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THE LABOR MARKET PERFORMANCE OF EUROPEAN IMMIGRANTS IN NEW ZEALAND IN THE 1980s AND 1990s

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The Labor Market Performance of European Immigrants in New Zealand in the 1980s and 1990s.

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Ever since New Zealand became a British colony in 1840, it has attracted considerable numbers of European migrants. In the 1996 Population Census, 80 percent of the 3.6 million New Zealand residents claim European ethnic descent. While European immigration always has been, and continues to be, dominated by the UK, some noticeable Dutch immigration took place since the 1950. Beginning in the 1960s, the overall share of European migration started a downward trend, with more and more immigrants arriving from the Pacific Islands and Asia.

In this paper, I use individual record data from two population censuses (1986, 1996) in order to study the characteristics and the labor market outcomes of recent European immigrants. First, I analyse qualifications and other observable characteristics of the various immigration cohorts (distinguished by country of origin and period of arrival). Second, I determine how well immigrants settle into the New Zealand labor market by comparing earnings, employment and unemployment rates of immigrants and natives, both upon entry and over time as immigrants assimilate.

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1 Introduction

New Zealand is a traditional immigration country, with most immigrants since 1840 originating from a small set of countries, mainly the UK. There have been substantial changes to immigration policies during the past decade. The focus of policy has shifted from a country-of-origin principle to an occupation- and skill principle. Concurrently, net immigration increased, the proportion of immigrants arriving from the UK declined, and the proportion of Asian immigrants soared. The causes and consequences of these changes in the pace and composition of immigration are controversial in academic and policy circles alike.

One of the most contentious issues is how likely immigrants are to succeed in the New Zealand labor market. Immigrants who have high levels of productivity or skills that are in high demand, and adapt rapidly to conditions in the New Zealand labor market, are more likely to make a significant contribution to economic growth than are immigrants who have difficulty finding employment or do not participate in the labor force. Their tax contributions are likely to be higher, and their need for social assistance lower. The benefits of immigration to New Zealand are likely to be higher if immigrants fully realise their productive potential and perform relatively well in the labor market.

Performance in the labor market has two components. In terms of labor supply, immigrants language, cultural and educational background are likely to influence both the initial labor market position and the speed of improvement over time. In terms of labor demand, structural labor market characteristics are likely to affect immigrants labor market outcomes as well. Both components jointly determine the welfare effects of immigration in the receiving country. The objective of this paper is to focus on the labor supply side and to document the characteristics and labor market outcomes of individuals who migrated to New Zealand in the 1970s, 1980s and 1990s using unit record census data for 1986 and 1996 as observation points.

Most previous studies of this type have been conducted for the United States, Canada and Australia. This study on New Zealand thus adds another up-to date "data point" to the literature that can be used to improve the understanding of the mechanisms and effects of labor migration.

This paper is organized as follows. In Section 2, I provide some background information on New Zealand's immigration and emigration flows from 1960 to 1995, using data on permanent long-term arrivals and departures. Section 3 describes the characteristics of New Zealand and foreign-born working age men in the 1986 and 1996 Censuses with special reference to immigrants of European origin (UK & Ireland, the Netherlands, and Other Europe). Characteristics include the level of education, language proficiency, and labour force status. Section 4 focuses on one particular indicator of labour market performance, namely annual income, in order to assess the extent and speed at which immigrants become integrated into the New Zealand labour market. The presented evidence suggests that "cohort-effects" are indeed quite important in describing the experience of New Zealand's immigrants, suggesting that reliable estimates of income-convergence profiles require an analysis based on repeated cross-sections. Such a regression analysis is performed, and separate results are reported for the three groups of European immigrants and other, non-European, immigrants. Section 5 concludes.

2. Recent Trends in New Zealand's Immigration

This section traces some trends in New Zealand migration based on data on permanent long-term (PLT) arrivals and departures. Figure 1 displays cumulative five yearly net migration flows as well as population changes from 1961 to 1995.[1] It gives a first indication of New Zealand's mixed migration history as both immigration and emigration country. There was a prolonged episode of negative net migration from the mid 1970's to the early 1990's. Over the entire 35 year period, New Zealand gained only 20,000 persons through external migration.

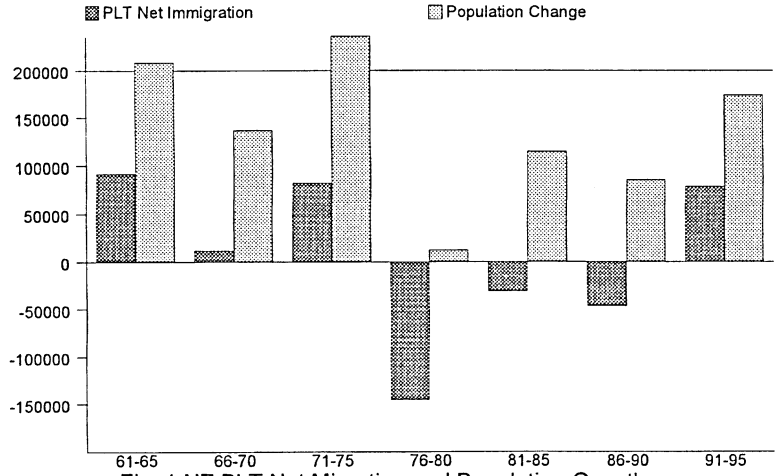

Fig. 1 NZ PLT Net Migration and Population Growth

Further, it is seen from Figure 1 that PLT net migration has a fairly strong association with population change (short-term net migration and natural population growth are the remaining factors). A substantial fraction of the population was lost between 1976 and 1990 to net-outflows (235,000 people or 7.6 percent of the 1976 population), contributing to low overall population growth over most of this period.

[1] Bedford and Lidgard (1997) argue that there have been substantial net gains to New Zealand's population through *temporary* migration, especially since the early 1970's, and that it is hence more appropriate to analyse total net migration. There are some problems with measuring net short-term migration accurately as only a sample of short-term movements is recorded. Moreover, the overall pattern is not much affected: short-term gains either augmented PLT gains or reduces PLT losses.

