand, *Infoshare*

Figure 5 Homeownership Rates: New Zealand and Auckland 1996-2013



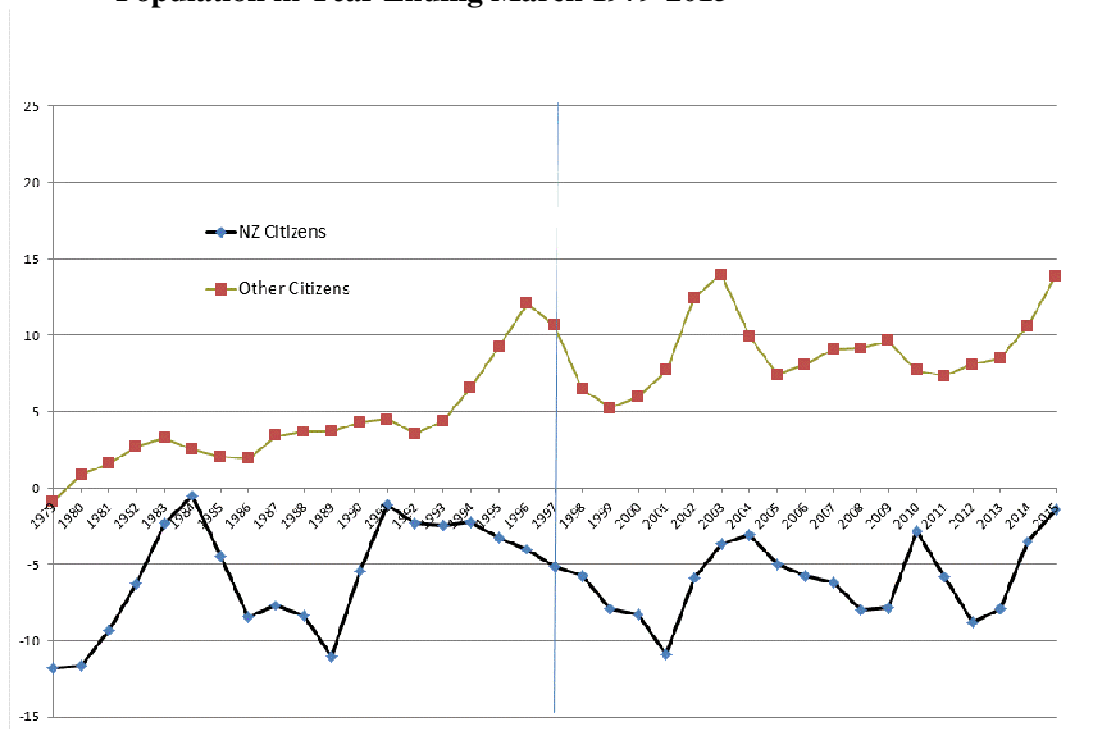
Source: New Zealand Census of Population and Dwellings 1996-2013

Figure 6 Factors Influencing Housing Supply, Demand and Affordability



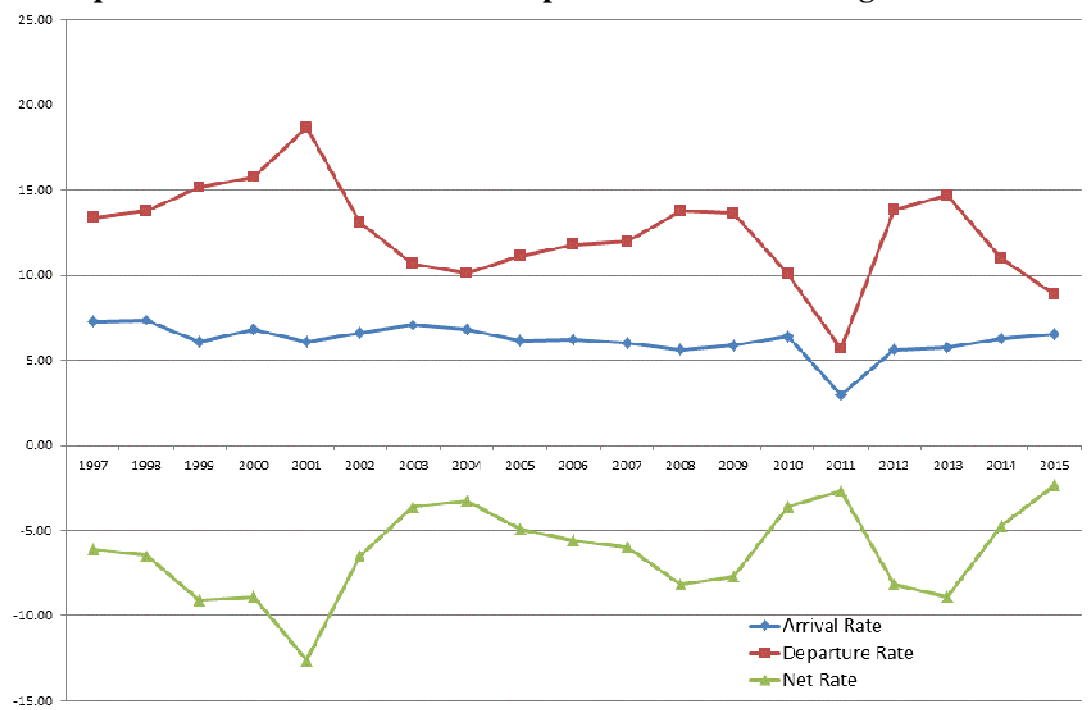
Source: Adapted from MBIE (2015a)

