

Draft Report

Pacific People in the New Zealand Economy

Understanding linkages and trends

Draft report

January 2007



Preface

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Executive Summary

Factors such as age structure and migration status explain a great deal of the differences in skill and education levels and the poorer income and wealth outcomes of Pacific people, compared to non-Pacific people in New Zealand. In this paper we consider projected changes in the demographic profile of the Pacific population in New Zealand, and their integration into New Zealand society. The hypothesis is that economic indicators of wellbeing (incomes and net worth) of Pacific people would converge to that of non-Pacific people.

We used system dynamics software to model an ‘ageing chain.’

Looking at four scenarios, the main results are as follows:

- average income of Pacific people will converge toward those of non-Pacific people. But the continued influence of lower-skilled and lower-earning migrants mean that real per capita incomes will remain well below real per capita incomes of the total population by 2021
- net worth per capita does not look to converge, and the gap may even grow. The main reason is that Pacific population growth exceeds the increments to wealth from savings.

The implied continued low average levels of net worth for Pacific people have important implications for progress in other areas of Government policy, such as entrepreneurialism and the investment opportunities that wealth accumulation affords.

An important issue which bears on the results on net worth is whether remittances and gifting should be seen primarily as a transfer to parents and community interest, as a payment for goods and services, or a form of saving. If the latter, then there are assets which are not taken into account and we risk understating the resources of the Pacific communities in New Zealand and the wider Pacific.

This paper also explores the impact of hypothetical policies that can eliminate the ‘migrant wage penalty’ or converge labour force participation and unemployment rates. These scenarios show such policies can have large positive impacts on income inequality.

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1. Introduction

This report investigates the trends and key developments in Pacific peoples' participation in the New Zealand economy.

The existing literature already provides a rich picture of the social and economic circumstances and development of Pacific people in New Zealand, the Pacific, and the Pacific rim.

This report integrates some of this existing knowledge. The aims are:

- to understand how the age structure, migration patterns, education levels, labour market outcomes, and Pacific consumption and saving patterns interact over time
- to provide new insights to assist communities and policy-makers in identifying and selecting policy options for improving Pacific peoples' outcomes over time.

Our focus is on the welfare of Pacific people in New Zealand. As noted in the terms of reference:

How pacific communities in New Zealand behave and prosper is... of great significance to the country as a whole – to the performance of the New Zealand economy, to the health and well-being of New Zealand society, and to the shape of our culture.

It is clear, however, that the welfare of Pacific people in New Zealand cannot be understood without considering the linkages back to the Pacific islands, and indeed the wider Pacific Rim. The international mobility of Pacific people, and remittances and overseas development aid affect, or are affected by, the economic and social prospects in the Pacific islands. Pacific issues are New Zealand issues, and vice versa.

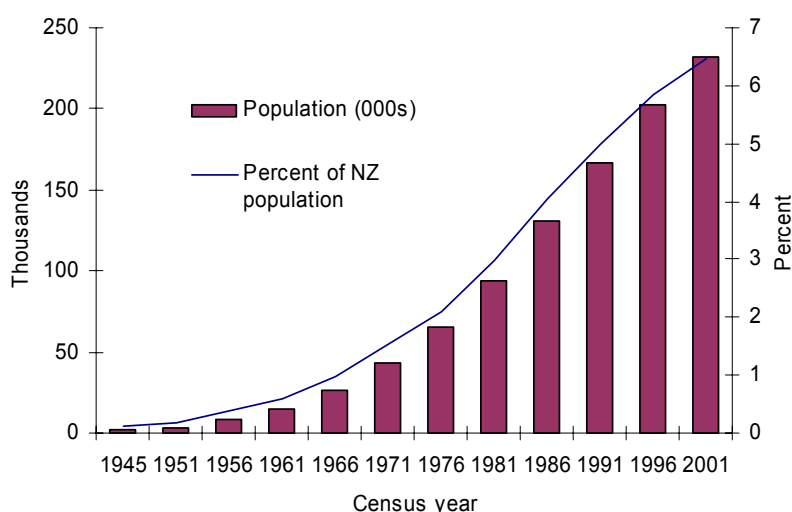
2. Pacific peoples' participation

The following key descriptive facts, familiar to most, motivate this report. A fuller set of descriptive statistics and analysis is available in Statistics New Zealand & Ministry of Pacific Islands Affairs (2002).

2.1 A youthful, growing population

The number of Pacific people in New Zealand has grown rapidly in the last 50 years, totalling 232,000 in 2001 (Figure 1).

Figure 1 Pacific population in New Zealand, 1945-2001



Source: Statistics New Zealand & Ministry of Pacific Island Affairs 2002.

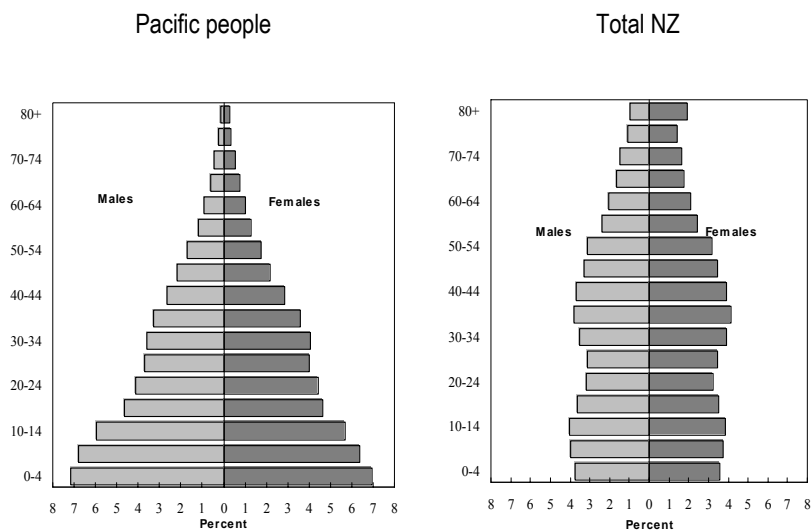
Up to the mid 1970s, growth of Pacific people in New Zealand was fuelled by immigration. There was a period of outflow of Pacific people in the early 1980s due to return migration and chain migration to Australia (Cook et al 1999). Over the last decade, net annual migration from the Pacific averaged 3,000 people (Figure 3).

Over the decades the proportion of New-Zealand born Pacific people to total Pacific people in New Zealand has grown from 45 percent in 1971 to 58 percent at the 2001 Census (Cook et al, 1999).

The Pacific population is considerably more youthful than the total New Zealand population (Figure 2). The median age of Pacific people was 21 years in 2001, compared with 35 years for the total population.

The median age of New Zealand born Pacific people is just 12 years, compared with 37 years for the overseas born.

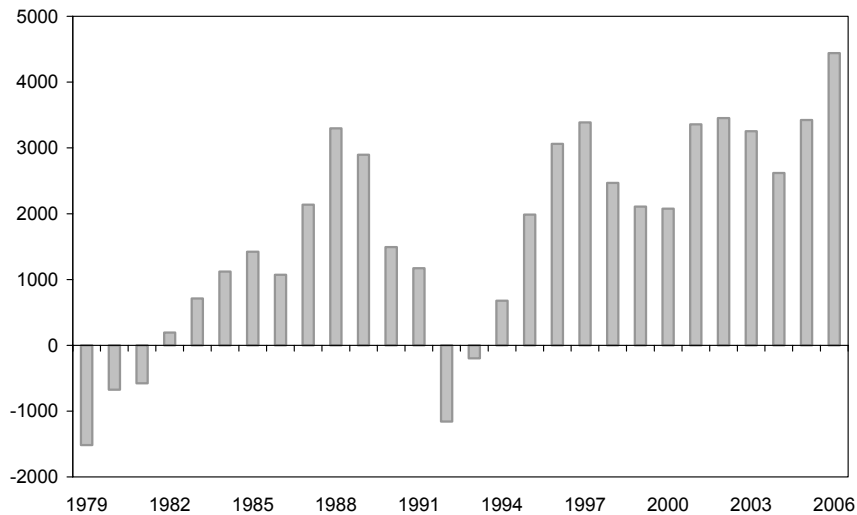
Figure 2 Age-sex distributions 2001



Source: Statistics New Zealand & Ministry of Pacific Island Affairs 2002

Figure 3 Net permanent and long term Pacific migration

Net annual migration gain, March years



Source: Statistics NZ

2.2 Poor but improving education outcomes

In 2004, 36 percent of Pacific people had no qualifications, compared to 25 percent of the total population. This is an improvement from 1986 when 56 percent of Pacific people had no qualifications, compared to 40 percent for the population.

Growth in educational participation and qualification levels by Pacific people has been fast since 1991. Growth in qualification completions has been particularly high in post-school certificates. Yet, the proportion of Pacific people with any tertiary qualifications still lags that of the total population (Table 1). Ministry of Education data show that Pacific female participation in tertiary education has grown rapidly relative to that of Pacific males. In 1994 the ratio was 1:1, but in 2004 the ratio of females to males was 1.45:1. Now the proportion of Pacific females with degree or non-degree educational qualifications exceeds that of Pacific males.

This trend reflects longer school retention and better performance by Pacific females than males at school. The male-female pattern may reflect traditional cultural roles and expectations, with young males expected to help out with financial obligations, and young females expected to contribute to domestic and community responsibilities, which are combined with school and tertiary education (Anae et al. 2002). Pacific female educational achievements may have implications for fertility rates and female labour force participation (as the opportunity cost of childrearing and other non-paid work rises). The slower take-up of higher education among Pacific males implies a trade-off of higher incomes in the short term instead of investing in human capital and higher incomes in the longer term.

Table 1 Highest educational qualifications 2004

Proportion of population aged 15 and over

	European	Māori	Pasifika	Other	All
No qualifications	23.5%	38.6%	35.5%	18.3%	25.1%
School qualifications	25.9%	24.9%	38.4%	32.2%	27.0%
Other tertiary qualifications	37.6%	32.3%	20.8%	20.8%	34.6%
Bachelors or higher	13.0%	4.2%	5.4%	28.7%	13.2%

Notes: (1) Data is for the June quarter
 (2) Bachelors or higher qualifications include postgraduate degrees, certificates or diplomas
 (3) Other tertiary qualifications include university certificates or diplomas, teaching certificates or diplomas, nursing certificates or diplomas, New Zealand certificates or diplomas, technician's certificates, local polytechnic certificates or diplomas, and trade certificates or advanced trade certificates

Source: HLFS, downloaded from www.educationcounts.edcentre.govt.nz

Literacy and numeracy has an effect on earnings that is additional to education levels (Treasury 2001). However, Pacific people lag in literacy and numeracy skills. In 1996, 54 percent of New Zealand's population aged 16–65 had prose literacy skills at Level 3 or above, 50 percent had document skills at Level 3 or above and 51 percent had quantitative skills at Level 3 or above (MSD 2005).¹ For Pacific people, the proportion was half that in each domain.

Differences in educational attainment between Pacific people and the total New Zealand population are much greater at older age than at younger age, and far greater for overseas-born than New Zealand born Pacific people (Fletcher 1995). The educational attainment of Pacific children in aggregate lags that of non-Pacific students.

This lagging could reflect the home environment and neighbourhood. Performance of children at low decile schools tends to be lower than that of children at high decile schools. Table 2 shows Pacific children are heavily concentrated in low decile schools. For example, 70 percent of Pacific children in primary schools are in decile 1-3 schools.

Table 2 Attendance at low decile schools by ethnicity

Proportion of children in decile 1-3 schools, at July 2005

	Pacific	Total
Primary school	70%	28%
Composite school	67%	22%
Secondary school	50%	16%
Special	67%	45%
Total	63%	24%

Source: Ministry of Education, Education Counts

Perhaps the lag reflects the link between educational attainment of parents and children. The longitudinal *Competent Children* study in New Zealand shows such a relationship between maternal education and children's school achievement (Wylie et al 2006). Card (2005) found intergenerational correlation between the average education of fathers and their children. Low parental qualifications and so low family incomes may result in fewer resources to support children, and lower aspirations and fewer good role models. A review by the Treasury (2001) concluded that disadvantages have an important intergenerational effect, and also that this effect is stronger where disadvantaged ethnic minorities are concentrated.

¹ The International Adult Literacy Survey defines adult literacy level 3 as a "suitable minimum for coping with the demands of everyday life and work in a complex, advanced society".

But within deciles there remains a strong difference in attainment between Pakeha and Pacific (and Māori) children (Hattie 2003). Substantial parts of ethnic differences can be explained by unmeasured individual differences, such as parents' occupation, marital status, and child rearing and literacy practices in the home (Treasury 2001).

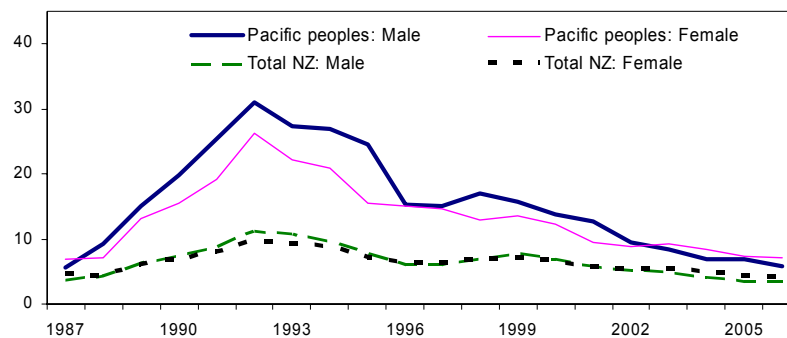
2.3 Sustained higher unemployment rates

In the late 1980s and early 1990s the Pacific unemployment rose faster than that of the rest of the labour force, as the result particularly of the structural economic reforms. The male unemployment rate exceeded 30 percent. Even in the last three years, Pacific unemployment rates have been 75 percent higher than those for the total population (Figure 4).