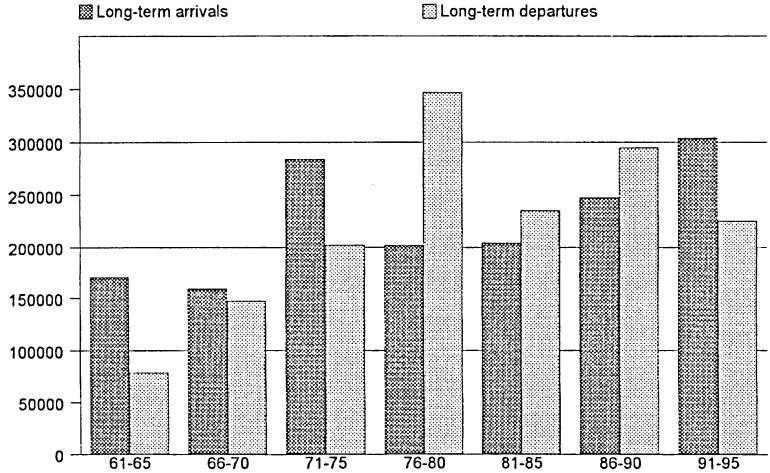

Fig. 2 NZ Immigration and Emigration, 1961-1995

As Figure 2 shows, the change to positive net migration after 1990 was brought about simultaneously by decreasing departures as well as by increasing arrivals.[2] Figure 2 reveals another feature that is commonly observed in most migration systems, namely a substantial excess of gross flows over net flows. During 1976-1980, for instance, the period of most dramatic out-migration, almost 350,000 residents left permanently while 200,000 entered. Similarly, in periods where PLT net flows were rather small, such as between 1981 and 1985, large gross flows meant that external migration likely contributed to changes in the composition of the New Zealand population.

In fact, during this period, the largest fraction of those who left permanently were New Zealanders, while this group constituted only a relatively small part of those who arrived (having been away from the country for at least 12 months). As a consequence, New Zealand citizens tended to have a PLT migration deficit while non New Zealand citizens tended to have a PLT migration surplus (Figure 3, see also Bedford and Lidgard, 1997), thereby contributing to a declining share of New Zealand citizens as a proportion of all New Zealand residents. Figure 3 also shows that the increased net immigration in the first half of the

[2] Note that we consider here 5 year averages. Obviously, the patterns are more complex and variable when annual data are used.

1990's was entirely due to net PLT immigration of non-NZ citizens. In particular, the 1990's brought large inflows of migrants from Asia.

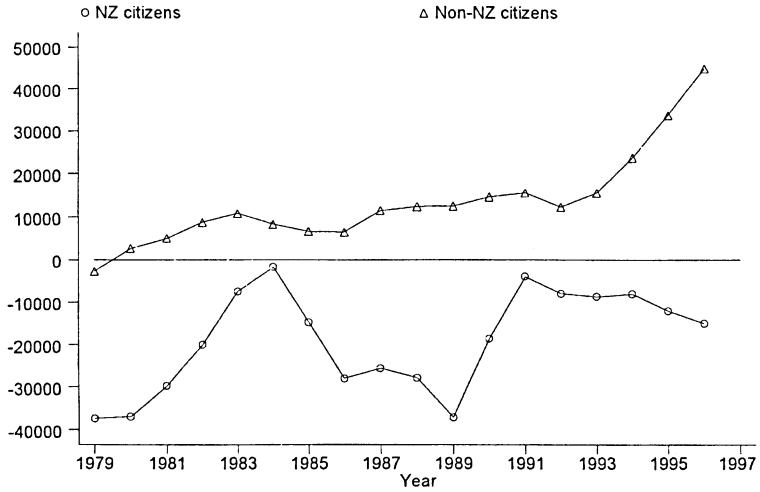

Fig. 3 Composition of New Zealand's PLT Net Migration

While PLT migration statistics that are based on arrival and departure cards are useful in order to detect broad trends in migration patterns and analyse the overall effects of migration on New Zealand's population, they do not lend themselves for any disaggregate analysis of migrants characteristics or labor market outcomes for a number of reasons. The relevant information is either not collected (for instance qualification levels and incomes), or collected but not published (for instance age). While it has been suggested that immigrants could be tracked in follow-up surveys in order to collect information on aspects of their life in New Zealand, this has not been done so far.

Alternatively, one can analyse the stock of immigrants at a given point in time. The stock is determined by the cumulative number of previous arrivals minus the number of immigrants who either left or died. The Population Census offers such a data source that will be used in the following to analyse the characteristics and labor market outcomes of immigrants to New Zealand with a focus on European immigrants.

3. Immigrants in the 1986 and 1996 Censuses

The data used in this study are from the 1986 and 1996 New Zealand Censuses of Population and Dwellings. The goal is to analyze labor market outcomes, so the study population is restricted to persons who are of working age (15-64 year old). Also, most comparable research on other immigration countries, including the US, Canada and Australia, has been limited to the analysis of foreign-born men, a restriction that is kept here for the sake of comparability.

An "immigrant" in this study is a male who lived in New Zealand at the day of the Census (i.e. declared a New Zealand address as his place of usual residence) and was born outside of New Zealand. An immigrant may or may not be New Zealand citizen or permanent resident and may or may not have been born to New Zealand parents. Notably, foreigners on student or work permits are likely to be included in the immigrant population. A *recent immigrant* in this study is a migrant for whom the number of completed years of residence in New Zealand was less than or equal to five years at Census night.[3] All men born in New Zealand are classified as "natives", irrespectively of their ethnic descent.

The analysed data set combines a 5 percent random sample of all New Zealand born men, a 20 percent random sample of all male residents born in the UK or Ireland, and the full population of male residents born outside New Zealand, the UK or Ireland (i.e., people born in the Netherlands, in other European countries - mainly Germany, Yugoslavia, Switzerland and Poland - or in a non-European country). The final sample has a total of 245,000 observations.

3.1. The Scope of Immigration

In 1986, New Zealand's male working age population was about 1.05 million, with 16.9 percent foreign born. During the next 10 years, the male working age population grew by about 5 percent to 1.09 million people, as seen in Table 1. Contributors to this growth were increases in both the New Zealand born population and the number of immigrants. However, the 16 percent growth of the immigrant population by far outpaced the 1.7 percent growth of

[3] As the information on duration of residence is provided on a yearly basis only, such an immigrant could have been in New Zealand for up to five years and eleven months.

the New Zealand born population. As a result the share of foreign born among the resident working age population increased by 2 percentage points to 18.9 percent in 1996.

A pervasive aspect of New Zealand's recent immigration history is the important but declining role of immigration from the UK and Ireland. Table 1 shows that UK and Irish immigrants constituted the largest proportion of immigrants in 1986 (54 percent). By 1996, their share had dropped to 38 percent, both because the absolute number of UK male working age immigrants had fallen, and because other immigrants had become more numerous. Table 1 shows that the share of immigrants from the Netherlands fell by even more in relative terms. Who filled the gap? The main increase was in non-European immigrants from the Asia-Pacific region. Immigration from the Pacific Island initially became significant during the 1960s and 1970s when there was a heavy demand for cheap labour in New Zealand's import-substitution industries. This migration increased again after the 1986 immigration policy review. The bulk of Asian immigration occurred after policy reforms in 1986 and the introduction of a point system in 1991 in particular.[4]

Table 2 gives some selected immigrant demographics. The table shows that immigrants disproportionately settle in Auckland. In 1996, less than one out of four New Zealanders lived in Auckland, but well above 1 out of 2 non-European immigrants and 39 percent of Britons. The average male UK immigrant in the working age population was in the country for more than 20 years in 1986, and for more than 24 years in 1996. Working-age non-European immigrants came more recently, with an average period of residence of 12 years in 1996. They were also somewhat younger when they arrived, on average aged 28 years in 1986 and 30 years in 1996, compared to 32 and 34 years for British immigrants.

