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Non-Technical Abstract

Immigrants are typically found to have less wealth and hold it in different forms than the native born. These differences may affect both the economic assimilation of immigrants and overall portfolio allocation when immigrants are a large share of the population, as in New Zealand. In this paper, data from the 2001 Household Savings Survey are used to examine wealth differences between immigrants and the New Zealand-born. Differences in the allocation of portfolios between housing and other forms of wealth are described. Unconditional and conditional wealth quantiles are examined using parametric models. Semiparametric methods are used to decompose differences in net worth at different parts of the wealth distribution into the part due to differences in characteristics and the part due to differences in the returns to characteristics.

Keywords: Immigration, Portfolios, Semiparametric Decomposition, Wealth

JEL-Code: D31, G11, J15

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I) Introduction

New Zealand has a large foreign-born population with almost one quarter of residents born abroad. In other countries, immigrants are often found to have less wealth and to hold it in different forms than the native born (Cobb-Clark and Hildebrand 2006a). These differences can affect the economic assimilation of immigrants and aggregate portfolio allocation, especially when immigrants are a large share of the population, as in New Zealand. The wealth holdings of immigrants should be especially of interest in New Zealand, where even the Reserve Bank has suggested a need to change the management of immigration because of the apparent impact of immigration on house price inflation.[1]

A number of recent papers have examined labour market outcomes and incomes for immigrants compared with those of the New Zealand-born (Boyd 2003; Hartog and Winkelmann 2003; Macpherson et al 2000; New Zealand Immigration Service 2003; Poot 1993; Winkelmann and Winkelmann 1998; Winkelmann 2000). However, there has been no such analysis of how the wealth of immigrants compares to the wealth of other New Zealanders.[2] In this paper, we use data from the 2001 Household Savings Survey to examine wealth differences between different nativity groups.

We explore three related questions. First, how large are the differences in wealth between immigrants and the NZ-born? Second, to what factors might any differences be attributed? Third, if immigrants and non-immigrants were to be assigned the same personal characteristics (age, education, income, etc.) would there be any remaining "unexplained" differences in wealth which might be attributed to nativity? To answer these questions, we

[1] "Reserve Bank suggests house-sales tax" *The New Zealand Herald* June 18, 2007 quotes from the Reserve Bank's submission to a parliamentary inquiry on housing affordability that "the management of immigration … may need to be tempered in future in light of migration's apparent sustained impact on the level of house prices".

[2] This lack of analysis includes the comprehensive report by Statistics New Zealand (2002a and b) on the Household Savings Survey, which considered how net worth varied with age, gender, ethnicity, occupation and employment status, and income level and sources, but not by nativity or immigrant status.

use two techniques, quantile regression and a semi-parametric decomposition, that allow us to examine differences across the entire wealth distribution, rather than at just a single point like the mean. We use quantile regression to gauge the extent to which several covariates related to individual and locational characteristics explain nativity differences at various wealth quantiles. We use a semi-parametric decomposition to explore the contribution of age, education, inheritances and incomes to wealth differences by nativity status with few parametric assumptions.

There are at least two reasons why differences in wealth are of interest. First, wealth may be distributed quite differently from income, so an over-emphasis on studies of income may disguise some of the other differences that exist. Wealth is an important measure of economic well-being whose effects are not necessarily captured by studies that focus on earnings or income. As Gittleman and Wolff (2004) point out:

> "Two families with the same incomes but widely different wealth levels are not identical. The wealthier family is likely to be able to better provide for the educational and health needs of its children, to be living in a neighbourhood characterised by more amenities and lower levels of crime, to have greater resources that can be called upon in times of economic hardship, and to have more influence in political life." (p.194).

The second reason why wealth is of interest is that differences in wealth may contribute to the intergenerational transmission of disadvantage and to a slowing of immigrant assimilation. Differences in wealth are likely to be key determinants of educational investments. Imperfect capital markets could cause this, with children from less wealthy families facing higher discount rates and leaving school when marginal investments are still highly productive (Gibson 1998).