Age-specific unemployment rates of overseas born Pacific people are significantly higher than those born in New Zealand – almost twice for those aged 40-59. For young people aged 15-24 the rates are similar (Statistics New Zealand & Ministry of Pacific Island Affairs 2002, p51).

Figure 4 Unemployment rate

Percent of labour force

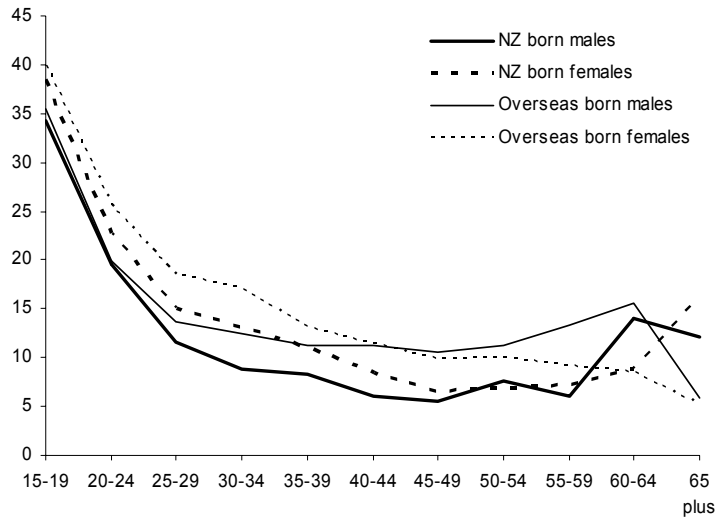


Source: HLFS, March years

There is an association between duration of residence in New Zealand and unemployment rates of overseas born Pacific People. In 2001, the unemployment rate of very recent migrants was 31.5 percent, 20 percent for those in New Zealand for 1-4 years, and 13 percent for those in New Zealand for 10+ years.

The higher unemployment among migrants may reflect English literacy and numeracy skills, hampering adaptation of the older recent migrants, or the retraining of those who became unemployed following the structural and cyclical economic shocks of the late 1980s and early 1990s.

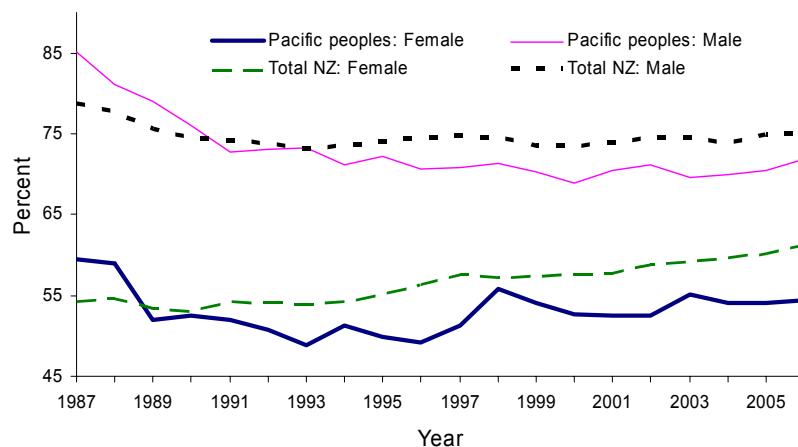
Figure 5 Pacific unemployment, age and birth country
Percent



Source: Statistics New Zealand & Ministry of Pacific Island Affairs 2002

The unemployment rate gives an incomplete picture. In the late 1980s Pacific people participation in the labour force exceeded participation by the total population. By the mid 1990s Pacific people participation was below that of the total population. It has remained below since: by an average of 5 percentage points for males and 8 percentage points for females (Figure 6). High unemployment, the relative demise of industries they worked in during the 1980s, and low incomes discouraged some working age Pacific people from participating. The younger age structure is also likely to be a factor.

Figure 6 Labour force participation
Percent of working age population



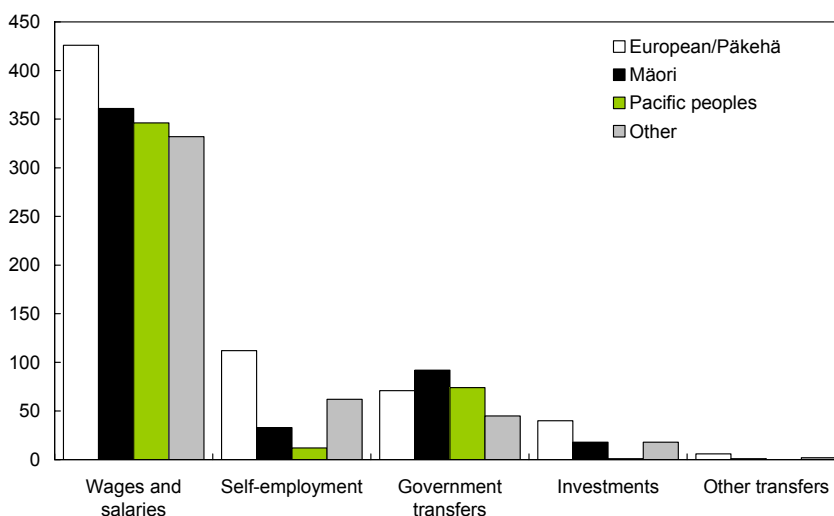
Source: HLFS, March years

2.4 Incomes are well below the national average

In June 2006, the average weekly income of Pacific people aged 15+ was \$434, 29 percent less than the average for all ethnic groups. Eighty percent of that income was derived from wages and salaries, 17 percent from government transfers, and 3 percent from self-employment. By comparison, income from self-employment and investments was 21 percent for all ethnic groups combined. This is reflected in Figure 7.

Figure 7 Average weekly income by ethnicity

\$ pp aged 15+, pw

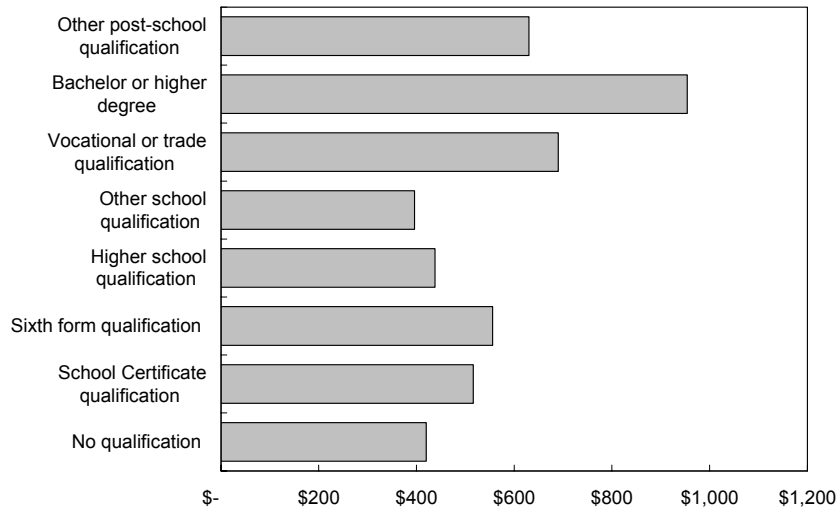


Source: NZ Income Survey 2006

Figure 8 shows that income increases with qualification levels. Figure 9 also shows the familiar relationship between age and income, reflecting experience and productivity. Part of the Pacific income gap would thus be explained by age structure and lower educational attainment.

Figure 8 Average weekly income by qualification

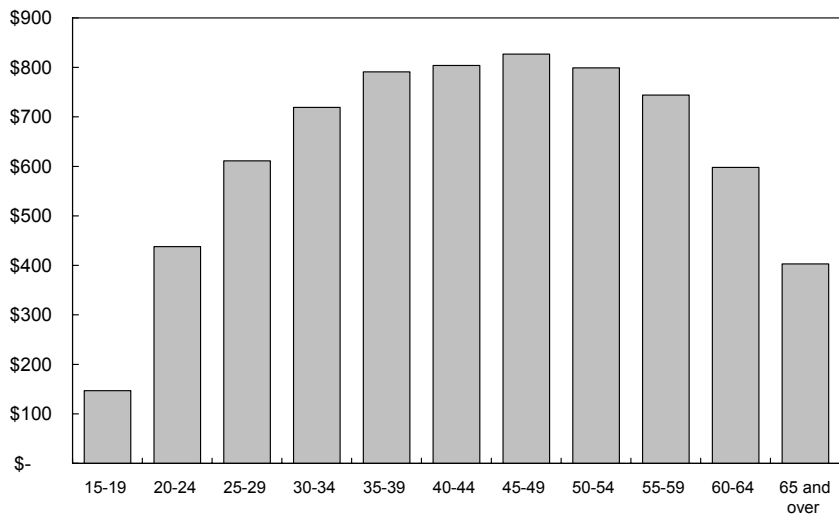
\$ pp aged 15+, pw



Source: NZ Income Survey 2006

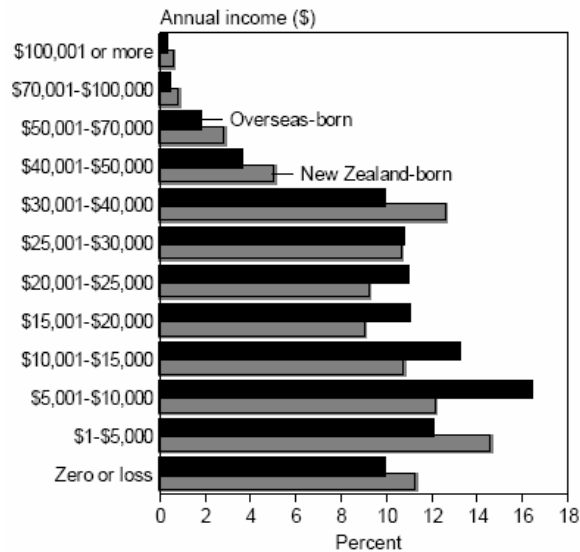
Figure 9 Average weekly income by age

\$ pp aged 15+, pw



Source: NZ Income Survey 2006

Statistics New Zealand & Ministry of Pacific Island Affairs (2002) shows that within the Pacific ethnic group, those born in New Zealand had higher median annual incomes (\$15,600) than those born overseas (\$14,400). The proportion of New Zealand born Pacific people exceed the overseas-born in the higher income bands (Figure 10).

Figure 10 Income distribution by birthplace**Annual Income Distribution of Pacific People, by Birthplace, 2001**

Source: Statistics New Zealand & Ministry of Pacific Island Affairs 2002

2.5 Net worth is a fraction of the national average

The 2001 Household Survey indicates that the mean net worth² of individual Pacific people is \$35,800, and the median \$1,600. This compares to a mean net worth of \$163,700 and median of \$86,500 for all individuals. The survey shows that median net worth builds up with age, peaking (for couples) at age 55-59, before running down (although not completely).

Table 3 compares net worth for partnered and unpartnered individuals by ethnicity. Statistics New Zealand & the Retirement Commission report that for couples the median net worth depends on the ethnic group of each partner. Where both partners were Māori the median net worth of the couple was \$18,000. But mixed-ethnicity couples had net worth of \$79,900, compared to \$193,600 were neither couple were Maori. A similar pattern could be supposed for Pacific people.

² Net worth is a point-in-time measure of individual or household assets (such as housing, shares in companies, and deposits) less liabilities (such as mortgages, loans and credit card debt). The measure used in this paper excludes the lump sum equivalent of NZ superannuation.

Table 3 Net worth by ethnicity

Dollars (ex Māori trusts)

	Unpartnered Individuals		Couples (respondent's ethnicity)	
	Mean	Median	Mean	Median
European/Pakeha	119,900	* 21,700	369,900	209,900
Māori	* 38,900	** 800	138,800	* 34,700
Pacific Peoples	** 46,400	** 0	* 58,500	** 11,100
Asian	** 59,900	** 3,000	* 224,600	** 120,100
Other	** 67,400	** 0	* 238,600	** 98,400
Total	97,900	10,300	322,300	172,900

Notes: (*) Relative sampling error of greater than 30% and less than 50%.
Use data with caution

(**) denotes a relative sampling error of greater than 50% or when the sampling error could not be calculated for a median; data is too unreliable for practical purposes

Source: Household Savings Survey 2001

The Household Savings Survey shows that houses are the single largest form of asset-holding (36 percent by value). Home ownership and people's equity stake in homes rise with age. Just 26 percent of Pacific people aged 15+ owned their home compared to 55 percent of the total population. Differences in age structure help to explain but not eliminate the gap. New Zealand born Pacific people are more likely to own their own home than overseas-born (Statistics New Zealand 2001).

Different plausible explanations for lower net worth of Pacific people are:

- that their lower average incomes leave less for saving after consumption expenses
- that their age structure is younger; the permanent income hypothesis holds that the young and old save little or dissave, to be financed when disposable incomes are higher when people are in their 40s and 50s
- that Pacific people have a lower life expectancy; this might mean that Pacific people save less to maintain a given level of consumption upon retirement. Conversely, a lower healthy life expectancy might motivate a quicker and larger build-up of assets
- that Pacific people intending to move back to their birth country require less wealth to maintain a given level of consumption, assuming the cost of living is significantly lower in the Pacific Islands than in New Zealand
- that they use alternative means to deal with unforeseen circumstances, such as in-kind and financial support from the community, church, or family-run credit clubs

- that they build up individual or communal assets in ways that are not measured in the official statistics. Examples include the sending of remittances that secure a stake in the affairs of their community (for themselves or their children), or Pacific people temporarily returning to the island to assist in crop harvesting but not being paid directly, but the money staying in the community.

Among all these explanations, the younger age structure may be the most important explanation for Pacific people's lower net household wealth, and lower incomes to a lesser degree. This was the case for Maori (Scobie, Gibson & Le 2005).

However, the net worth data presented here exclude Māori trusts. A third or more of the estimated \$9 billion worth of Māori assets (in 2004) are held in iwi-based organisations. These tend to be put to productive uses (agriculture, fishing and forestry and property and business services. Māori communities benefit from returns on those assets in some form, but the wealth effects do not flow through into households wealth statistics.