Figure 7 Net PLT Migration by Citizenship per 1000 Estimated New Zealand Total Population in Year Ending March 1979-2015



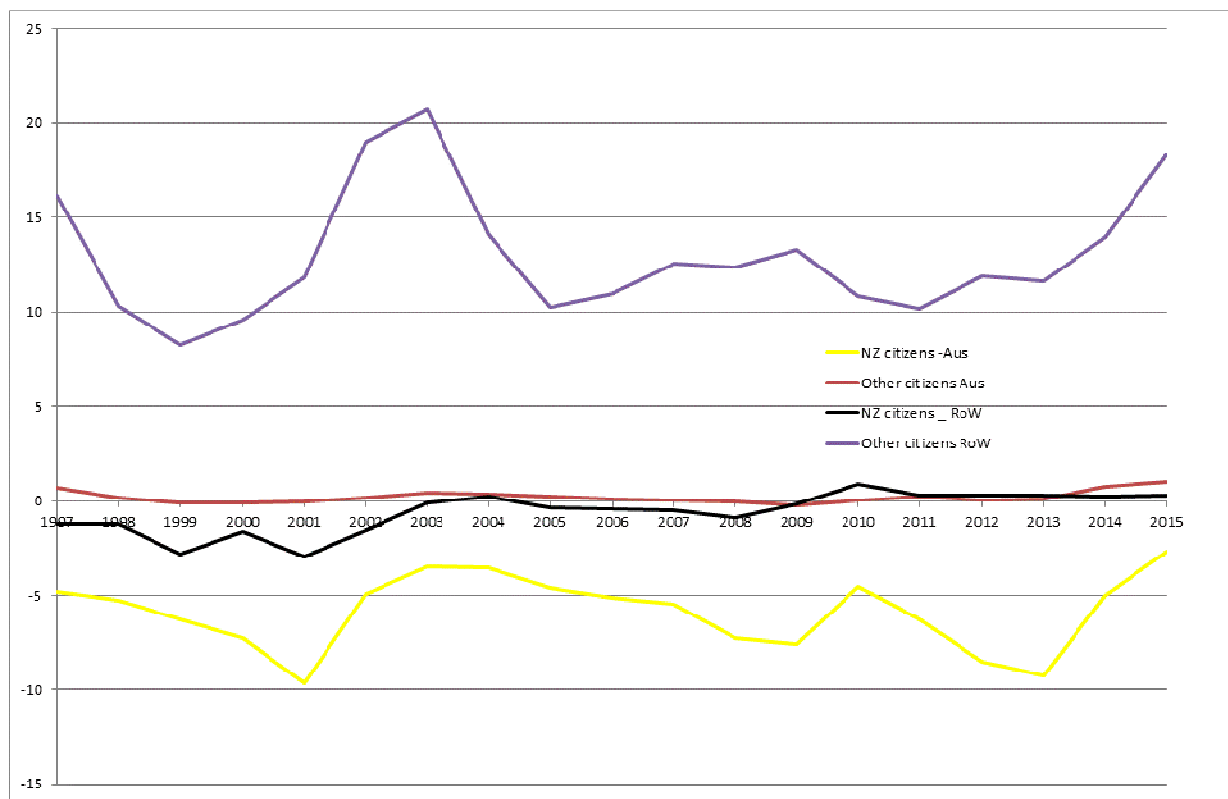
Source: Statistics New Zealand, *Infoshare*