3.2. Educational Attainment of Immigrants

In post-war New Zealand, immigration policies have targeted, in one way or another, immigrants with skills, either occupational skills, or, more recently, broadly defined "general skills".[5] New Zealand is a country with a relatively high proportion of unskilled workers

[4] For a general discussion of immigration policies, see Spoonley and Trlin (1997).

[5] This is notwithstanding the fact that a substantial fraction of immigrants entered under a family or humanitarian category, and that Australians, Cook Islanders, Niueans and Tokelauans had automatic residency rights and hence were not subject to any screening. In 1996, 61 percent of all residency

within the developed world, and importing skilled workers was possibly seen as a relatively inexpensive (since public subsidies to education, if any, are paid for by other countries) and immediate way to overcome a relative shortage in skilled labor. In theory, this change in relative supplies could have benefited both unskilled New Zealand born workers and, in particular, the owners of New Zealand's capital stock. The argument for skilled immigration has been reinforced by another hypothesis, namely that skilled workers make a greater contribution to economic activity, and hence the living standards of New Zealanders, than unskilled migrants.

Skills are difficult to measure. One commonly used proxy for skills, and the only one available in Census data, is the highest formal education level a person has received. I distinguish between: no qualification, school qualification, vocational qualification (post-secondary), and university qualification.[6] Table 3 lists the proportion of immigrants, recent immigrants and natives, all of working age, with one of the four types of highest qualification. The dominant patterns are that

(i) European male immigrants had higher education levels than New Zealand born men in both census years although there was a fair amount of variability within Europe (Dutch immigrants tended to have lower levels of qualifications than other European immigrants),

(ii) the proportion of non-European male immigrants without qualification was similar to the proportion without qualification among New Zealand born men but a higher proportion of non-European male immigrants had a university qualification, and that

(iii) the level of education increased between 1986 and 1996 both for New Zealand and for foreign-born men.

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approvals were made under the General Skills category. See also Trlin and Spoonley (1997) for references on New Zealands immigration policies and experiences.

[6] These categories should be broadly comparable across the two censuses, although there has been a change in the way the information is solicited in the 1996 census (respondents had to write down the name of the degree, rather than ticking a box).

For instance, the proportion of New Zealand born working age males without any qualification dropped from 34 percent in 1986 to 27 percent in 1996, while the proportion of male immigrants without qualification dropped from 28 percent in 1986 to 23 percent in 1996. Similarly, the proportion of New Zealand born men with university qualification increased from 7 percent in 1986 to 10 percent in 1996, while the proportion of male immigrants with university qualification increased by between 5 and 8 percentage points.

The education levels tended to be higher among recent immigrants than among established immigrants. For instance, about 30 percent of European (except for Dutch) immigrants arriving between 1990 and 1996 came with a university qualification. While this difference might be partially explained by the shift in immigration policy toward immigrants with high skill levels that was associated with the introduction of the point system in 1991, it certainly also was the case that the lower average age of recent immigrants contributed towards their relatively high levels of qualifications.

3.3. Labor Force Status

Table 4 tabulates the proportions of male immigrants, recent male immigrants and New Zealand born males, who are in full-time employment, part-time employment, unemployed or not in the labor force, respectively.[7] Over the ten year period, working age New Zealand born men experienced decreasing employment (from 84 percent in 1986 to 82 percent in 1996, summing up full-time and part-time employment), a shift in the employment mix from full-time towards part-time work (11 percent of all jobs were part-time in 1996, up from 5 percent in 1986), increasing unemployment and increasing non-participation. In 1986, European immigrants had *higher* employment rates and *lower* unemployment rates than New Zealand born men. Somewhat surprisingly, recent European immigrants had even higher employment rates than established European immigrants, possibly a reflection of the fact that many of those immigrants were recruited into occupations with excess demand based on an

[7] We use the following standard definitions. Full-time workers worked for at least 30 hours per week. Part-time workers worked for between 1 and 29 hours. To increase comparability across the two Census years, the definition of "unemployed" used in this study was less restrictive than the current official definition. All those who were out of work and searched for a job were classified as unemployed, regardless of their search methods or their availability for work..

Occupation Priority List that existed at the time. Among European immigrants, British and Irish born men tended to have higher employment rate than others.

Ten years later the employment rates of British and Irish immigrant men remained above those of New Zealand born men, while the employment rates of Dutch (except for recent immigrants) and other European immigrants had fallen below the native level.[8] The most substantial change was recorded for recent other European immigrants, many of them from the former Yugoslavia, whose 1996 employment rate was 21 percentage points below the employment rate of New Zealand born men.

An even larger deterioration in relative employment rates occurred for non-European immigrants. While their 1986 employment rate was above 80 percent, it dropped to a mere 62 percent in 1996. Among recent non-European male immigrants, employment rates were just 46 percent. Recent non-European immigrants come mostly from Asia, and East Asian in particular, notably Taiwan, South Korea, China and Hong Kong. A shift in the composition of non-European immigration towards these countries might have contributed to the relative decline. One factor was that East Asian immigrants tended to have higher participation rates in post-secondary education than other immigrant groups, although we know from age specific employment rates reported elsewhere (Winkelmann and Winkelmann, 1998) that the large decline in employment rates of recent non-European immigrants occurred for all age groups, not only for the younger ones. Another factor might have been differences in language skills, which is analyzed next.

3.4. The Role of Language

One possible explanatory factor for the relatively low employment rates of recent immigrants from Other Europe and non-European countries might be a lack of English language skills. A question on language proficiency, "In which language could you have a conversation about a lot of everyday things?", was contained in the 1996 Census. Table 5 gives the proportion of working age immigrants that are able to conduct an everyday conversation in English by

[8] These figures do not control for individual characteristics such as age and education. For instance, Dutch migrants were relatively old (44 years in 1996, compared to 37 years for the New Zealand born; 22 percent were 55 or older, compared to 10 percent of the New Zealand born). Hence their relative outcomes might have been affected by retirement.

region-of-origin and duration of residency in New Zealand. Ninety eight percent of all immigrants from these regions living in New Zealand in 1996 "spoke English", based on the above definition.

Among the non-English speaking countries, virtually all recent immigrants from the Netherlands were proficient in English. By contrast, 7 percent of recent immigrants from other Europe, and 19 percent of recent non-European immigrants did not speak English. How fast do immigrants learn? To the extent that the experience of previous immigrants can be taken as an indicator, 21 percent of the non-English speaking non-European immigrants will learn the language within the next 5 years, and 56 percent will learn the language within the next 15 years. The improvement is relatively slow for non-Europeans, and a lack of English proficiency might be a major handicap for those migrants.