Like Māori, the plausible explanations listed above also indicate that Pacific communities also hold assets in communal form. However, anecdotally, these tend to be held in forms where it can be strongly debated whether they generate any economic returns. Instead, they serve other important social and cultural purposes (such as churches). Little is known about this, and there is also communal ownership amongst the Pakeha community (churches, bowling clubs, etc). So it is not very clear whether or not communal ownership of assets (or the form they are held in) is a further important explanation of low household measures of net worth.

2.6 Other measures of welfare show a similar picture

The 2004 New Zealand Living Standards Survey found that Pacific people on average had the lowest living standards of all New Zealanders. The majority of Pacific people indicated some degree of hardship in 2004. While the proportion was similar to that in 2000 (58 vs. 56 percent), within that group there has a sharp shift in the proportion of Pacific people in severe hardship (from 15 percent in 2000 to 27 percent in 2004).

Benefit dependence and the number of dependent children, and country of birth are key factors. Of Pacific people born in New Zealand 38 percent are in hardship, compared to 57 percent of those born elsewhere. This has been attributed to the cost of immigration and resettlement, adaptation difficulties and discrimination, and remittances (Jensen et al, 2006).

Pacific people have a lower life expectancy, and avoidable mortality and hospitalisation rates that are 50-60 percent higher than the rates of the total population (Table 4). Endocrine, nutritional and metabolic diseases and immunity disorders account for over twice the proportion of deaths in the

Pacific population as in the total population. Poorer average health status may also contribute to differences in wages, if illness and disability impairs productivity.

Pacific people are also over-represented in justice statistics, with higher rates of conviction and prosecution than the total population, particularly for violent offences.

Table 4 Key health outcomes indicators

	Pacific		Total	
	Males	Females	Males	Females
Life expectancy at birth 00-02	71.5	76.7	76.3	81.1
Independent life expectancy	61.8	63.1	64.5	67.6
Avoidable mortality 96-00 ¹	771	471	497	318
Ambulatory sensitive hospitalisations 98-02 ¹	4780	4539	2964	2745
Injury related mortality 96-00 ¹	36	13	37	15
Unintentional injury hospitalisations 98-02 ¹	3411	2141	2852	1945

Notes: (1) Age standardised per 100,000
Source: Ministry of Health 2005, and Ministry of Health & Ministry of Pacific Island Affairs. 2004

2.7 What are the prospects?

The overwhelming picture is that, on average, Pacific people in New Zealand have poorer outcomes than the rest of the population. The literature shows that factors such as age structure and migration status explain a great deal of the differences in skill and education levels and the poorer income and wealth outcomes of Pacific people, compared to non-Pacific people in New Zealand (Fletcher 1995).

Lattimore, Wang, & Duncan (2005) find a wage penalty for Pacific people, after controlling for age, gender, highest qualification, and industry. They attribute the ‘ethnic wage penalty’ to discrimination or other unobserved characteristics. Using the wage equation and other information they suggest wage outcomes would converge over time, but that it would be slow and incomplete, unless the ‘ethnic penalty’ is somehow eliminated.

Winkelmann & Winkelmann (1998) suggest migration status and English literacy explain an important part of the ‘ethnic wage penalty’. Income of recent immigrants is about 20 percent lower than that of New Zealand born residents. For migrants from Pacific islands the disadvantage is 45 percent. Generally, this migrant effect disappears with time. But the erosion of the

migrant effect is much slower for low skilled immigrants from non-English speaking backgrounds, such as the Pacific islands.

This slower erosion suggests that language remains a barrier even for the subsequent generation brought up and schooled in New Zealand. This hypothesis appears supported by the fact that 74 percent of Pacific students receiving English for Speakers of Other Languages (ESOL) support were in fact born in New Zealand (Ministry of Education 2005).

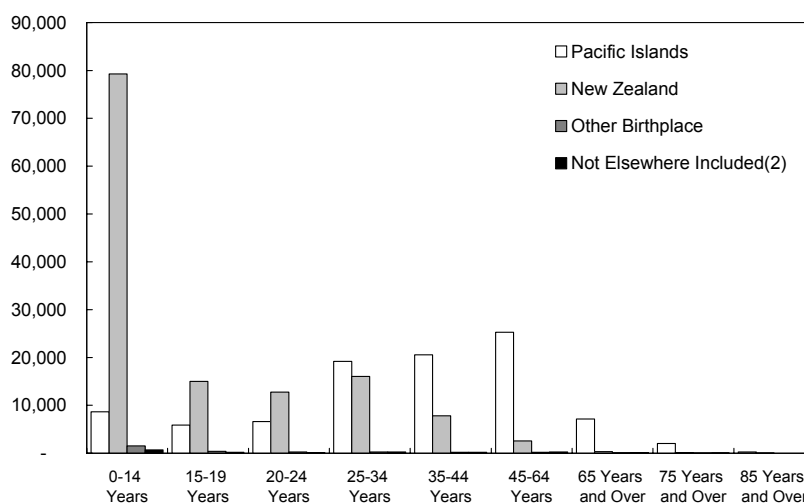
Card (2005) concluded that children of immigrants to the United States overcome the migrant gap and end up doing somewhat better than their native counterparts. He also found a positive correlation between the average education of the father and that of their sons and daughters. This could stand in the way of a catch-up if this correlation were also true for New Zealand born Pacific children.

Humphris and Chapple (2002) also find strong connections between employment outcomes and migration status, age, and educational attainment. However, they argue that changes in the age structure or educational attainment did not explain the deterioration of Pacific employment outcomes in the 1990s. They suggest that the main explanation was the decrease in labour demand in low skilled manufacturing and assembly occupations, combined with an increase in Pacific immigration.

Furthermore, the most striking features of the demographic profile of the Pacific population in New Zealand are its youthfulness and the large proportion of New Zealand born Pacific people (Figure 11).

Figure 11 Birthplace of Pacific people, by age

Number of people usually resident in New Zealand



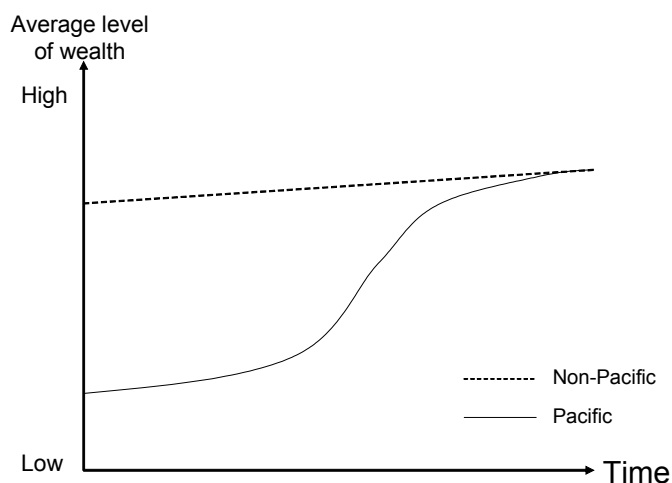
Source: Census 2001

Taken together, it is conceivable that the gap in wages and net worth between Pacific people and other New Zealanders would be eliminated over time, as a natural result of:

- the integration of migrants into the New Zealand economy
- the demographic transition of the Pacific population
- the growing size of New Zealand born and educated Pacific people relative to migrant flows from the Pacific.

Figure 12 illustrates the convergence idea. If this convergence effect is true, it could affect policy problem definitions and policy priorities. For example, the analysis could redefine income inequalities as primarily a function of demographics (which would be difficult to influence, or which may suggest no specific interventions are called for), or perhaps draw attention to programmes that speed up migrant integration as a strategy to reducing ethnic income inequalities. Alternatively, they could help emphasise the impact of programmes that could strongly lift educational or health outcomes or labour force participation.

Figure 12 Wealth convergence?



Source: NZIER

3. Approach

Our approach was to pull existing and new data and knowledge together within a systems dynamics framework. Systems dynamics is a structured way to model the linkages between variables of interest, and to test their relative influences over time on some objective function.

In essence, the research involved three stages:

- making the linkages explicit in a causal loop diagram
 - identifying the hypothesis
 - identifying and defining the main variables of interest
 - constructing a stocks and flows diagram showing the relationships
 - testing the assumptions about the relationships between variables through a review of literature and secondary data, and an expert focus group
- developing the dynamic simulation model
 - developing a simulation model
 - collecting and analysing data, to put quantities around the stocks and flows and their connections
 - populating the model with data
 - validating the model to ensure the model is in a ‘steady state’ and produces plausible results
- experimenting with the dynamic simulation model
 - testing the model, assumptions and results with an expert focus group
 - running scenarios (by changing key assumptions) and exploring their implications
 - reporting of results.

The next section reports the model, the data used, and the results.

4. The system dynamics model

4.1 Hypotheses

The hypotheses being explored are:

- that average levels of incomes of Pacific people in New Zealand will converge to the average incomes of non-Pacific people
- that average levels of net worth will converge to the average level of net worth of non-Pacific people over time.

This convergence would be due to the changing demographic structure and the shift in the mix of overseas and New Zealand-born Pacific people, which has consequences for educational attainment, integration into New Zealand society, and remittances and church donations.

Figure 13 stylises how the key demographic, social, and economic characteristics of the Pacific communities are assumed to connect. It draws links between population and migration patterns, financial and human capital assets, sources of income, and consumption and investment.

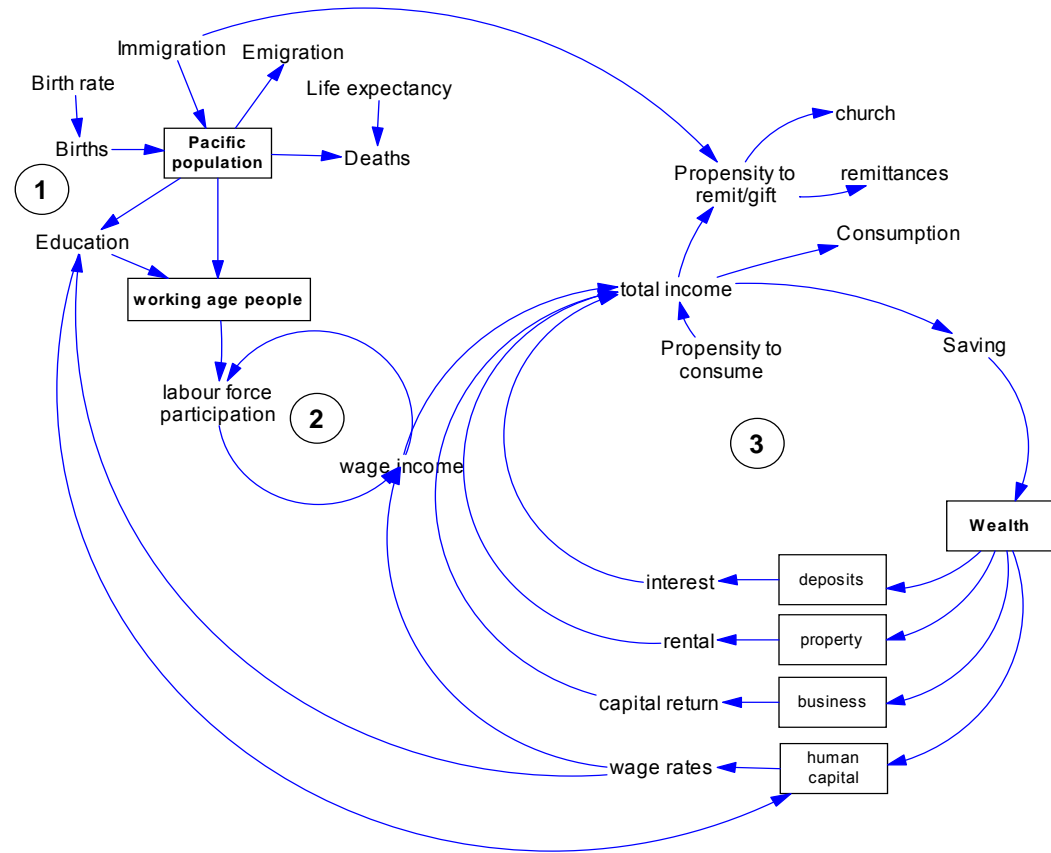
This figure has three main components:

- a population ageing chain
- skills and wages
- wealth model: incomes, consumption, and savings.

Figure 13 is clearly a much simplified model of reality. Some important details are not captured. Examples of omissions include: differences in family structures, different Pacific ethnicities, inter-ethnic partnering, and feedback loops between incomes, fertility rates and timing of child bearing, life expectancy, family structure, and educational success of future generations. It would not be a particularly great challenge for future researchers to change or add further detail to the model shown here. Data is the limiting factor.

The detailed system dynamics model based on this simplified model is in Appendix B . The next sections describe the component and linkages, their economic rationales, and the assumptions we made.

Figure 13 Causal loop diagram



Source: NZIER

4.2 Population ageing chain

The population component distinguishes the flows in (births and immigration) and flows out (deaths and emigration). Immigration has been an important source of growth of the Pacific population in New Zealand.

Pacific population growth increased during the 1960s when migration accelerated ‘in response to population pressures in the Pacific nations and demand for labour in New Zealand’s expanding secondary industries’ (Statistics New Zealand 2002). Other reasons have been advanced for this wave of immigration (discussed in Bedford 2004). But Pacific migrants’ motivation for migration is consistent with an underlying theme of improving their own economic status and that of families and communities left behind. For example, Tongan immigrants were found to experience a 263 percent increase in average weekly labour income from immigrating (Gibson 2006).

In the model we keep separate track of migrants, because the literature and data indicates that migration status is an important element of understanding economic and social outcomes.

Figure 13 shows a link between immigration and remittances. We discuss this link in a later section. A more complex model might also build in feedback loops between income or net worth and both immigration flows and life expectancy.

The model presented here does not capture differences in family patterns, families of mixed ethnicity, or fertility rates. Sole parenthood, number of dependent children, and ethnicity of partners all have significant effects on incomes and other measures of living standards. It is likely that there are feedback loops between these factors and levels of income, education, and net worth. For simplicity, we assume there are no such effects in the base model.