The variety of immigrant selection policies used around the world mean that findings from other countries may have little applicability to New Zealand, providing further motivation for examining wealth differences between immigrants and the New Zealand-born. For example, in Canada which, similar to New Zealand, has skill-selective immigration,

Zhang (2003) finds that among married families (single individuals), immigrants have higher wealth than their Canadian-born counterparts from the 40th to 90th (55th to 95th) percentiles of the distribution. But in the United States, which has much more open immigration, Cobb-Clark and Hildebrand (2006b) find that the median wealth level of US-born couples (singles) is 2.5 (3) times the median wealth level of foreign-born couples, placing the median foreign-born couple between the 30-35th percentile of the native-born wealth distribution. As Bauer et al. (2007) note, there appears to be substantial cross-national disparity in the economic well-being of immigrant and native families that is largely consistent with domestic labor markets and the selection policies used to shape the nature of the immigration flow.

II) Data

Household Saving Survey

We use data from the Household Saving Survey (HSS) to examine wealth differences between different nativity groups. This survey of the assets, liabilities, personal characteristics and income of New Zealand residents was conducted in 2001 by Statistics NZ for the Office of the Retirement Commissioner (Statistics New Zealand 2002a and 2002b). In terms of surveys fielded in other countries, it is most comparable in coverage and methodology to the Canadian Survey of Financial Security (Statistics Canada 2001).

The HSS covered individuals age 18 and above living in private dwellings and usually resident in New Zealand. The survey population covered about 98% of the resident adult population. A stratified sample of 6,600 households (in 675 primary sampling units (PSUs)) and a Maori booster sample were combined to give a total achieved sample size of 5,374 households.[3] The overall response rate was 74%.[4] One person from those qualifying in a

[3] The stratification scheme used location, ethnicity, education and employment characteristics. The 675 PSUs are out of the 19,000 in all of New Zealand. On average, PSUs in New Zealand contain about 70 dwellings.
[4] The analyses reported below use sampling weights to adjust for different sampling probabilities and where possible take account of the multi-stage sample selection when calculating standard errors and hypothesis tests.

selected household was chosen at random and information was collected from and about that individual. In the case where they had a partner, information was collected for the couple, i.e., where the respondent and his/her partner were living in the same household the couple was interviewed as a single unit. Thus, we have data on uncoupled individuals (n=2,392) and on couples (n=2,982), but not for households or families. We refer to uncoupled individuals as 'singles' throughout the remainder of the paper. We present all results separately for singles and couples, because previous work has shown that the data restrictions needed to pool these two samples are statistically rejected (Gibson and Scobie 2003).

We restrict our analysis to the sample of singles between age 25 and 75 (n=1,682) and couples where both partners are in this age range (n=2,565).[5] The reason for excluding the very young and the very old is that selective household formation among the young and both selective mortality and selective mobility into supported care among the old may bias wealth estimates since one needed to be living in an independent household to be selected into the HSS sample.

All individuals in the HSS were asked whether they were born in New Zealand, and if they were not, the number of years that they had lived in New Zealand. We use this information to classify singles as being either NZ-born (n=1,498) or migrants (n=184) and couples as being either both NZ-born (n=1,915), both migrants (n=262) or mixed nativity (n=388). The distinction between the both-migrant and mixed nativity group may enable us to better understand the role of marriage and cohabitation in immigrant assimilation. Throughout the remainder of the paper we refer to these groups as 'nativity groups'.

[5] We also drop 69 singles and 52 couples who either have negative or zero total income or whose main income source is investment income. A major aim of the analysis in this paper is to examine the effect of income on wealth and negative incomes are clearly not good proxies for permanent income. For incomes that are mainly from investment, the causality goes from wealth to income rather than the reverse.

Our main outcome variable throughout the paper is total net worth (also referred to as wealth below), which is defined as the difference between total asset and liabilities. The assets covered by the survey include residential, investment and overseas property, farms, businesses, life insurance, bank deposits, positive credit card balances, shares and managed funds, money owed, motor vehicles, cash, collectibles, and holdings in personal superannuation and defined contribution schemes. The liabilities include property mortgages, student loans, negative credit card balances and other bank debt.