4. The Income of Immigrants

Table 6 gives the income of immigrants relative to natives for the two census years.[9] These averages are for employed men only. The table shows that employed European immigrants had higher incomes than employed natives (without controlling for personal characteristics), whereas incomes of employed non-European immigrants were about 10 percent below native incomes. British and Irish immigrants had the highest relative income position. Even among those who arrived recently there was no income disadvantage. Quite to the contrary, recent UK immigrants had up to 21 percent higher incomes than natives. All UK immigrants had 15 percent higher incomes. The income differences were smaller for Dutch and other European immigrants, yet still positive. One interesting result from Table 6 is that although incomes of recent immigrants were generally below those of all immigrants, differences were not very large. The largest difference, 11 percentage points, was observed for male migrants from other Europe.[10]

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[9] Income is measured as nominal pre-tax total personal income. It includes income from work, income from other sources, and government transfer payments. The census captures income data in bands rather than in exact dollars. A "continuous" income measure was generated by taking the midpoint of each band

[10] Note that the figures in Table 6 give the relative income of immigrants and natives before any adjustments are made for differences in other related factors, such as age structure, level of education, hours worked over the year as a whole, or non-employment income.

4.1. Income Dynamics

Starting with the seminal work by Chiswick (1978) it has become a "stylized fact" in migration research that immigrants earn less than "similar" natives upon arrival, and experience faster earnings growth subsequently as they "assimilate". The proposition fits well into the theoretical framework of migration decisions and human capital. Immigrants earn less on entry since their country-of-origin specific human capital has depreciated. Furthermore, they may face difficulties in communicating in New Zealand (due to a lack of English proficiency, or proficiency in the local dialect, and a lack of knowledge of the local institutions), a lack of information among employers concerning immigrants' credentials and qualifications, or some sort of labor market discrimination against immigrants.

As immigrants spend time in New Zealand, they are able to generate more credible information about their skills, improve their language skills, and acquire valuable local information. Hence, their earnings are likely to improve over and above any improvements associated with other labor market characteristics (such as experience) that both immigrants and New Zealand-born individuals enjoy. Moreover, self-selection of immigrants with above average motivation and diligence might mean that immigrants "overtake" natives with similar observable characteristics.

The empirical debate is about the magnitude of this settlement pattern, i.e., the size of the initial income disadvantage and the speed of subsequent adjustment, which jointly determine the time it takes for immigrants' incomes to reach the native income level. In the following, I will provide empirical evidence on the post-settlement experience of European immigrants in New Zealand. While these immigrants tended to have higher incomes than natives *on average* in 1986 and 1996, this does not mean that they did not went through the "typical" immigration experience as described above, since so far no attempt has been made to address the question of "similarity" between immigrant and New Zealand born men.[11] I proceed in two steps. Firstly, I perform a non-parametric cohort analysis that controls for age and period-of-arrival. Secondly, I present regression results of income dynamics controlling for age, education, and other factors.

[11] Nor has there been a systematic attempt to control for the period of residency, apart from considering "all" and "recent" immigrants separately.

4.2. A Non-Parametric Cohort Analysis

In this section, non-parametric estimates of income convergence rates for various age/period of arrival cohorts are presented. It is found that there is very little, if any, growth in the income of immigrants relative to natives as immigrants' duration of stay in New Zealand accumulates, neither in the cross-section, nor in between censuses. Moreover, the relative income advantage of European migrants relative to natives declines once we control for differences in the age distribution. Non-UK immigrants tend to have lower incomes than natives of similar age in both 1986 and 1996.

Table 7 gives relative 1996 income data for employed working age male immigrants, by age in 1996, year of arrival in New Zealand, and region of origin. Age is grouped into five-year intervals from 21 to 60. Year of arrival is grouped as well into five-year periods from 1966 to 1995. People in a particular age group and a particular arrival period are referred to as an "age/year of arrival cohort". Note that age is measured in 1996, not upon arrival. Looking at row 3 and column 1 of the Table 7, we find, for instance, that the 1996 income of a 31-35 year old UK immigrants who arrived between 1991 and 1995 (i.e., a "recent" immigrant in 1996) exceeded the income of a typical 31-35 year old native in that year by 16 percent. The relative income for other European immigrants of the same age/year of arrival cohort was 89 percent, while the relative income for non-European immigrants of the same age/year of arrival cohort was 87 percent.

In order to estimate cross-sectional growth rates, we could compare the 1996 relative income of a particular cohort (for instance a recent 31-35 year old immigrants) with the relative income of migrants who have the same age in 1996 but arrived earlier in New Zealand, between 1981 and 1985 say. Such a person's income averaged 112 percent of the income of a 31-35 year old native if UK or Irish, suggesting that ten years of residence decrease the relative income by 4 percentage points. Alternatively, we could compare incomes of groups of immigrants who were of the same age when they arrived. An immigrant who arrived 10 years earlier and was aged 31-35 at the time of arrival is 41-45 in 1996. But the relative income of 41-45 year olds who arrived between 1981 and 1985 was 118 percent for UK immigrants, suggesting that ten years of residence increase the relative income by 2 percentage points.

Whether these calculations describe the actual earnings dynamics of a particular cohort depends on whether or not one critical assumption is valid. In the first comparison, we have implicitly assumed that the relative income of a currently 31-35 years old male *had he been in New Zealand for the last 10 years* would be the same as the relative income of a male who actually came 10 years ago at the age of 21-25. In the second comparison, we have implicitly assumed that the *future* relative income of a male recent immigrant who is currently 31-35 years old will be the same *after 10 additional years in New Zealand* as the actual relative income of a current 41-45 year old male who entered New Zealand at the age of 31-35. Both assumptions are valid only if individuals move along the same age-income profile, irrespectively of age at arrival and arrival period, and both comparisons are invalidated by cohort or period effects. For instance, any observed income growth might be spurious in the sense that those who came earlier had higher relative incomes, not because they came earlier and converged but because they were, in some sense, "better".

This is where Table 8 is relevant. Here, I tabulate, in a similar fashion, the relative earnings position of the various age/arrival cohorts, but this time for the 1986 Census, 10 years earlier. But those aged 31-35 in 1996 were aged 21-25 in 1986. Hence, we observe the relative incomes for each age/arrival cohort at two points in time and can compare the relative income changes directly. In 1986, incomes of 21-25 year old UK immigrants who arrived in New Zealand between 1981 and 1985 were 118 percent of those of natives of the same age. Ten years later, this group of immigrants' incomes were 112 percent of those of natives of the same age. Hence, there was a *decline* in relative incomes for this particular immigrant cohort.