Finally, we acknowledge differences between the demographic and economic positions of various Pacific ethnic groups, and differences in norms and preferences. These can all make a difference. But, to keep the model and exposition tractable, we generalise behaviours and explanations for the Pacific population as being that of one homogenous ethnic group.

4.3 Skills and wages

The model considers labour force participation, and wages. Labour force participation is influenced by labour demand conditions, as well as the time-income trade-offs faced by individuals. This model abstracts from structural or cyclical demand effects. It also puts aside consideration of how labour supply decisions might alter as average incomes change (including the

interface with the income support system). In the base model we do not have a feedback loop between wages and labour force participation.

In the model the working age population is split into Pacific people of working age who immigrated to New Zealand, and the Pacific young people who enter the workforce after having attended the New Zealand education system. Pacific-born children aged under 14 are counted as if they were born in New Zealand.

We make this distinction because the combination of skills, English language proficiency, and migrant adaptation costs seem to explain part of the lower wages by Pacific workers. We also distinguish between the participation rates and unemployment rates of Pacific people born in New Zealand and those of working age born overseas.

Based on the literature also, we assume that most immigrants arrive from the Pacific islands with few of the financial or human and social capital assets that are important for the New Zealand economy. We do this by setting the proportion of the immigrant labour force with high skills at 70 percent of that of the resident labour force. This assumption thus applies to both Pacific and other migrants. Skill is defined by occupational class, with high skills capturing trade-workers, technicians, professionals, and managers.

We assume that New Zealand born Pacific people enter the workforce with the same skill profile as other New Zealanders. This is clearly an optimistic simplification considering the statistics provided in this paper. However, it provides a starting point, and we explore the sensitivity of results to this assumption later.

The causal loop diagram in Figure 13 shows a link back from wage rates to education. This link reflects the idea that educational choices are likely to be influenced by their returns; the cost of extra education (including wages foregone) is pitched against the additional life time income it brings. This trade-off also includes people in the workforce going back to school. Maani (2000) showed that there are significant private returns to earning, and that these are higher for Māori/Pacific people. Gibson (2000) estimated that postgraduate credentials raise annual earnings for a Maori or Pacific Island worker by 153 percent to workers with no qualifications (compared to 77 percent for Pakeha). For simplicity, the base model does not make the education choice endogenous. The assumption about the skill levels of New Zealand-born Pacific people entering the workforce already implies they observe the higher wages that can be attained with higher qualifications.

We also included the household labour force participation and unemployment rates for Pacific and the total population. We initially use the same rates for residents and migrants.

4.4 Wealth model

The third component of the model consists of a basic loop where different sources of income add to net worth. The assets portfolio can consist of various mixes of financial, property, business, or human capital assets. The assets each generate further income. Assets can also be consumed in the current period.

4.4.1 Income and net worth as proxies for wellbeing

We start with the standard assumption in economics that measures of incomes and wealth are reasonable proxies for wellbeing. Another basic assumption is that people's actions are motivated by a drive to maximise their wellbeing. For this paper, the implication is that Pacific people will make choices that will maximise incomes and net worth, so that over time these would converge to that of the total population.

This standard economic approach may contrast with alternative views on what constitutes wellbeing and how to measure it. Income and measures of economic wealth may not be particularly good proxies. Happiness surveys, for example, show that the proportion of people who say they are very happy has not changed much in the last 50 years, despite large increases in real incomes (Layard 2006).¹ Helliwell (2006) suggests relationships with family and friends, participation in the wider community, unemployment and job satisfaction, coping skills, and health and life expectancy might offer more suitable measures of wellbeing.

While income and wealth beyond a level may not be complete indicators of wellbeing, relative incomes and wealth are important to people's perception of their wellbeing. On the margin, higher incomes and wealth allow people to do more of the things that make them feel good (whether that is buying a bigger car or contributing to build a community church). We assume this to be true for all ethnic groups in New Zealand. Also, incomes and net worth (and disparities therein) remain relevant headline indicators on which outcomes for different groups in New Zealand society are judged, policy is made, and effectiveness evaluated.

¹ Happiness surveys suggest that, beyond the median income, further increases in real incomes add little to happiness. This is thought to be because people get used to the higher levels of income (addiction effect), and because happiness is defined by perceived relative incomes (envy effect). While this may suggest the futility of the 'rat race', happiness surveys do not give insights about the impact on happiness if people were asked to forego some of the spoils of the rate race. Furthermore, the survey results do not adjust happiness ratings for the increases in the quantity of life bought with these increases in real incomes.

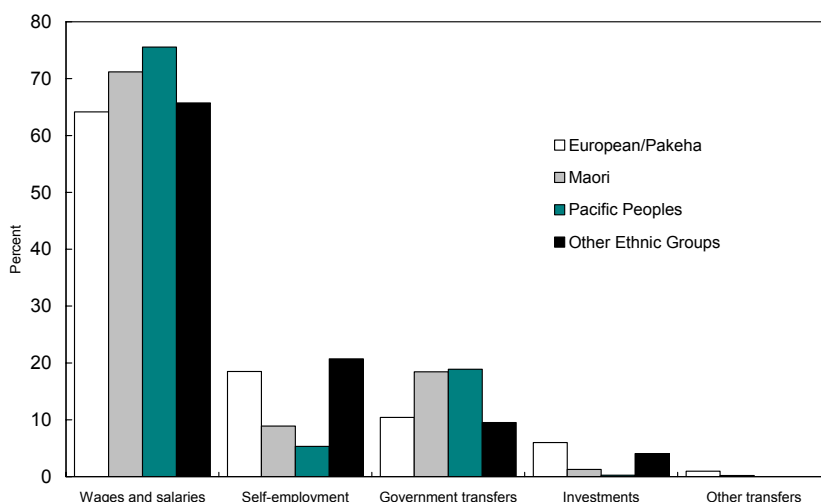
4.4.2 Incomes and the build-up of assets

In the model, net worth is added to by income from different assets. Figure 13 shows four types of assets:

- deposits with banks and other financial institutions, returning interest income
- property, returning rent (actual or imputed) and capital gain
- business interests, returning dividends and capital gains.
- human capital², returning wages.³

In this report we do not model the asset portfolio split. Pacific peoples’ home ownership is low and income from self-employment or investments very low. Wages and salaries are the dominant source of income (Figure 14).

Figure 14 Sources of incomes



Source: Statistics NZ

Instead the model accumulates net worth through saving at each period and a generic rate of return on the net stock of wealth at each period. We assume

² Wage rates are a function of individuals’ human capital. The Treasury (2001a) defined human capital as “acquired human capabilities, which are durable traits, yielding some positive effects upon performance in socially valued activities”. It is acquired through a range of processes, in a variety of settings (family, school, firms and the community).

³ An extension of the model would be to separate out social capital. This can be defined as a community’s collection of skills, community networks, values and norms, and other institutions that not only contribute directly to well-being but also influence the output of goods and services (Treasury 2001b).

a real rate of return of 4.5 percent.⁴ This is the 15 year CPI-adjusted average rate on six month bank deposits.⁵

There are striking similarities in the large differences in net worth and the asset portfolio composition between Pacific people and European/Pakeha and that of White and African Americans (see Gittleman 2000). In the case of the United States, much of the differences appear to be attributable to differences in ethnic age structures, as well as incomes (noting also that saving rates increase with income). This concords with New Zealand research.

In the US research, low home-ownership among African-Americans was linked to a lack of collateral to invest in education, and business for example. Similar reasons may hold for Pacific people. In New Zealand, there may also be cultural (structural) reasons why wages and salaries are the dominant source of income. For example, the expert group convened for this study provided anecdotes about Pacific business-owners being expected to gift stock or services, and Pacific owners of rental property being expected to let at concessional rates to members of the family or community. These in-kind gift practices reduce profitability but also may put the whole asset at risk. Salaried employment does not do away with the practice of gifting, but does not always pose the same risk. (The implications of gifting – and remittances – for the wealth of Pacific people living in New Zealand is discussed further below.).

We have not modelled changes in asset holdings over time. But some of these ‘structural’ reasons might be expected to fade with interethnic marriage and integration. For example, Callister, Didham & Potter (2005) show a relatively high propensity of interethnic partnerships for Pacific people and some evidence that future generations are more likely to form interethnic partnerships. 78 percent of Pacific males aged 45+ have a partner of the same ethnicity, but this is 52 percent for males aged 15-24. For Pacific females this is 75 percent and 68 percent respectively. This ‘out-marriage’ is more common amongst those Pacific people with higher qualifications, and those born in New Zealand.

However, Callister and Didham (2007) also find that ethnic intermarriage is associated with levels of education. If partners tend to match on education levels, and if people with low levels of education are less likely to get married (and are overrepresented as sole parents which makes savings difficult), then this would hinder the speed of convergence.

⁴ Note that all our data and calculations are gross (before tax). The model does not include a government sector, with taxes and transfers. This simplification is appropriate at the population level. It does assume there are no net transfers between the ethnic groups.

⁵ Arguments can be made for using higher or lower real rates of return. The choice affects the ultimate level of net worth at the end of the simulation period, but it does not alter the broad pattern or conclusions.

In principle, there is also a loop back between net worth and education. Increases in net worth enable larger investments in education (such as private schooling, after-school tutoring, and tertiary education). Hence, some of the poorer educational achievement of Pacific children might be linked back to both the low starting level of wealth assumed for overseas born Pacific people in New Zealand, and its slow build-up due the relatively low incomes and savings. The student loan scheme would overcome such disadvantages post-school, but not during (pre-) school years. For simplicity, we have not included such a feedback loop in the model.

4.4.3 Consumption and remittances

In the model, the savings rate is treated as the remainder of current income after consumption and after remittances and gifting. The issue of the role of remittances and gifting in Pacific societies – whether and to what extent they constitute forms of consumption or forms of savings – is both complex and delicate.

There are two reasons why the savings rate might be lower for Pacific people. First, people on lower incomes consume a larger proportion of their income, and may save very little and possibly dissave. Second, Pacific people allocate a portion of their incomes to remittances and church donations. The assumption is that these are *additional* calls on incomes not faced by other ethnic groups (rather than simply *different* ways of consuming, insuring, gifting, and saving). This is of course open to debate.

The permanent income hypothesis suggests that people will smooth their consumption over their life-time. Given the usual income profile over a person's lifetime, younger and older age groups would consume more than their current income (and thus run down the stock of wealth). Middle age groups save and add to the stock of wealth.

In this model, we assume a single average propensity to save (or consume) from current income. A more sophisticated model would have age-specific 'propensities to consume', and allow assets to build up and run down over a life time. Alternatively, this propensity to consume could be a function of the dependency ratio (the ratio of total to working age population). This would be useful to factor in any effect of an ageing population, say, on the rate of asset growth. In this report, we have stuck with a simple population-based consumption-savings model, where the working age population generates the income for society to consume (via intra-family or tax-based transfers).

When modelling the total population we set total consumption equal to 90 percent of total income in any period. In addition we assume some gifting and remitting of income – the rate set arbitrarily at 2 percent. This implies a saving rate of 8 percent of disposable income. Data from the Household

Income and Outlay account suggest that households have been dissaving since the mid 1990s, at a rate of -15 percent in 2005 (Bollard et al. 2006). However, households' net worth did increase over that time. Van Zijll de Jong & Scobie (2006) derive a measure of household saving rate from net worth estimates, and find that the long run average annual household savings rate is 12.4 percent of disposable income.

For Pacific people, we assume different consumption and savings patterns, making a much greater allocation to remittances and church gifting. We assume as a starting point that on average Pacific people remit and gift 15 percent of their income, based on patterns reported in the literature (see below). We also assume that Pacific people consume the rest of their income (apart from an arbitrary 1 percent of total income).

There was considerable debate in the Pacific expert group, convened to advise on this project, about how remittances and gifting should be viewed. Are they the equivalent of current consumption (whether it is to support family or community members in New Zealand or in the islands or paying for goods sent from the islands) or do they in fact constitute a form of saving (as they build individual and communal assets not captured by financial and physical measures)?

The Pacific expert group provided a number of anecdotes to illustrate the different ways in which it was possible to view the redistribution of money in at least some of the Pacific communities. There was the example of the woman who had made no savings whatsoever in the traditional Palagi sense, but who had devoted all her spare income to buying gifts – food, appliances, clothes, furniture – for her relations. Now, at 80, she was able to move from family to family, and to be looked after by them in exactly the way that she wished. One perspective (simplifying no doubt complicated motives and customs) is that she had been effectively saving for her retirement by making these gifts all her life.

There was also a conversation about how money given to the Church could be regarded as either saving or consumption. Some suggested that gifting to the Church was a form of redistribution. Others thought that it contributed to the resources of the community, and built up an asset from which in future the relevant community would draw a variety of benefits including material ones. That, at least to some extent, could thus be seen as a form of savings.

There are also forms of savings which do not show up in the statistics. Some Pasifika people, for example, use rotating credit systems, whereby a small number of people set aside a convenient monthly sum to create a kitty from which members of the group can borrow.

Remittances sent outside New Zealand could be regarded as providing immediate (consumption) benefits (like fine mats, ceremonial assistance,

and produce), but also as securing future benefits (including and associated with your right to return, your status in your home village and your right to share in the ownership of land and resources) which are more like savings. Remittances might also constitute the recognition of family or wider community support for education (and so be akin to repaying a student loan for the investment in human capital).

McKenzie (2006) lists the following motivations for remitting:

- to raise living standards of family in the islands, for daily grocery needs and minor church, school and family obligations (80-85 percent of remitters identify this purpose), or following a crisis or natural disaster
- for church donations
- as a repayment to the family, e.g., for financing the migrant's education
- to maintain an interest in land or family assets, or build prestige and other social assets in the home country (e.g., payments for weddings and funerals and other 'social uses')⁶
- as a way to build up savings to be available upon return (in which case there would be higher remittances in the years immediately before return)
- as payment for goods and services imported and sold in the host country
- as an investment into commercial interests in the home country (corner stores, taxis, fishing)—less so in the 1980s but more so since.