Figure 8a PLT Arrivals, Departures and Net Migration of New Zealand Citizens in Auckland per 1000 Estimated Auckland Population in Year Ending March 1997-2015



Source: Statistics New Zealand, *Infoshare*

Figure 8b Net PLT Migration by Citizenship and Origin/Destination (Australia and Rest of the World) per 1000 Estimated Auckland Total Population in Year Ending March 1997-2015



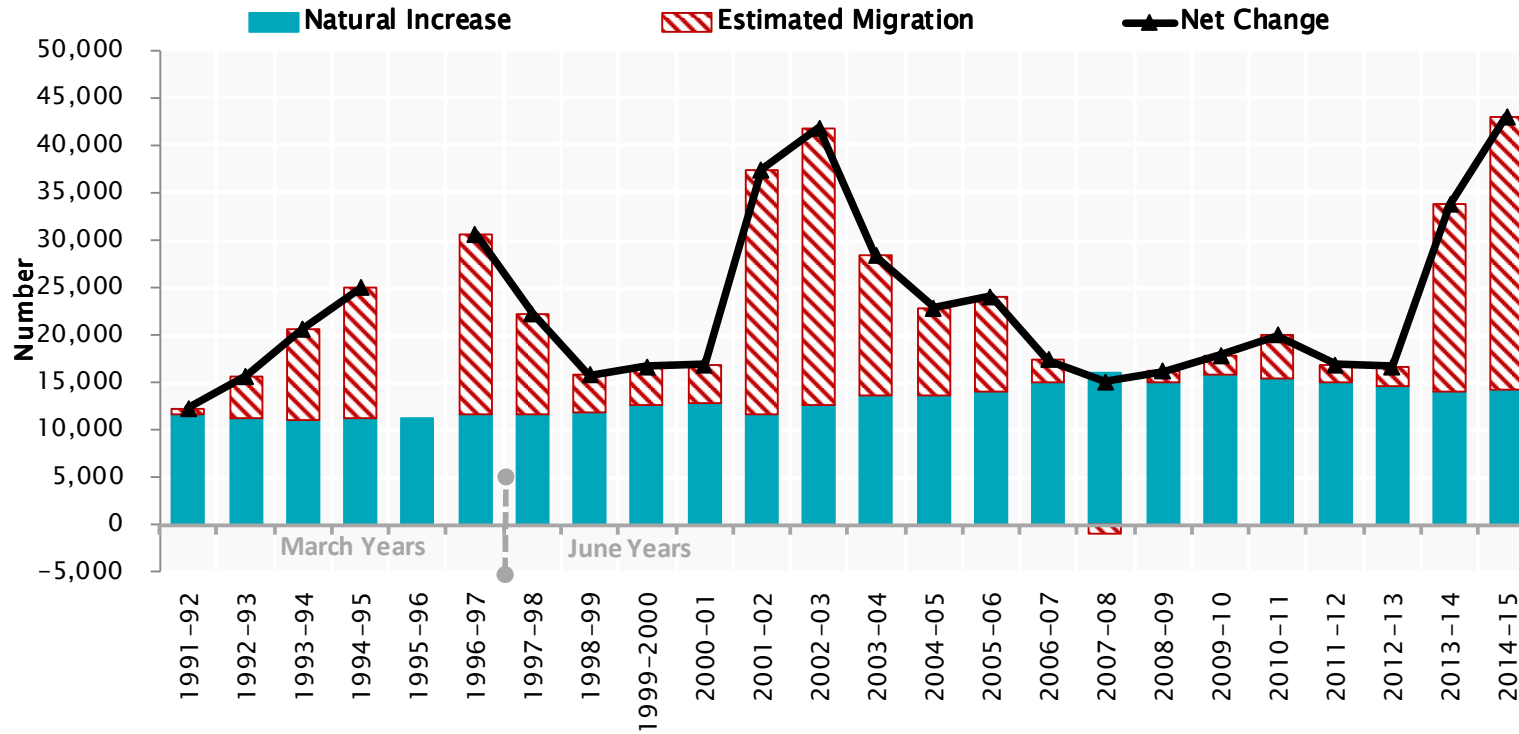
Source: Statistics New Zealand, *Infoshare*