Table 9 allows for an easier comparison of income growth rates by grouping results from Tables 7 and 8 together. The table shows relative incomes of two particular age groups, those aged 21-25 and those aged 36-40 in 1986, in both 1986 and 1996, for various arrival periods and regions-of-origin. The intercensal comparisons of relative income convergence for various age/arrival cohorts in Table 9 produces an unequivocal pattern. There was very little relative income growth over the ten year period, for the observed cohorts on average 1 percentage points for Dutch and non-European Immigrants, and 3 percentage points for other immigrants. For UK immigrants, the pattern was even reversed: native incomes grew relative to the incomes of UK immigrants, on average by 1.5 percentage points for the observed cohorts. Moreover, for all immigrants except from the UK, relative incomes were *below* those of natives of the same age for most age/period of arrival cohorts.

4.3. Out-migration

A contentious issue on how to interpret the above results on income and employment dynamics from intercensal comparisons is linked to the magnitude of out-migration. The income comparisons made in the previous section involved following age-arrival cohorts of immigrants, rather than particular individuals, over time. It was assumed that changes of relative incomes within a group over time tell us something about changes in the relative position of an "average" immigrant in that group. For that to be a valid interpretation, we have to assume that the composition of the group (in terms of observable and unobservable characteristics) has not changed.

Out-migration, whether return migration or step-migration to another country of residence, is likely to violate this assumption and cause a change in the cohort composition. The hypothesis that is put forward most frequently is that the least successful immigrants, in terms of employment and income, leave. In this case the reported estimates will overstate the actual rates of relative income growth for those immigrants who stayed in New Zealand. If the better immigrants leave, for instance in order to step-migrate to Australia, then the argument goes the other way around. The rates of relative income growth would be understated for those migrant who stay in New Zealand.

In census data, no direct information on either incidence or destination of out-migration is available. However, it can be inferred from the specific cohort sizes over time, netting out the expected effect of mortality and computing "retention rates".[12] Table 10 shows the proportions of 1986 immigrants, who are still in the country at the time of the 1996 census. Hence, it displays 10-year "retention rates". As before, immigrants are distinguished by age, period of arrival, and region-of-origin. For instance, we find that 77 percent of UK/Immigrants who were 21-25 years old in 1986 and had arrived between 1976 and 1980 were still in New Zealand ten years later, then aged 31-40. The data reveal that out-migration is important. Retention rates were as low as 50 percent for some groups of immigrants.[13]

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[12] It is also assumed that there is no systematic under-enumeration in either Census.

[13] Since mortality rates are well below one percent for all age groups under considerations, they can effectively be ignored in the analysis.

Out-migration patterns are quite complex. Retention rates tend to be lower among recent immigrants than among older immigrants. This is plausible, since immigrants with the highest probability of leaving are, on average, the first to go. As a consequence, the average probability of leaving the country decreases with period of residency. However, we do not know yet whether immigrants who leave are below or above average in terms of their socio-economic characteristics and labor market outcomes. One way to assess this question is to compare the formal qualifications over time. Table 11 attempts such a comparison, looking at cohort specific proportions of post-secondary qualifications. One can question the accuracy of these data. There is certainly a substantial amount of misclassification in data on qualifications. Moreover, the definitions and census questions have changed slightly over time (we attempt to control for the latter effect by computing rates of immigrants relative to natives). Nevertheless, there appears to be a pattern, namely that male cohorts with the lowest retention rates experience a decrease in the proportion of people with post-secondary qualifications. A simple coefficient of correlation between the retention rate and the change in the post-secondary proportion is +0.1. Hence, there is some, though weak, evidence that more qualified people leave, and that out-migration therefore leads to a decline in the average cohort qualification levels. This conclusion is supported by the previous finding that in several cases, cohort-specific relative incomes decreased with duration of residence in New Zealand, in particular for immigrants from the UK and Ireland.

4.4. A Regression Model

The previous analysis of immigrants' relative income did not take into account differences between immigrant and New Zealand born men (or differences between different groups of immigrants) in personal characteristics such as education or in economic activity such as hours of work. It is possible to adjust statistically for the effects of these differences in individual characteristics by the use of regression analysis. By doing so, we get a more accurate picture of the true disadvantages that are faced by immigrants by virtue of the immigration experience itself, and the speed at which this disadvantage can be overcome. Moreover, this approach will allow us to single out factors that are associated with relatively good labor market outcomes (in terms of relative income).

Borjas (1985) and others have developed a standard framework for the analysis of immigrants' relative incomes, the hallmark of which is the use of pooled data (combining Census data from both 1986 and 1996 in a single regression) in order to allow for a separate

estimation of cohort specific entry differentials, the effect of period of residency, and the effect of the Census year on income. I use her a variant of the model that has been proposed by Bloom et al. (1995) and can be written as

$$(1) \qquad y_{it} = x_{it}'\beta + \alpha F_i + \delta YSM_{it} + \theta_j + \pi_t + \varepsilon_{it}$$

where

- y is the natural logarithm of annual income of individual i (either New Zealand born or foreign-born) in year t.
- x is a vector of standard human capital variables (a set of dummies for the highest qualification level and a second order polynomial in years of labor market experience - typically imputed as *Age - years of schooling - 6*), marital status, and hours of work;
- F is a dummy variable coded 1 for foreign born and 0 for natives;
- *YSM* are years since migration for foreign born (set to zero for natives); The assumption of a linear assimilation effects is made for simplicity and can be easily relaxed.
- θ_j, j = 66-70, 71-75,76-80, 81-85, 86-90, 91-96 are the cohort effects. Pre-66 migrants are the reference group. The cohort dummies are set to zero for natives.[14]
- π_t, t = 86, 96 is a period effect. Such period effects may stem from changes in the local wage structure, business cycle phenomena, or other structural shifts in the labor market. It also accounts for the fact that income is nominal rather than adjusted for inflation.

In order to estimate equation (1) we need data from at least two census years. To see this point, observe that had we data from a single census, 1986, say, then it must be true that *year of entry + years since migration* = 1986. But this means that no separate effects of *year of entry* (=cohort) and *years since migration* can be estimated. The variables are collinear, and θ and δ are not identified. In the seminal study by Chiswick (1978) this problem was "solved" by setting $\theta_j = 0$, i.e. by excluding cohort effects *a-priori*. Here, we use data from two censuses. If one is in addition prepared to assume that immigrants and native born, and immigrants arriving in different years, are similarly affected by these exogenous labor market changes, all parameters of model (1), including π_t, are identified.

[14] Although the last two cohorts, 86-90 and 91-96, are observed only in the 1996 census, estimation of these effects is possible under the assumption that δ is the same for all cohorts. This is one of the benefits of making tight parametric assumptions.

Income dynamics in this setting are described by a potential initial cohort specific earnings disadvantage (i.e. $\alpha+\theta_j<0$), combined with subsequently faster earnings growth for foreign-born (i.e. $\delta>0$)[15]. For members of cohort *j*, it takes $-(\alpha+\theta_j)/\delta$ years to catch up with earnings of otherwise similar natives. This model assumes that while the speed of assimilation is the same for all cohorts, the entry points depends on cohort specific factors.