Motivations appear to differ between ethnic groups. Connell & Brown (2005) note: "In Tonga regular donations are expected from and allocated to church members and substantial donations bring considerable respect and status." A series of remittance targets were identified in the Samoan community (repaying family loans, building a family house, weddings and funerals, and bestowing chiefly titles). Overall, though:

- about 85 percent of Pacific people send remittances overseas⁷
- remittances are in the order of 5-13 percent of disposable income (Connell & Brown 2005)
- 2/3rds of Pacific women interviewed made donations to the church through tithing 10 percent of their income or an annual offering (Koloto & Sharma 2005)
- gifting and other forms of assistance can be extensive, and for a range of anticipated and unanticipated life events

⁶ Connell & Brown (2004) found that of Tongans and Samoans in Sydney and Brisbane 30% of the heads of the household owned land and 39% owned non-land assets in their country of origin.

⁷ Koloto & Sharma (2005) found in interviews with 230 Pacific women in New Zealand that 86% made economic contributions to family members in Pacific nations. McKenzie (2006) reports that 80% of migrants expect to remit money in the year ahead, and Connell & Brown (2004) report that 83% of Tongan and Samoan families in Sydney and Brisbane remitted in the preceding year.

- there is some evidence that remittances increase with income, with an income elasticity of 0.6 (Simati & Gibson 2001).

Remittances (and gifting) may decay as the bonds with the Pacific islands and the church loosen, and consecutive Pacific cohorts brought up in New Zealand are exposed to different practices and social support systems. Affiliation with a religion is high among Pacific people, but the affiliation increases with age, and is also higher among overseas-born Pacific than New Zealand born Pacific, hinting at remittance decay.

There is mixed evidence of remittance decay. With the benefit of a larger sample than other similar studies, Connell & Brown (2004) did not find a statistically significant decline in remittances linked to duration of absence. Variables that did impact on remittances were: income, hosting a visitor from home, intent to return, ownership of assets in the host and home country, and surviving parents or spouse in the home country. Some of these are correlated with duration of absence.

Two things are clear. The first is that in conventional terms, the effect of remittances and gifting is to lower conventional measures of savings and net worth of Pacific people in New Zealand compared to the rest of the population. The second is that alternative interpretations of the role of remittances and gifting would alter the perception of the economic performance of Pacific people.

Given the difficulty in resolving whether remittances and gifting are mainly consumption or mainly saving, and the extent of remittance decay, we consider the implications of different assumptions in our scenarios.

5. Data

In this section we briefly describe the data series that underpin the model.

5.1 Demographics

Population projections are based on Statistics New Zealand's "Projected Ethnic Populations of Regional Councils: Medium Series" and "Projected Pacific Population by Age and Population Change of Regional Councils: Medium Series". Immigration projections are based on the population projections, and assumed net annual inflows flows are:

- Pacific: 2500
- All groups: 5000

Birth rates come from the "Age specific Fertility Rates by Ethnicity 2000-2002". For this model we converted the age specific fertility rates into an all-age groups fertility rate. This yields:

- Pacific: 0.102 live births per woman aged 15-44
- All groups: 0.065 live births per woman aged 15-44.

The New Zealand Census Mortality Study shows:

- Pacific: 14 years of life expectancy at age 65
- non-Pacific: 18 years of life expectancy at age 65.
- Population projections

Below follow the results from the projections out to 2101.

Table 5 Population projections used in the model

	Pacific	Total
2001	232,000	3,587,000
2021	409,000	4,107,000
2041	635,000	4,435,000
2061	920,000	4,665,000
2081	1,288,000	48,50,000
2101	1,768,000	5,016,000

Source: NZIER projections

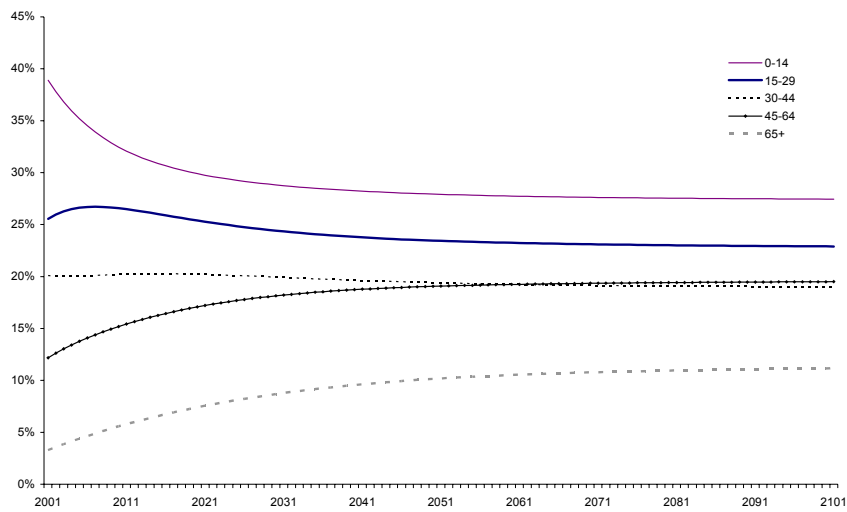
The projections are unconstrained; that is, birth, death and migration rates are constant over time, and there is no change in ethnic intermingling that

may systematically alter self-reported ethnicity. Despite the obvious weaknesses, the projections suit the purpose of this paper.

The following three charts show how the age shares in the population change. Age distribution is one of the key elements driving the model (the other being the assumption about skill and wage levels for New Zealand born Pacific people entering the workforce in this model).

Figure 15 shows the effect of the large 0-14 cohort shifting into the older age groups over the next 20 years. It also indicates the gradual ageing of the Pacific population over time.

Figure 15 Ages shares – Pacific

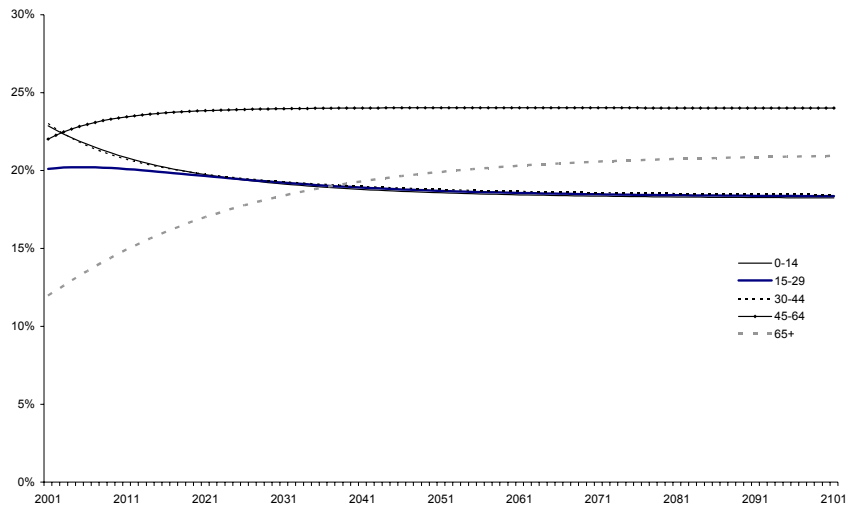


Source: NZIER

Ageing is also prominent in the total population (Figure 16).

The most significant feature of these two charts is that the share of the 15-29 age group in the Pacific population remains about 5 percentage points higher than that share for the total population. The Pacific median age remains significantly lower. This is important given the relationship between age, wages and wealth.

Figure 16 Ages shares - all

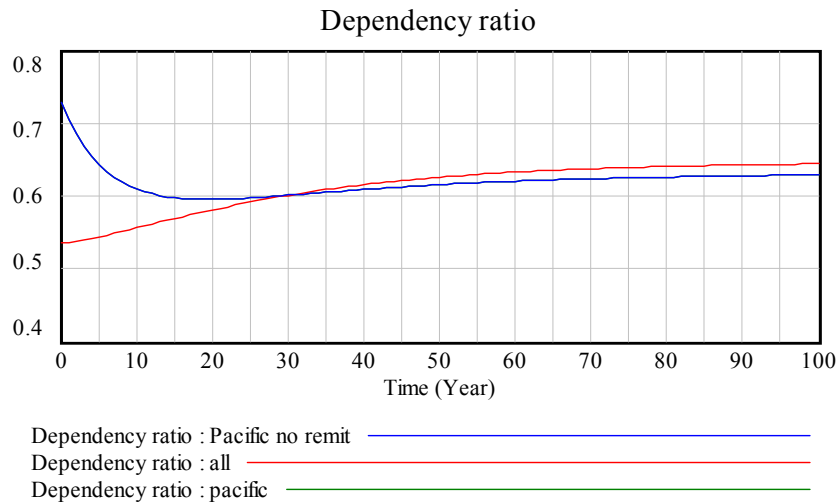


Source: NZIER

The dependency ratio for the Pacific population falls from 73 percent to eventually settle at 62 percent, compared to a rise from 53 percent to 64 percent for the total population.⁸

Figure 17 Dependency ratios

Non-working age population/working age population



Source: NZIER

⁸ The total population dependency ratio is somewhat lower than that currently projected by Statistics New Zealand (eg see Statistics New Zealand 2006). This is a function of different population series being used.

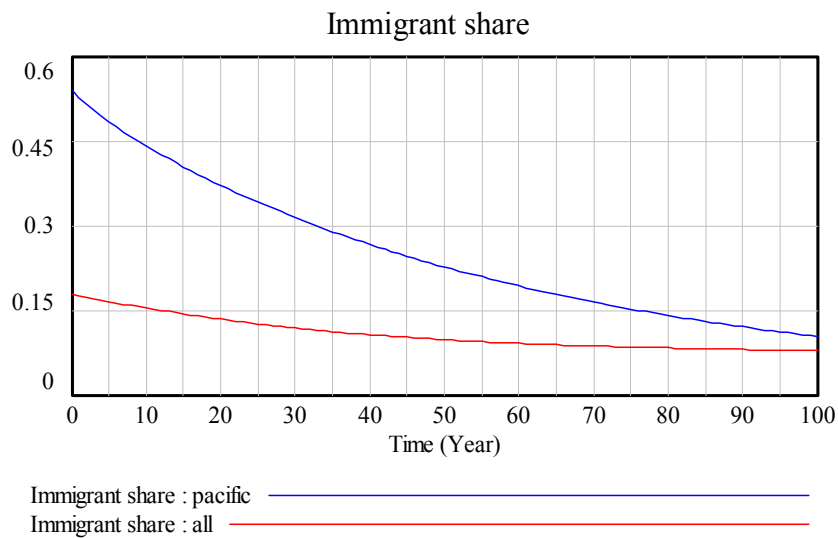
Table 6 Age group shares to total population

	0-14	15-29	30-44	45-64	65+
Pacific 2001	39%	26%	20%	12%	3%
Pacific 2051	28%	23%	19%	19%	10%
Pacific 2101	27%	23%	19%	20%	11%
Total 2001	23%	20%	23%	22%	12%
Total 2051	19%	19%	19%	24%	20%
Total 2101	18%	18%	18%	24%	21%

Source: NZIER

The model also shows how the proportion of Pacific people in the workforce that are born overseas will fall, from around 54 percent in 2001 to 37 percent in 2021, and 10 percent in 2101. The proportion converges to that of the total workforce. This pattern is significant given the relationship between immigrant status and skills and wages.

Figure 18 Immigrant share of the workforce



Source: NZIER

5.2 Labour force data

The model divides the labour force into high and low skilled workers. We follow the approach used by the Department of Labour to assign labour to skill categories. High skilled and skilled occupations as in the HLFS are combined as high skilled, and the remainder as low skilled:

- High-skilled: Legislators, Administrators and Managers; Professionals
- Skilled: Technicians and Associate Professionals; Trade Workers
- Semi-skilled: Clerks; Service and Sales Workers; Agriculture and Fisheries Workers; Plant and Machine Operators
- Low-skilled: Elementary Occupations.

The Pacific skill breakdown is taken from “Labour Market Outcomes” publication (Department of Labour) which in turn draws from the HLFS. (Ref: <http://www.dol.govt.nz/publications/lmr/lmr-pacific-outcomes.asp>).

Mean personal incomes by age, occupation, and ethnicity from Census 2001 were provided by Statistics New Zealand.

Table 7 Resident mean personal annual income

Census 2001

		Other ethnic groups	Pacific people
High skill	15 - 29 Years	29,782	25,278
	30 - 44 Years	45,348	35,804
	45 - 64 Years	46,755	34,197
	65 Years and Over	36,952	28,667
	Average	42,618	31,818
Low skill	15 - 29 Years	16,227	16,797
	30 - 44 Years	28,331	23,358
	45 - 64 Years	28,131	22,702
	65 Years and Over	23,830	15,578
	Average	24,415	20,595

Source: Statistics New Zealand, NZIER calculations

The labour force participation and unemployment rates used in the model are based on the HLFS. Pacific people of working age are assumed to have a labour force participation rate of 61 percent and an unemployment rate of 9.7 percent, compared to 66 percent and 4.6 percent for the total working age population.

6. Scenarios

In this section we take the insights from the literature and some basic demographic and labour market statistics to explore the hypothesis that over time incomes and net worth of Pacific people would converge to that of non-Pacific people.

We consider a small number of scenarios. The scenarios help to test the sensitivity of results to our assumptions – often based on our own judgements – but also serve as broad-brush assessment of potential interventions.

We initially consider four main scenarios:

- incomes:
 - persistent Pacific immigrant disadvantage in the labour market
 - quick immigrant adjustment
- net worth:
 - low savings rate (high remittances and gifting, which are treated as consumption)
 - high saving rate (either due to remittance decay or because remittances and gifting are best treated as investments).

These four scenarios can be considered broadly as upper and lower bound projections.