Figure 9 The Composition of Permanent & Long Term Arrivals by Visa Type (Absolute and Percent)



Source: Statistics New Zealand

Figure 10 Decomposition of Annual Population Growth in Auckland

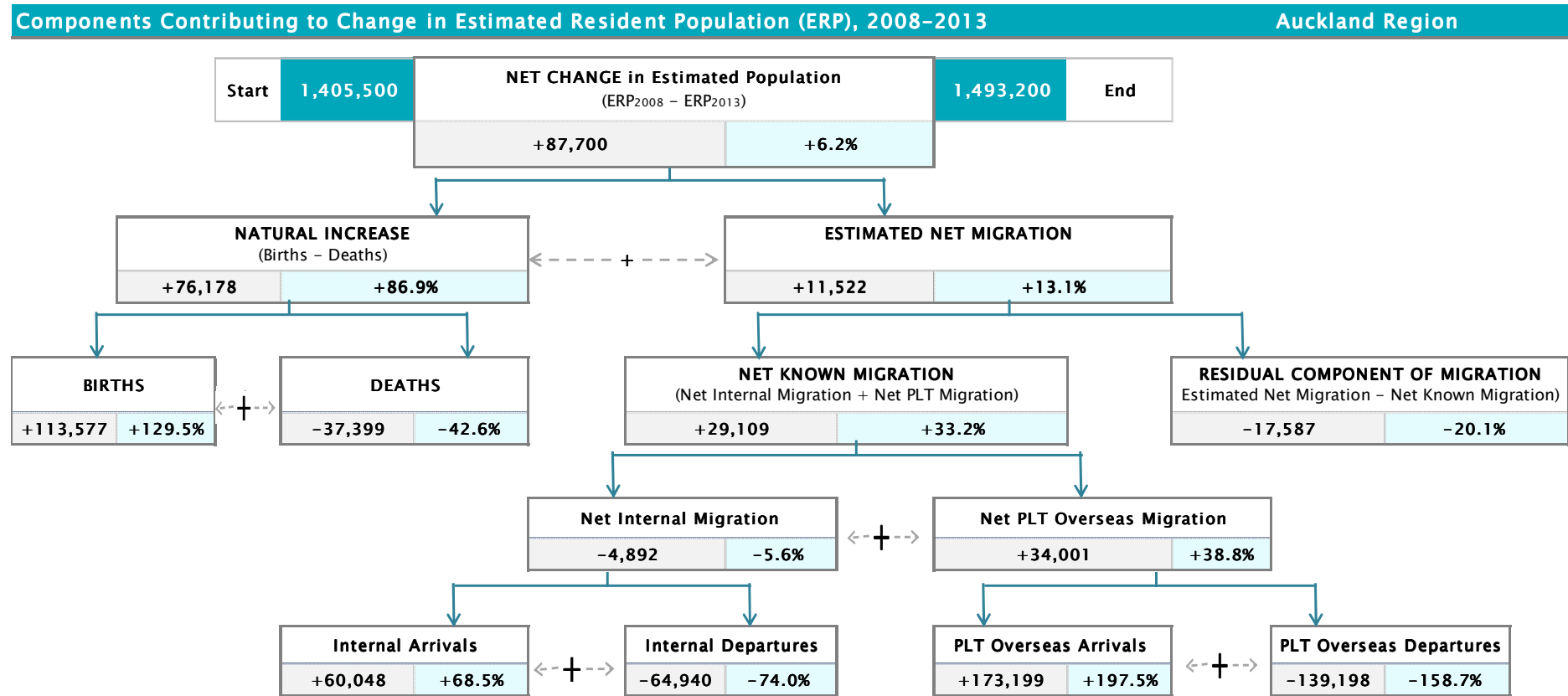


*Changes in timing and method of estimating Resident Population between 1995 and 1996 mean that only natural increase can be shown for that year

Source: Compiled from Statistics New Zealand Data sets;

Source: Unpublished estimates, *Nga Tangata Oho Mairangi (NTOM) Database*. Hamilton: NIDEA, University of Waikato.

Figure 11 The Components of Auckland Population Change 2008-2013



Source: Unpublished estimates, *Nga Tangata Oho Mairangi (NTOM) Database*. Hamilton: NIDEA, University of Waikato.