4.5. Results

Table 12 gives the regression results for the four countries/regions for employed men in 1986 and 1996. The dependent variable is the log of annual income in the previous year. Standard errors are provided in parentheses. By not pooling the data over all immigrants, I allow for differences in income dynamics across the UK and Ireland, the Netherlands, other European countries and non-European countries. Apart from the immigration related variables described above (cohort dummies and Years in New Zealand), the regressions control for highest qualification (three dummy variables; "no qualification" is the omitted reference group), years of potential labor market experience (measured as age minus years of schooling minus 6), de-facto marital status, and weekly hours of work.

The first column of Table 12 gives the results for UK immigrants. As expected, I find that income increases with the qualification level and with experience. A worker with a university qualification is predicted to have a 72 percent higher income than an otherwise similar worker without any qualifications, and a 40 percent higher income than an otherwise similar worker with a vocational qualification only.[16] Married workers' incomes exceed those of unmarried workers by about 23 percent. Similarly, hours of work are an important determinant of total income. By comparison, the magnitude of the estimated immigration parameters in this model are relatively small. In fact, UK and Irish immigrants and New Zealand born workers look very much "alike". British and Irish who arrived before 1965 are predicted to have 4 percent higher incomes than otherwise similar New Zealand born. For some cohorts, the estimated entry differential is as small as 2 percent (1971-75) or 1 percent

[15] The interpretation of δ in a semi-logarithmic equation is as follows: For each additional year since migration, relative earnings are predicted to increase by $(\exp(\delta)-1)\times100$ percent.

[16] These are approximate percentage differences. The exact differences are given by $\exp(0.72)-1$ = 105 percent and $\exp(0.40)-1$ = 49 percent, respectively.

(1991-96). Over time, the relative incomes of British immigrants are predicted to decrease at a rate of 0.6 percent per decade. Most of the immigration parameters are statistically insignificant, and the empirical evidence supports the conclusion that there was no difference of substance in the incomes of British and Irish immigrants and New Zealand born workers over the study period, once we control for differences in productive characteristics and differences in labor market activity.[17]

Dutch immigrants have a somewhat different income profile. In particular, they started out with a relative earnings shortfall on entry of about 17 percent (Column 2 of Table 12). None of the cohort effects was statistically significant, which means that there is no evidence for changing cohort quality. Based on the point estimates alone, the last observed cohort, those arriving between 1991 and 1996, were relatively successful with an estimated entry differential of -11 percent relative to otherwise similar natives. But even this cohort would not catch-up with native income levels over their careers, as the estimated "return" to 10 years of residence in New Zealand is only 2.1 percent, leading to an estimated convergence period of more than 50 years. Yet, as for UK immigrants, the income differences relative to natives are not very large in economic terms.

The situation is somewhat different for the most recent cohort of other European immigrants (Column 3). While the entry disadvantage was estimated at about 19 percent for most cohorts, it increased to an estimated 30 percent for immigrants from this region who arrived between 1991 and 1996 (the only cohort effect that is statistically significant). Although the estimated assimilation rate was at 4.3 percent per ten years spend in New Zealand relatively fast in the past, convergence is unlikely for the most recent arrivals, many of whom come from the former Yugoslavia.

Finally, Column 4 of Table 12 gives the results for non-European immigrants. Only for this group do we find strong and systematic evidence for a changing cohort quality, namely a decline, over time. The entry differential decreased from -11 percent for those having arrived pre-1966 to -35 percent for those having arrived between 1991 and 1996. If the returns to period of residency were to be estimated from a cross-section alone, a substantial upward bias in the estimated income convergence would result for this group. The pooled model

[17] Without these controls, the differences appeared larger, as British and Irish immigrants were relatively well educated and relatively old, both factors that lead to higher income levels.

convergence rate is estimated at 2.3 percent for 10 years, and most immigrant cohorts from non-European countries will not reach parity with incomes of natives. At this stage we can only speculate about the causes for this declining relative income position; an important "suspect" is a shift in immigrant composition towards first Pacific Island and then Asian immigration.

5. Conclusions

A study of the labor outcomes of immigrants in New Zealand over the last two decades reveals yet another case of an immigration country where region-of-origin differences are ubiquitous and large. While all of the four immigrant groups that were considered in this paper had on average higher qualification levels than natives, only a subset were integrated well, in the sense of achieving employment rates and incomes of similar New Zealand born men. In particular, incomes of all non-UK immigrant men were below those of comparable natives. The relative labor market disadvantage was the largest for non-European immigrants.

In addition, the estimates of relative income growth were below those found previously for other countries (in particular: Bloom et al., 1995, and Duleep and Regets, 1995, See also Borjas, 1987, whose estimates are somewhat closer to the ones presented here). As far as immigrants from the UK and Ireland were concerned, the absence of relative income growth confirmed that their labour market outcomes did not differ from those of similar New Zealand born workers in the first place. For the other immigrant groups, the slow rates of income growth meant that the initial differences in incomes tended to persist over time. The differences were substantial for all other immigrant groups except the Dutch, and for the 1991-1996 cohort in particular.

What, then, is the lesson of New Zealand's experience for other immigration countries?[18] New Zealand introduced a point system in 1991 that was designed to bring skilled immigrants into the country. And indeed the skill levels of New Zealand's recent immigrants, measured in terms of formal qualifications, have further increased from a base level that was already high before the 1991 policy changes compared to the New Zealand born population.

[18] New Zealand and Australia, like the European Union, are integrated economies in the sense that nationals of either country are free to live or to work in the other country. However, the aspect of Trans-Tasman migration is not addressed in this paper.

However, it appears that high qualifications alone do not guarantee successful labor market outcomes. The presented evidence showed that UK and Irish migrants were much more succesful than others. This, one suspects, is a consequence of the common cultural and institutional background that New Zealand and Great Britain share and that is likely to facilitate the integration of migrants into the new environment. For reasons that are yet to be studied, the "head start" of British immigrants has not vanished or even diminished over time, despite the fact that past migration from non-British source countries has already substantially diversified New Zealand's society and culture.

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APPENDIX: TABLES

Table 1. Population sizes (Male working age population in NZ)

Region of Origin	1986	%	1996	%
New Zealand	872220	83.1	886920	81.1
(European Descent*)		(85.0)		(80.1)
UK and Ireland	95390	9.0	77785	7.1
Netherlands	11677	1.1	7990	0.7
Other Europe	9153	0.8	10990	1.0
Other Immigrants	60912	5.8	109251	9.9
Total	1049352		1092936	

*Proportion of all New Zealand born men that are of European descent

Table 2. Some Immigrant Demographics, by region of origin, 1986 and 1996.