In addition we discuss briefly the effects of:

- an intervention that raises labour force participation and reduces unemployment
- a drastic change to the rate of immigration (such as a time-limited halving or doubling of permanent long term immigration)
- a policy that has the effect of changing the birth rate (for example by raising the opportunity cost of childrearing)

Other scenarios that could be considered with further work include: shifting the life expectancy and health life expectancy to that of the total population between now and 2021, changing rules on portability of New Zealand superannuation, and the introduction of Kiwisaver, for example.

6.1 Scenario One: immigrant disadvantage

This scenario starts from the findings in the literature that immigrants from the Asia-Pacific experience a wage penalty, which erodes only slowly for low-skilled non-English speaking immigrants. We assume that:

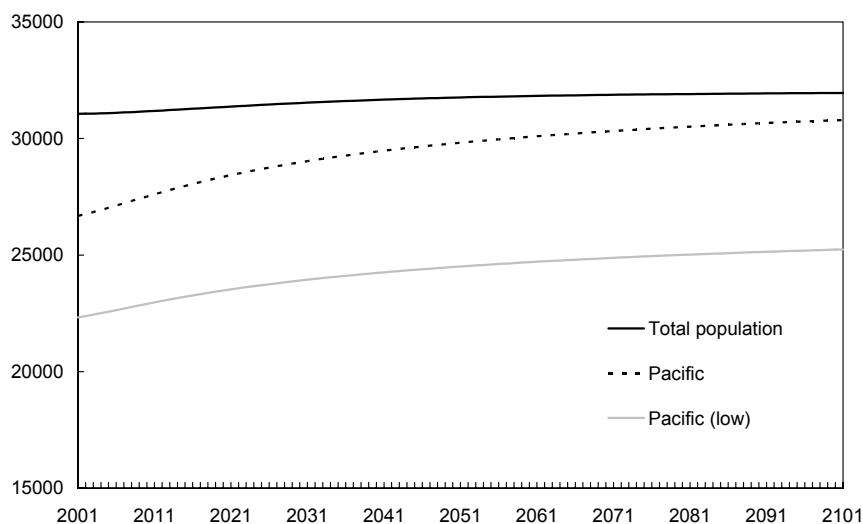
- the proportion of working age immigrants with high skills is 70 percent of the proportion of the New Zealand born working age people. This is an attempt to reflect that Pacific immigrants are lower skilled or have trouble having overseas qualifications and experiences recognised
- immigrants start on an income that is 70 percent of New Zealand born workers for each given age and skill level. This discount reflects the often high (but decaying) immigrant wage penalty found in the literature.

We run this scenario with two different assumptions about the wages received by Pacific people born in New Zealand (see Table 5, which shows the average mean personal incomes of Pacific people regardless of their birthplace). The possibilities are:

- New Zealand born Pacific people get the same wages as other New Zealand born workers, *ceteris paribus*. That is, there is no ethnic wage penalty *per se*. This would overestimate incomes of Pacific people
- New Zealand born Pacific people receive the actual average wages received by all Pacific people. This is likely to be an underestimate

Figure 19 shows that under this scenario Pacific annual real wages per employed would converge to that for the total population.

Figure 19 Annual real wage income per employed



Source: NZIER

However, wages would never fully converge over a 100 year period because of:

- the continued younger age structure
- the continued higher immigrant share.

The detailed results from these broad-brush projections are of only limited value. However, we present them for completeness. If New Zealand born Pacific people receive the same incomes as other New Zealand born workers, then the Pacific average real wages would move from 86 percent of that of the total to 91 percent in 2021, and 96 percent in 2080.

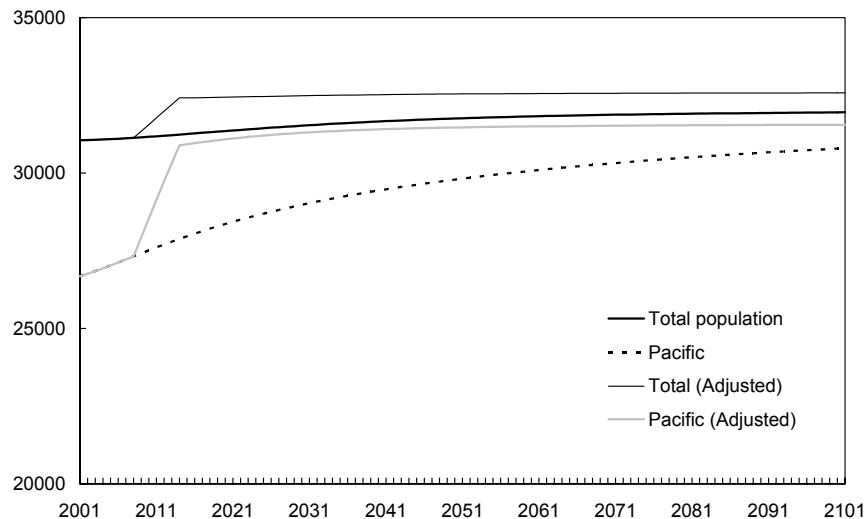
If New Zealand born Pacific people receive the actual average wages received by all Pacific people (Table 7), the Pacific income would be 72 percent of the total in 2001, rising to 75 percent in 2021, and 79 percent in 2085.

6.2 Scenario Two: immigrant adjustment

Another scenario assumes that the immigrant disadvantage is overstated, or that there are policies available that could remove these disadvantages. Such policies might focus on initial migrant selection or on their rapid acculturation or adjustment.

Figure 20 Effect of migrant adjustment policy

Real average wage income per annum



Source: NZIER

For this scenario we assume the introduction of an acculturation or adjustment policy that removes the disadvantages of Scenario One over a period of six years, say. The effect of such a policy is shown in Figure 20. We show the results if the hypothetical policy were applied to Pacific migrants only, as well as to all migrants.

The policy starts in 2008 and is fully effective in 2014. This would mean that in 2014 Pacific people's average incomes were 99 percent that of the total population, instead of 89 percent. If the acculturation policy was also applied to non-Pacific migrants, Pacific average incomes would still converge faster than under Scenario One, but reach 95 percent in 2014.

6.3 Scenario Three: low saving

In Sections 4.4.2 and 4.4.3 we set out data on net worth by ethnicity, as well as the unresolved discussion about remittances and gifting as either consumption or saving, and the issue of remittance decay.

In this third scenario, we assume that there is a low savings rate. That is, the assumption is that remittances and gifting are equivalent to present-day consumption.⁹

The parameters used for the projections are as follows:

- initial real net worth of \$193,000 per working age population for the total population and \$38,500 for the Pacific population¹⁰
- a real rate of return of 4.5 percent (see 4.4.2)¹¹
- the propensity to consume is set at 0.9 for the total population, and 0.84 for Pacific people
- remittances and donations are set at 2 percent for the total population and 15 percent for Pacific. This means that Pacific people save 1 percent of their income and the total population saves 8 percent
- incomes as under Scenario One.

A higher starting point and higher savings rate mean that net worth for the total population continues to grow, with the assistance of compounding interest (Figure 21). The real net worth per working age person for the total population grows from \$193,000 now to \$218,000 in 2021 and \$383,000 in 2101.

The total wealth held by Pacific people also grows. But in the model wealth per working age Pacific person reduces from \$38,500 at the start of the model, to \$22,000 in 2021, before stabilising at \$12,000 toward the end of the century. The gap in average net worth between Pacific and the total population would thus grow. This is because Pacific population growth exceeds the increments to wealth from savings. The model could be

⁹ In this scenario remittances and donations are transfers from earners to parents and communities, or payments for goods and services imported from the islands or 'purchased' from the church.

¹⁰ This is an estimate based on \$160,000 per person over 18 for the total population and \$36,000 for Pacific people aged 18+, as outlined in section 2.5. On a per capita basis this is broadly equivalent to \$112,000 and \$18,500 respectively.

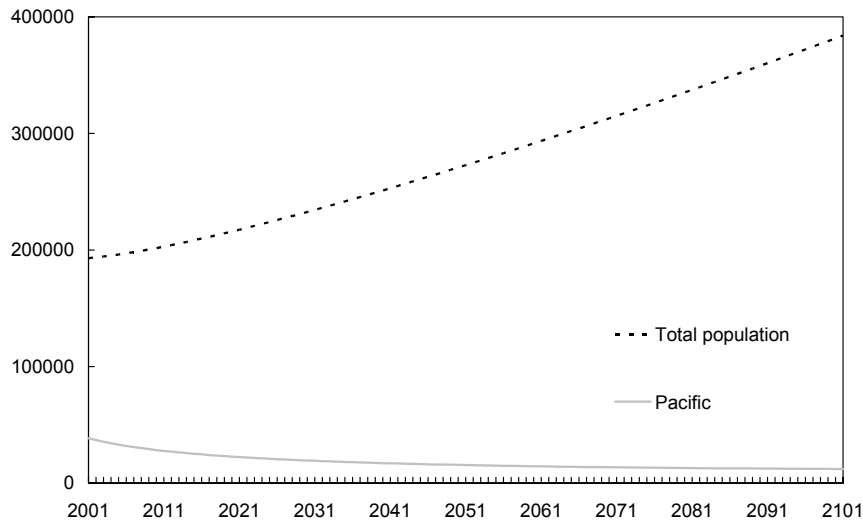
¹¹ Varying this assumption makes only a minor impact on the main results.

improved with age-specific starting levels of wealth and saving rates. It is unclear how this would change the picture of a persisting large wealth gap.

As an aside, an improvement in Pacific life expectancy (to converge to that of the general population) would put downward pressure on wealth per capita (*ceteris paribus*).

Figure 21 Real net worth (remittances 15%)

Net worth per working age person



Source: NZIER

6.4 Scenario Four: high saving

The final scenario considered in this paper involves a drastic reduction in remittances and gifting. This scenario can be thought of alternatively as testing two ideas:

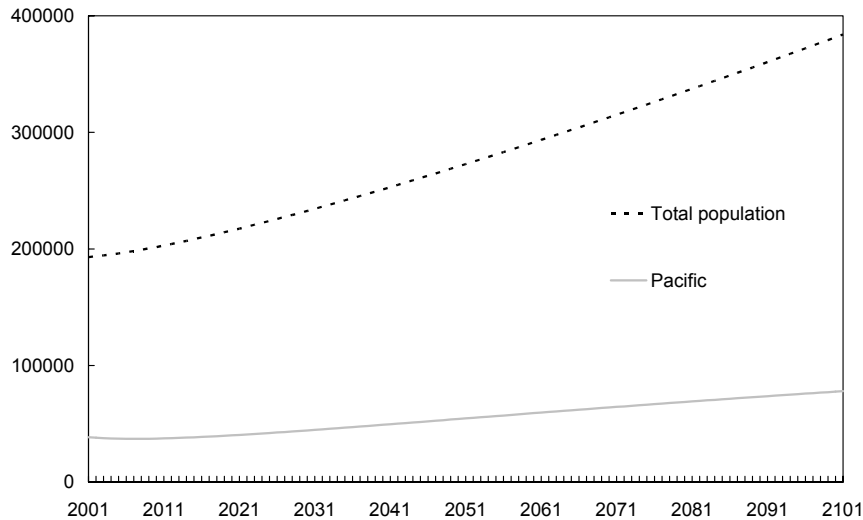
- remittances and gifting are simply alternative ways of saving/consuming (which happen to flow out of the country) rather than an additional ‘cost’ faced only by Pacific people
- gradually loosening bonds with the islands and aspects of Pacific culture means that there will be remittance decay (shown here in the extreme and immediate form).

To do this, we set the remittances and donations by Pacific equal to that of the total population – we assumed 2 percent instead of 15 percent. The remaining 13 percent is split between consumption (+5 percent) and saving (8 percent).

Figure 22 shows the results. Net worth per Pacific working age person would build up to \$40,000 in 2021, and \$78,000 in 2101, compared to the total population figure of \$383,000. The net worth gap would remain largely constant over the period.

Figure 22 Real net worth (remittances 2%)

Net worth per working age person



Source: NZIER

6.5 Other scenarios

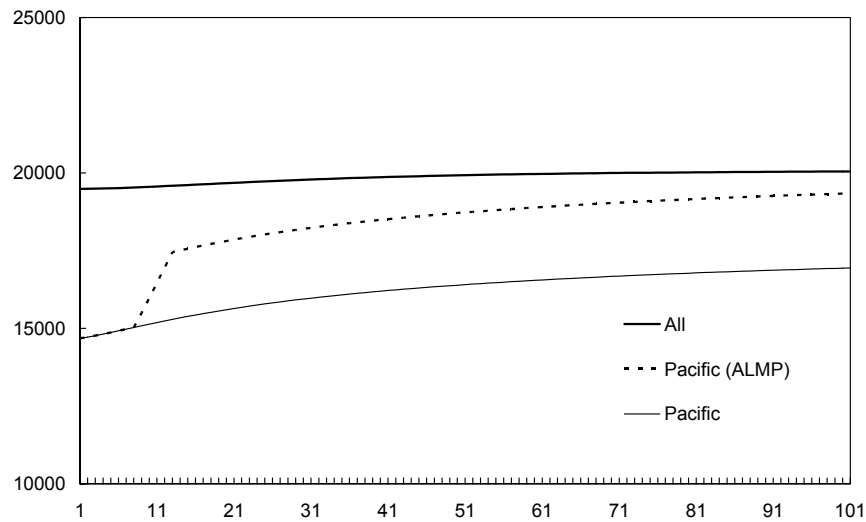
a) Labour market policy

Underlying the above scenarios is the assumption that Pacific people of working age have a labour force participation rate of 61 percent and an unemployment rate of 9.7 percent, compared to 66 percent and 4.6 percent for the total working age population. We could thus consider the effect of a hypothetical policy that brings Pacific rates to that of the total population, keeping all else constant. The policy is assumed to start in year 7 and reached full potential from year 12.

The impact is shown in Figure 23 in terms of income per head of working age. Once fully worked through it would raise income per Pacific working age person by 14 percent. This would mean the average ethnic income gap per person of working age would reduce from 21 percent in the year 2021 to 9 percent.

Figure 23 Labour market policies

Real wage wage income per person of working age



Source: NZIER

We also looked at the effect of the migrant adjustment (Scenario Two) and labour market policies together. These together would have the effect of converging incomes. The effect on wealth is negligible, which is no surprise given our assumption that there is virtual no saving by the Pacific population.

The model applies the same ‘policy effect’ to all Pacific people of working age. It would be easy to apply the effect to just one age group – such as those aged 45-64. And while we have termed this a labour market policy, it can also be portrayed as a health intervention, say, that raises the healthy life expectancy for that group and so allows a higher rate of labour force participation or employment.

b) Temporary changes in Pacific migration

The analysis draws attention to the impact of the share of overseas-born Pacific people on income inequality. This raises the question what would happen if there were sudden shocks in the migration trend. We have modelled this by assuming that at year 10 trend migration by Pacific working age people (a) reduces to zero and (b) is twice as high for five years.

The effect is that, at the end of the five year period, the migrant share of the Pacific population is 5 percent below (above) the share in the base model. It would then take another 40 years to converge to trend. This would change the wage income per employed Pacific person by +/- 1 percentage point.

c) A fall in the Pacific birth rate

A final scenario looked at was to set the Pacific birth-rate to that of the total population. The reduced number of births have the effect of reducing the long run dependency ratio (by some 10 percentage points), holding up the share of overseas born Pacific people in the long run. It has a positive effect on the wealth per capita. The downward effect on per capita wage incomes of a higher migrant share is offset by a reduced working age population so that there is no impact on incomes.

7. Conclusions and implications

7.1 Key insights for policy

The modelling started out with the observation that the demographic structure and the high immigrant share was an important part of the explanation of differences in average levels of incomes and net worth between Pacific and non-Pacific people in New Zealand.

The hypothesis was that measures of incomes and wealth would converge over time. The scenarios presented here find some support for a degree of convergence of Pacific people's income to that of the total population. However, this made some rather strong assumptions about skills and incomes of New Zealand born Pacific people.

A key finding is that even with strong assumptions, incomes will only converge a few percentage points over the next 15 years. This is due to the continued difference in age structure and the high proportion of immigrants.

The scenarios do not show support for a significant convergence in net worth, despite the slow convergence of incomes. Wealth does not look to converge; while assumptions about remittances and the rate of saving have a significant impact, even if savings rates were to be equalised a large gap in net worth remains. This is due to the differences in incomes, but particularly the uneven starting points in the levels of net worth.

The implied continued low average levels of net worth for Pacific people have important implications for progress in other areas of Government policy, such as home-ownership and entrepreneurialism, and the investment opportunities that wealth accumulation affords. If remittances and gifting are primarily a different form of saving, then these assets (whether owned by individuals or Pacific communities) have a value too. It would thus be interesting to impute the net worth of these assets and see the extent to which that would alter the outlook and policy implications.

Returning to incomes, the high ratio of Pacific immigrants to the total Pacific population in New Zealand has an important effect on income inequalities. The scenarios point to the potential of policies that might be able to eliminate the 'migrant wage penalty'. However, the data on ESOL participation suggest that integration policies may need to look beyond recent migrants (either that, or ESOL is not particularly well-targeted).

Next, and possibly related, are policies that encourage labour force participation and reduce unemployment. These could be labour market policies (skills, incentives, childcare), or other types of policies that may address participation barriers (such as health promotion, treatment for

injuries and chronic diseases and disability support). Prescription would require a deeper look at participation and employment ‘barriers’.

The results suggest the importance of starting sooner rather than later with effective policies that can reduce sources of wage and employment gaps.

7.2 Caveats

The model described in this paper should be regarded as a prototype. Its main value comes from being able to present some broad brushstroke trends, and drawing attention to variables that matter most.

The model itself is primarily an (unconstrained) ageing chain. It does not incorporate some of the feedback loops suggested in Figure 12, for example. Variables of interest that would have been affected by feedback loops are varied exogenously. In this sense, the model creates upper and lower bounds for Pacific incomes and wealth over time. The model also relies strongly on assumptions drawn from the literature, and a range of data sources. These obvious weaknesses should provide fertile grounds for further research.

8. References

- Anae M., H. Anderson, J. Benseman, E. Coxon. 2002. *Pacific Peoples and Tertiary Education: Issues of Participation*. Auckland Uniservices Ltd. Report for Ministry of Education
- Bedford R. 2004. "International Migration, Identity, and Development in Oceania: A synthesis of ideas." Massey D & JE Taylor (eds.). *International Migration: Prospects and Policies in a Global Market*. Oxford University Press: Oxford
- Bertram G. 1999. "Economy", Moshe Rapoport (ed.). *The Pacific Islands: Economy and Society*. Bess Press: Hawaii
- Callister P., R. Didham, D. Potter. 2005. *Ethnic Inter-marriage in New Zealand*. Statistics New Zealand Working Paper
- Callister P., R. Didham, 2007. *Some emerging demographic features of the Pacific population in New Zealand*. Paper prepared for the Pasifika Project Conference
- Card D. 2005. "Is the new immigration really so bad?" *The Economic Journal* 115
- Connell J & R Brown. 2004. "The remittances of migrant Tongan and Samoan Nurses from Australia" *Human Resources for Health* 2:2
- Connell J & R Brown. 2005. Remittances in the Pacific: an overview. Asian Development Bank at www.adb.org
- Cook L, R Didham, M Khawaja. 1999. *On the demography of Pacific People in New Zealand*. Statistics New Zealand: Wellington
- Cook L. 1999. Society Issues. Presentation to Pacific Vision International Conference. at www.minpac.govt.nz
- Dasgupta P. 2005. "The Economics of Social Capital". *The Economic Record* Vol 81
- Fletcher M. 1995. "Pacific Islands People in the Labour Market". *Labour Market Bulletin*. 1995: 124-136
- Fletcher M. 1999. *Migrant Settlement: a review of the literature and its relevance to New Zealand*. Department of Labour
- Gibson J. 2000. Sheepskin Effects in the Returns to Education in New Zealand: Do they differ by ethnic group. *New Zealand Economic Papers*. Vol. 34

Gibson J. 2006. *Migration, Income and Health: Evidence from a Natural Experiment*. Paper for the Trevor Swan Distinguished Lectures in Economics. Australian National University

Gittleman M. 2000. *Racial Wealth Disparities: Is the gap closing?* Working paper 311. Bureau of Labor Statistics. New York University

Hattie J. 2003. *New Zealand Education Snapshot*. Paper for Knowledge Wave Conference 2003 The Leadership Forum. At www.knowledgewave.org.nz/forum_2003/speeches

Helliwell J.F. 2006. "Well-being, social capital and public policy: what's new?" *The Economic Journal* 116

Humphris J & S Chapple. 2002. "An Analysis of Disparity between Pacific and non-Pacific People's Labour Market Outcomes in the Household Labour Force Survey". *Labour Market Bulletin* 2000-02 Special Issue: 172-193

Jensen J, V Krishnan, R Hodgson, S Sathiyandra, R Templeton, D Jones, R Goldstein-Hawes, P Beynon. 2006. *New Zealand Living Standards 2004*. Centre for Social Research and Evaluation, Ministry of Social Development: Wellington

Koloto A & S Sharma. 2005. *Pasifika Women's Economic Well-being Study. Final Report*. Prepared for the Ministry of Women's Affairs. Koloto & Associates

Layard R. 2006. "Happiness and Public Policy: A challenge to the profession" *The Economic Journal* 116

Maani SA. 2000. *Secondary and Tertiary Educational Attainment and Income Levels for Māori and Non-Māori over time*. Treasury Working paper 00/18

McKenzie DJ. 2006. *Remittances in the Pacific*. Paper for 2005-2006 Werner Sichel Lecture Seminar Series. Development Research group, World Bank.

Ministry of Education. 2005. *Pasifika Peoples in New Zealand Education: A Statistical Snapshot 2004*. Ministry of Education

Ministry of Health and Ministry of Pacific Island Affairs. 2004. *Tupu ola Moui. Pacific Health Chart Book 2004*. Ministry of Health: Wellington

Ministry of Health. 2005. *The Health of Pacific peoples*. Ministry of Health: Wellington

Ministry of Social Development (2005) *The Social Report: Te Purongo Oranga Tangata*. July 2005

NZIER. 2005. *Pacific peoples economic outcomes*. Report to the Ministry of Pacific Island Affairs.

Scobie G., J. Gibson, T. Le. 2004. *Savings for retirement: New evidence for New Zealand*. New Zealand Treasury Working Paper, 04/12

Scobie G., J. Gibson, T. Le. 2005. *Household Wealth in New Zealand*. Institute of Policy Studies: Wellington

Simati AM & J Gibson. 2001. "Do remittances decay? Evidence from Tuvaluan migrants in New Zealand". *Pacific Economic Bulletin* 16(1): 55-63

Statistics New Zealand & The Retirement Commission. 2002. *The net worth of New Zealanders. A report on their assets and debts*. Statistics New Zealand: Wellington

Statistics New Zealand & Ministry of Pacific Islands Affairs. 2002. *Pacific Progress: A report on the economic status of Pacific Peoples in New Zealand*. Statistics New Zealand: Wellington

Statistics New Zealand. 2006. *Demographic Aspects of New Zealand's Ageing Population..* Statistics New Zealand: Wellington

The Treasury. 2001. *Reducing Māori and Pacific Inequalities*. New Zealand Treasury Working Paper 01/30

The Treasury. 2001a. *Human capital and the inclusive economy*. New Zealand Treasury Working Paper 01/16

The Treasury. 2001b. "Towards an Inclusive Economy." *New Zealand Treasury Working Paper* 01/15

Winkelmann L & R Winkelmann. 1998. "Immigrants in the New Zealand Labour Market: a Cohort Analysis using 1981, 1986 and 1996 Census Data." *Labour Market Bulletin* 1998: 34-70

Wylie C, H Ferral, E Hodgen, J Thompson. 2006. *Competencies at age 14 and competency development for the Competent Children, Competent Learners study sample*. Ministry of Education: Wellington

Van Zijll de Jong M & G Scobie. 2006. *Housing: an analysis of ownership and investment based on the household savings survey*. Treasury Working Paper 06/07

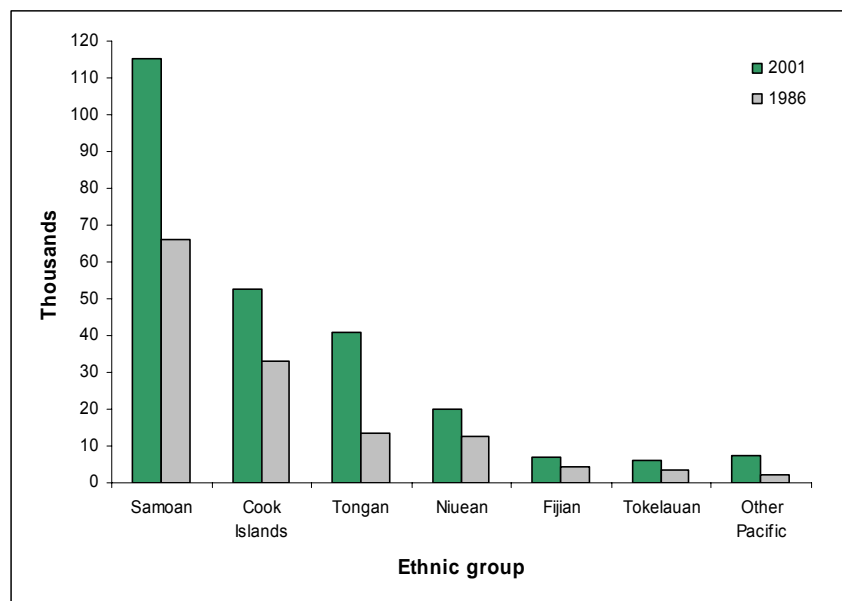
Appendix A Pacific people in New Zealand

This appendix provides additional data for context.

A.1 Pacific ethnic groups

The 232,000 Pacific people in New Zealand make up about 6.5 percent of the population, and comprise six main ethnic groups: Samoan, Cook Islands, Tongan, Niuean, Tokelauan and Fijian, as well as some smaller groups (Figure 24). As at the 2001 Census, Samoans made up almost half the Pacific population.