	Auckland (%)	Years in NZ	Age at Arrival*
1986			
New Zealand	23.4		
UK and Ireland	39.1	20.5	31.5
Netherlands	27.6	23.5	30.5
Other Europe	36.4	20.1	31.3
Other Immigrants	49.7	14.5	27.6
1996			
New Zealand	24.1		
UK and Ireland	39.4	23.6	33.7
Netherlands	28.9	24.9	33.1
Other Europe	44.1	16.3	33.3
Other Immigrants	57.8	12.4	30.0

* Recent immigrants only.

Table 3: Male Educational Attainment, New Zealanders, All and Recent Working Age Immigrants, by region of origin, 1986 and 1996 (in percent)

	All Immigrants/Natives				Recent Immigrants			
	no	sch	voc	uni	no	sch	voc	uni
1986								
New Zealand	33.6	26.5	30.1	07.2				
UK and Ireland	25.7	20.9	43.1	09.4	13.4	18.3	49.0	17.4
Netherlands	19.3	25.2	48.0	06.8	7.4	24.1	53.1	12.3
Other Europe	21.0	20.2	46.6	11.7	6.5	16.0	54.3	22.0
Other Immigrants	34.3	27.6	23.4	12.1	26.8	31.6	21.5	16.6
1996								
New Zealand	26.7	32.2	29.4	10.1				
UK and Ireland	19.7	23.5	41.0	15.3	7.6	20.5	40.6	30.2
Netherlands	16.0	29.8	43.0	10.7	4.7	33.5	38.4	22.6
Other Europe	12.9	24.1	42.0	19.8	4.3	26.7	36.0	30.4
Other Immigrants	25.3	33.0	20.3	18.9	13.6	36.2	17.9	27.8

"no": No qualification
"sch": School qualification
"voc": Vocational qualification
"uni": University qualification

Table 4: Male Employment Status, Workign Age New Zealanders, All and Recent Immigrants, by region of origin, 1986 and 1996.

	All Immigrants/Natives				Recent Immigrants			
	ft	pt	ue	nolf	ft	pt	ue	nolf
1986								
New Zealand	80.1	3.8	3.7	12.4				
UK and Ireland	82.3	3.4	2.9	11.4	85.0	3.7	3.2	8.0
Netherlands	80.6	4.1	2.6	12.7	84.2	3.2	3.3	9.2
Other Europe	80.8	3.9	2.7	12.5	82.0	4.5	3.9	9.5
Other Immigrants	75.8	4.6	5.6	14.0	67.8	4.1	7.1	21.0
1996								
New Zealand	73.3	8.7	5.9	13.7				
UK and Ireland	74.8	7.0	5.3	14.2	78.3	5.8	6.8	10.3
Netherlands	69.5	7.8	4.4	19.3	75.4	7.1	5.0	12.8
Other Europe	63.3	8.0	11.6	19.5	53.2	8.1	21.0	21.1
Other Immigrants	53.8	8.8	12.5	28.3	37.8	8.4	16.3	42.3

"ft": Full-time employed
"pt": Part-time employed
"ue": Unemployed
"nolf": Not in labor force

Table 5: Proportion of people speaking English, by region-of-origin and period of residence (1996 Census).

	Years since Migration					
Country	0-5	6-10	11-15	16-20	>20	Total
New Zealand						0.997
UK and Ireland	0.999	0.998	0.998	0.998	0.999	0.999
Netherlands	0.989	0.993	0.991	0.996	0.986	0.988
Other Europe	0.932	0.987	0.988	0.979	0.974	0.962
Other Immigrants	0.812	0.851	0.888	0.921	0.946	0.870
Total	0.854	0.886	0.935	0.955	0.995	0.982

Table 6: Male Incomes, All and Recent Immigrants relative to natives, by region of origin, 1986 and 1996.

	All Immigrants		Recent Immigrants	
	1986	1996	1986	1996
UK and Ireland	1.15	1.15	1.21	1.17
Netherlands	1.05	1.03	0.96	1.07
Other Europe	1.09	1.02	1.03	0.91
Other Immigrants	0.94	0.91	0.90	0.89

Table 7: Income of Male Immigrants relative to income of Male New Zealanders of European Descent by region of origin, age and period of arrival, 1996.

	Period of Arrival					
	91-95	86-90	81-85	76-80	71-75	66-70
UK and Ireland						
21-25	1.17	1.03	1.03	.96	1.03	
26-30	1.21	1.12	1.32	1.15	1.07	1.01
31-35	1.16	1.12	1.12	1.13	1.03	1.03
36-40	1.03	1.17	1.16	.99	1.02	1.06
41-45	1.06	1.23	1.18	1.13	.94	.99
46-50	1.07	1.07	1.10	1.14	.99	.91
51-55	.94	1.19	1.24	1.06	.99	1.00
56-60	1.05	1.36	1.05	1.22	.96	.98
Netherlands						
21-25	.99	.81	.93	.86	1.12	
26-30	1.04	1.03	1.06	1.03	1.04	1.01
31-35	.94	.93	.95	.88	1.08	.96
36-40	1.05	.86	.92	.85	.94	.95
41-45	.94	.83	.92	.97	.76	.76
46-50	.91	.83	.84	.85	.85	.89
51-55	1.47	.63	.90	.99	.83	.86
56-60	1.33	1.41	1.03	.89	.94	.87
Other Europe						
21-25	.87	.91	.91	.74	.86	
26-30	.86	.91	1.00	1.14	.94	1.29
31-35	.89	.94	.95	1.13	1.07	1.09
36-40	.80	.87	.92	1.04	.92	1.15
41-45	.81	.87	.80	.93	.88	1.16
46-50	.86	1.12	.89	.94	.85	.94
51-55	.79	.97	1.03	.85	.89	.84
56-60	1.04	1.04	.96	1.19	.85	.87
Other Immigrants						
21-25	.71	.77	.82	.82	.98	
26-30	.83	.70	.86	.92	.94	1.05
31-35	.87	.77	.76	.89	.94	1.04
36-40	.94	.83	.73	.74	.89	.99
41-45	.91	.86	.83	.81	.74	.96
46-50	.90	.80	.85	.91	.79	.79
51-55	.99	.85	.96	.96	.98	.82
56-60	.97	.77	1.17	1.00	1.07	.98

Table 8: Income of Male Immigrants relative to income of Male New Zealanders of European Descent by region of origin, age and period of arrival, 1986.