Figure 24 Pacific ethnic groups in New Zealand



Source: Statistics NZ

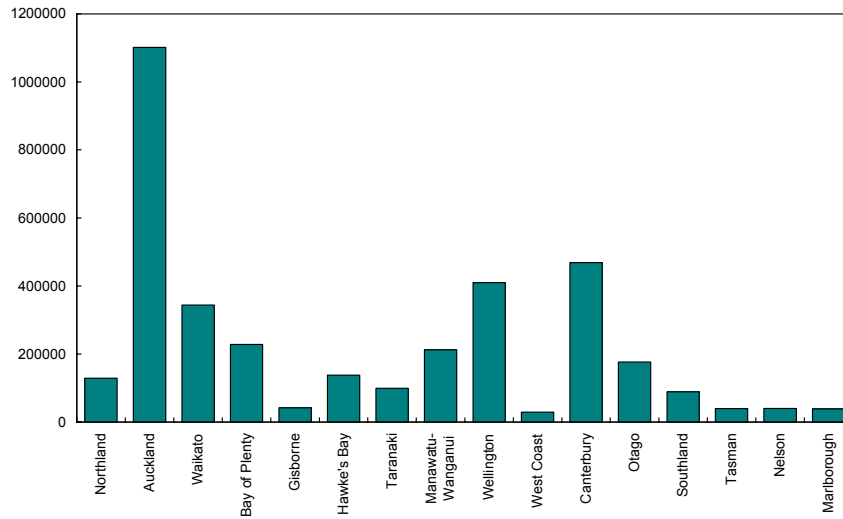
A.2 Location

98 percent of Pacific people lived in urban areas in 2001, with two thirds in the Auckland urban area (Figure 25). This reflects the type of industries in which Pacific people have traditionally worked. A fairly high degree of geographical concentration may contribute to or be a consequence of the strength of social and cultural links within the community.¹²

¹² NZIER. 2003. *Pacific Peoples in New Zealand. Preliminary review of development issues*. Scoping Report to Ministry of Economic Development

Figure 25 Pacific people by regional council, 2001

Number of people

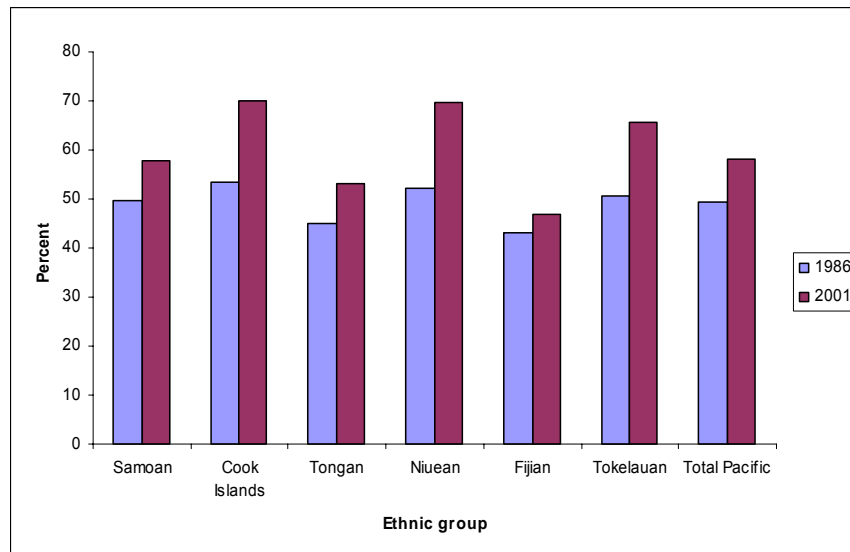


Source: Stats NZ

A.3 Migration by Pacific ethnic group

Figure 26 Proportion New Zealand born Pacific people

Percent of total Pacific people by ethnic group



Source: Stats NZ

A.4 Self employment

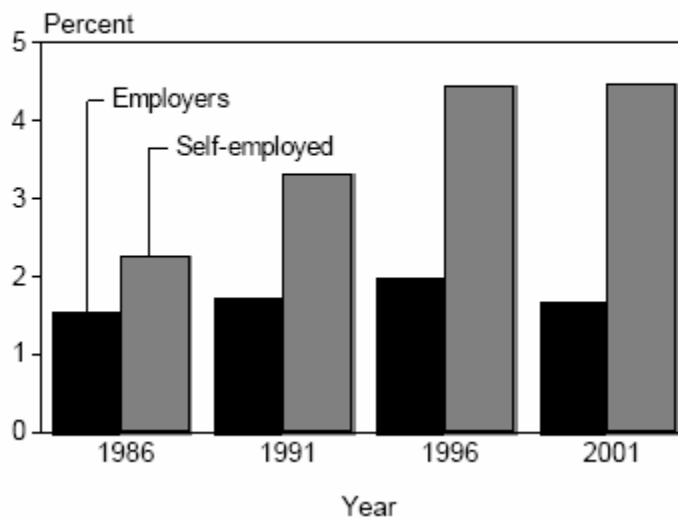
Statistics NZ & Ministry of Pacific Island Affairs (2002) report that between 1976 and 1996 there was a small but steady increase in the proportion of Pacific people who were employers or self-employed.

- the proportion of gainfully employed Pacific people who were employers increased from 1.5 to 1.9 per cent

- the proportion of self-employed without employees doubled from 2.2 percent to 4.4 percent
- employers were more likely than others to be born in New Zealand, while self-employed people were the most likely to have been born overseas.
- despite the increasing numbers of both Pacific employers and self-employed, they are still three times less likely than others to be in these positions
- Pacific businesses are concentrated in the retail, services and manufacturing sectors
- Pacific employers and self-employed are most prominent in the storage and transport industries, and many are taxi and light van drivers. Construction, property and business services, and manufacturing are also popular business choices for Pacific employers and self-employed. (MPIA Briefing to Incoming Minister, 2005, p.31).

Figure 27 Self employment 1986-2001

Proportion of Employed Pacific People Who are Employers or Self-Employed, 1986–2001



Source: Stats NZ 2002 (Pacific Progress)

A.5 Assets

Appendix Table 1 – Mean and median values of current and projected retirement wealth for couples: all age groups: 2001

Current Wealth Quintile	Current Wealth		Projected at Age 65	
	Mean	Median	Mean	Median
1 (= lowest)	245,229	247,404	449,446	453,705
2	338,548	339,017	504,373	506,533
3	451,124	446,786	606,172	598,986
4	637,488	633,408	808,565	787,856
5 (= highest)	1,292,713	1,034,909	1,605,824	1,289,922
Total Sample				
Housing wealth	85,502	36,000	85,502	36,000
Financial wealth	205,187	51,350	258,875	64,492
Pension wealth	26,982	0	37,836	0
Superannuation wealth	275,075	270,414	412,394	408,306
Total wealth	592,747	446,786	794,607	607,687
Ethnic Sub-groups				
<i>Pakeha</i>				
Housing wealth	94,804	52,000	94,804	52,000
Financial wealth	242,035	66,479	305,291	85,374
Pension wealth	31,306	0	43,508	0
Superannuation wealth	279,222	273,918	414,202	410,753
Total wealth	647,367	496,751	857,805	656,124
<i>Māori-Pacific</i>				
Housing wealth	36,256	0	36,256	0
Financial wealth	69,887	8,600	87,927	9,498
Pension wealth	13,966	0	20,839	0
Superannuation wealth	252,955	243,224	396,080	389,914
Total wealth	373,064	301,466	541,101	457,841

Note: All values are weighted to population averages and are in 2001 dollars. Ethnicity of a couple refers to that of the respondent.

(Source: Scobie et al, 2004, p33).

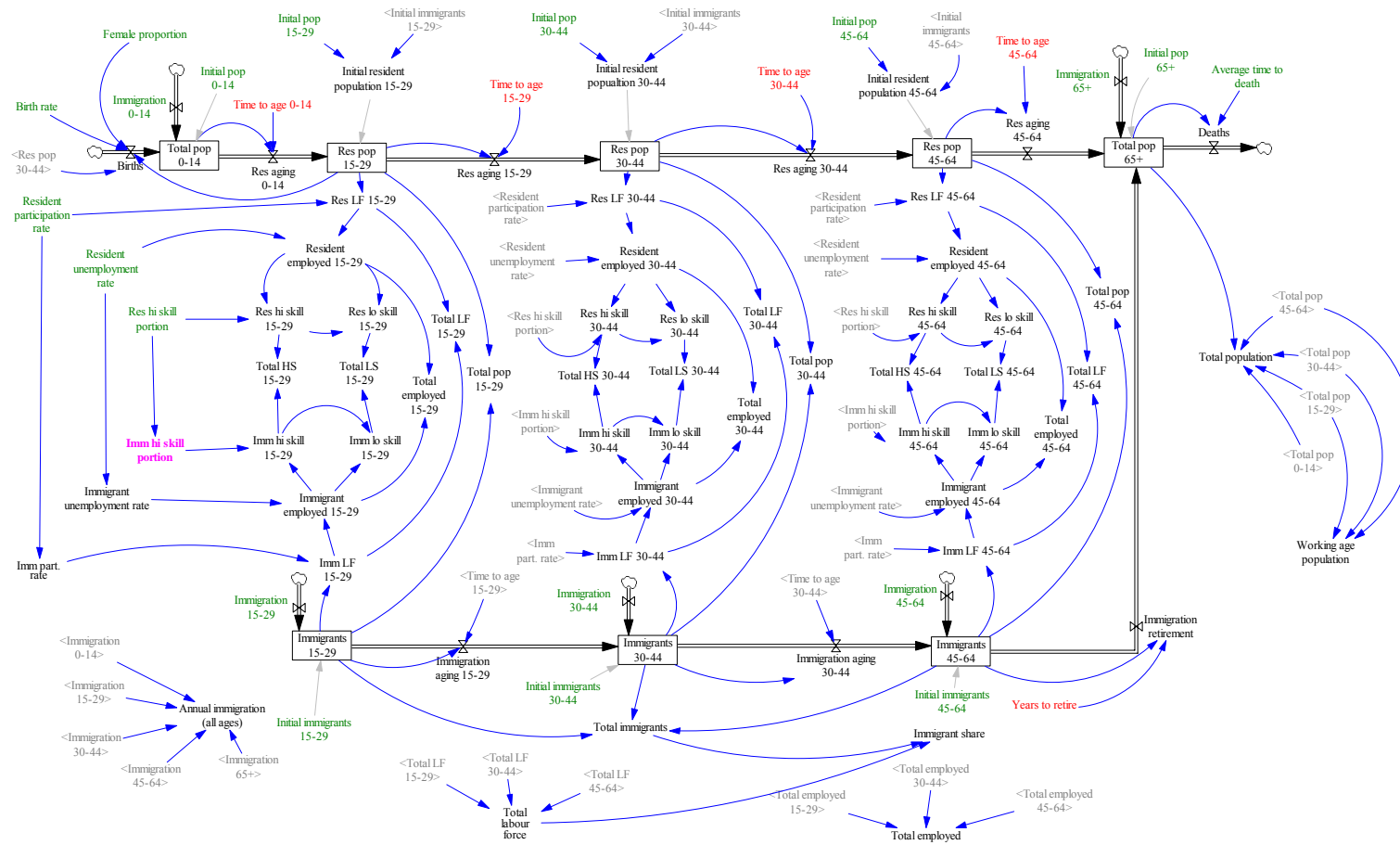
Appendix B System Dynamics Model

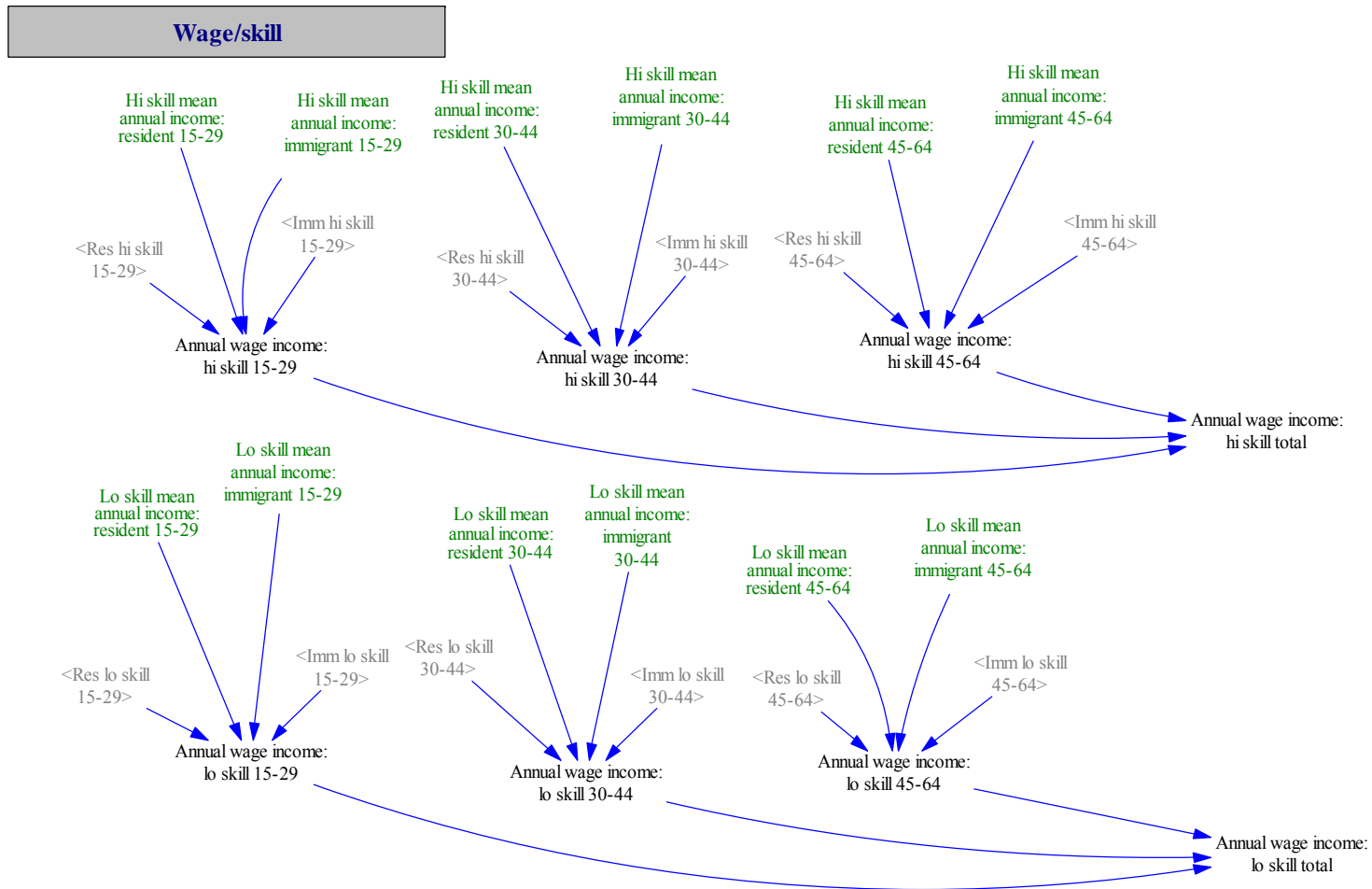
A description of system dynamics and the model is to come.

We will also investigate whether the model and base data can be made available in a format that would allow people to further work on the model with the free-ware version of the software.

Simple population chain with aux variables for participation & skill split v6:
incl unemployment rate

Red = constant
Green = constant from spreadsheet





Wealth accumulation