	Period of Arrival			
	81-85	76-80	71-75	66-70
UK and Ireland				
21-25	1.18	1.00	1.02	1.03
26-30	1.10	1.18	1.00	1.04
31-35	1.15	1.14	.99	1.01
36-40	1.16	1.19	.99	1.00
41-45	1.13	1.17	.98	1.08
46-50	1.17	1.10	.99	1.06
Netherlands				
21-25	.83	.85	1.01	1.02
26-30	.88	.92	1.02	1.00
31-35	.89	.90	.96	1.00
36-40	.86	.87	.88	.89
41-45	.90	.97	.86	.90
46-50	.99	.90	.82	.98
Other Europe				
21-25	.93	.89	1.00	1.06
26-30	.94	.94	1.02	.98
31-35	.92	.91	.99	.94
36-40	.90	.92	.91	1.00
41-45	1.06	.98	.87	.93
46-50	1.17	1.04	.88	.94
Other Immigrants				
21-25	.77	.87	.93	.95
26-30	.78	.79	.86	.97
31-35	.87	.78	.76	.90
36-40	.96	.86	.78	.80
41-45	1.10	.92	.94	.85
46-50	1.08	.91	.91	.88

Table 9: Income of Immigrants relative to Natives, 1986 and 1996, by Period-of-Arrival and Region of Origin, for immigrants aged 21-25 years and 36-40 years in 1986.

Region-of-Origin	Period of Arrival			
Age in Year	81-85	76-80	71-75	66-70
UK and Ireland				
1986: 21-25	1.18	1.00	1.02	1.03
1996: 31-35	1.12	1.13	1.03	1.03
1986: 36-40	1.16	1.19	.99	1.00
1996: 46-50	1.10	1.14	.99	.91
Netherlands				
1986: 21-25	.83	.85	1.01	1.02
1996: 31-35	.95	.88	1.08	.96
1986: 36-40	.86	.87	.88	.89
1996: 46-50	.84	.85	.85	.89
Other Europe				
1986: 21-25	.93	.89	1.00	1.06
1996: 31-35	.95	1.13	1.07	1.09
1986: 36-40	.90	.92	.91	1.00
1996: 46-50	.89	.94	.85	.94
Other Immigrants				
1986: 21-25	.77	.87	.93	.95
1996: 31-35	.76	.89	.94	1.04
1986: 36-40	.96	.86	.78	.80
1996: 46-50	.85	.91	.79	.79

Table 10 : Proportion of 1986 male immigrants still in the country in 1996. By age in 1986, period of arrival, and region of origin.

	81-85	76-80	71-75	66-70
UK and Ireland				
21-25	.56	.77	.81	.72
26-30	.67	.78	.84	.84
31-35	.67	.91	.82	.84
36-40	.61	.84	.93	.89
41-45	.67	.82	.92	.84
46-50	.68	.68	.84	.90
Netherlands				
21-25	.89	.63	.82	.80
26-30	.75	.71	.76	.71
31-35	.73	.75	.89	.78
36-40	.75	.77	.98	.93
41-45	.82	.69	1.03	.77
46-50	.83	.81	.81	.82
Other Europe				
21-25	.70	.75	1.01	.88
26-30	.66	.73	.80	.86
31-35	.63	.79	.99	.80
36-40	.64	.78	.89	.83
41-45	.54	.95	.81	.93
46-50	.61	.78	.76	.86
Other Immigrants				
21-25	.65	.64	.81	.69
26-30	.77	.68	.82	.81
31-35	.69	.74	.85	.71
36-40	.66	.76	.85	.82
41-45	.61	.71	.88	.81
46-50	.65	.76	.81	.84

Table 11. 1986-1996 percentage change in the relative proportion of male immigrants with post-secondary qualification, by region of origin, age in 1986 and period of arrival.

Age in 1986	Period of Arrival			
	81-85	76-80	71-75	66-70
UK and Ireland				
21-25	.019	.026	.048	.052
26-30	-.045	-.083	.049	.059
31-35	-.002	-.054	.155	.062
36-40	.064	.001	-.010	-.106
41-45	.044	-.124	.007	-.039
46-50	-.066	-.038	-.033	-.019
Netherlands				
21-25	-.015	.086	.040	.013
26-30	-.093	.007	-.107	.094
31-35	-.060	-.059	.047	.091
36-40	-.074	-.090	.055	-.047
41-45	-.105	-.026	-.066	-.033
46-50	-.037	-.072	-.082	-.003
Other Europe				
21-25	-.052	-.125	.042	.161
26-30	.011	.138	.062	-.058
31-35	-.045	.005	.056	-.055
36-40	-.029	-.063	-.027	.032
41-45	-.003	.017	-.038	.015
46-50	.067	-.043	-.078	-.007
Other Immigrants				
21-25	-.033	.008	.031	.049
26-30	-.091	-.017	.053	.050
31-35	-.082	.030	.042	.044
36-40	-.123	-.001	.023	.019
41-45	-.104	-.027	.018	.010
46-50	-.094	.022	.002	.021

Table 12: Regression Results for Annual Income, Male Immigrants and New Zealand born Men, Pooled 1986 and 1996 data, by Region -of-Origin.

	UK&Ireland	Dutch	Other Europe	Non-European
No qualification (reference)				
School qualification	.230 (.006)	.230 (.006)	.256 (.007)	.278 (.004)
Vocational qual.	.324 (.005)	.333 (.006)	.351 (.006)	.418 (.004)
University qual.	.722 (.008)	.735 (.009)	.754 (.009)	.822 (.005)
Experience	.043 (.000)	.044 (.000)	.045 (.000)	.045 (.000)
Experience squared	-.000 (.000)	-.000 (.000)	-.000 (.000)	-.000 (.000)
Living with Partner	.226 (.005)	.227 (.005)	.220 (.005)	.191 (.004)
Hours:				
1-19 hours	-.904 (.010)	-.873 (.011)	-.879 (.011)	-.770 (.007)
20-29 hours	-.507 (.014)	-.496 (.015)	-.490 (.015)	-.510 (.010)
30-39 hours	-.034 (.007)	-.044 (.008)	-.053 (.009)	-.059 (.006)
40-44 hours (reference)				
45 and more hours	.104 (.004)	.089 (.004)	.100 (.005)	.159 (.003)
Years in NZ/10	-.006 (.006)	.021 (.010)	.043 (.009)	.026 (.004)
Immigrant	.039 (.021)	-.169 (.033)	-.224 (.032)	-.105 (.015)
Cohort 66-70	-.007 (.012)	.009 (.021)	.021 (.021)	-.002 (.009)
Cohort 71-75	-.022 (.013)	.050 (.024)	.037 (.023)	-.051 (.009)
Cohort 76-80	.001 (.018)	-.003 (.027)	.037 (.027)	-.070 (.011)
Cohort 81-85	.004 (.021)	-.008 (.028)	.037 (.029)	-.092 (.013)
Cohort 86-90	.001 (.025)	-.033 (.036)	-.016 (.032)	-.159 (.014)
Cohort 91-96	-.027 (.026)	-.062 (.042)	-.084 (.034)	-.245 (.016)
Census 1986	-.438 (.004)	-.442 (.004)	-.432 (.004)	-.424 (.004)
Constant	9.250 (.009)	9.240 (.010)	9.205 (.010)	9.153 (.007)
N	83841	71024	70345	158648
R2	0.417	0.398	0.397	0.396

Note: Standard errors in parentheses. Dependent variable is the logarithm of annual income.

LIST OF DISCUSSION PAPERS

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