Descriptive Results

We begin by examining the raw differences in net worth between nativity groups for singles and couples in the HSS. These results are presented in Table 1. Panel A displays the mean and median wealth for each nativity group for both singles and couples and Panel B displays the difference in mean and median wealth between migrants and the NZ-born. Among singles, migrants actually have both higher mean and median wealth than the NZ-born, although neither difference is statistically significant. On the other hand, couples where both partners are migrants have significantly lower mean and median wealth than couples where both partners are NZ-born. This gap is fairly large, with migrant couples having $141,500 lower mean wealth and $74,000 lower median wealth than NZ-born couples. Mixed nativity couples have slightly lower mean wealth than NZ-born couples, but this difference is not statistically significant, and have almost identical median wealth.

We next examine how the different components of wealth vary across nativity groups. In particular, we examine differences in homeownership, equity in one's primary dwelling, equity in overseas properties, total property equity, net assets in trusts, total value of farms, total value of businesses, total bank assets, total bank debts, total financial assets and superannuation. These results are presented in Table 2. For singles, consistent with the evidence on total net worth, migrants are more likely to own their home than the NZ-born

(51% versus 41%), have greater equity in their primary dwelling and in all properties. Migrants have slightly more wealth in trusts and in businesses, but substantially less wealth in farms. Both nativity groups have similar low levels of superannuation and migrants have less net bank assets and financial assets. Overall, on average, single migrants hold nearly two-thirds of their wealth in property compared to less than one-half for the NZ-born.

Turning to couples, NZ-born and mixed nativity couples are more likely to own their home than migrant couples, with 67% of NZ-born, 71% of mixed nativity couples and only 56% of migrant couples owning their own home. However, average primary home and total property equity are similar across the groups. Interestingly, nearly 8% of migrant couples' property equity is from overseas properties. Migrant couples have much less wealth in trusts, farms and businesses than either mixed or NZ-born couples and mixed couples have less wealth in farms and businesses than NZ-born couples. Migrant couples have much lower superannuation savings than mixed nativity and NZ-born couples and less financial assets, but greater net bank assets. Overall, on average, NZ-born couples hold one-third of their wealth in property, compared with 40% for mixed nativity couples, and nearly one-half for migrant couples.

It is also useful to examine how wealth differences between nativity groups vary at particular points in the wealth distribution. We use two approaches to do this: non-parametric kernel density estimation and quantile regressions. Figures 1 and 2 present non-parametric kernel density estimates of the wealth distribution by nativity, for singles and couples, respectively. These estimated densities are from an Epanechnikov kernel in the adaptive kernel density procedure of Van Kerm (2003):

$$\hat{f}(x) = \frac{1}{\sum_{i=1}^{n} w_i} \sum_{i=1}^{n} \frac{w_i}{h_i} K\left(\frac{(x - x_i)}{h_i}\right) \quad (1)$$

Unlike kernel densities with fixed bandwidths, *h*, the adaptive kernel, allows the bandwidth, h_i to vary inversely with the square root of the underlying density function at the sample points: $h_i = h\lambda_i;\ \lambda_i = \left(G/\bar{f}(x_i)\right)^{0.5}$. This varying bandwidth is particularly useful for long-tailed distributions because a fixed bandwidth may undersmooth (i.e. put too much weight on individual data points) in areas with only sparse observations. In contrast, the variable bandwidth gives greater precision in areas where data are abundant and greater smoothness in areas where data are sparse.

Examining Figure 1, we see that single migrants are more likely than NZ-born singles to have wealth between −$35,000 and −$15,000 and between $15,000 and $160,000. Above $160,000, migrants and the NZ-born have a similar wealth distribution. Overall, the most noticeable difference in these distributions is that fewer migrants have wealth between −$8,000 and $10,000, which is the amount of wealth that the majority of NZ-born single have. Turning to Figure 2, migrant couples are more likely to have wealth below $60,000 than NZ-born couples and are less likely to have wealth above that amount. Mixed nativity couples have a wealth distribution that looks similar to the distribution for NZ-born couples, but instead of having a density that peaks sharply around $25,000, mixed nativity couples have a density that plateaus at between $25,000 and $150,000.

Another way of comparing these two distributions is to calculate quantile regressions at various points of the wealth distribution. The advantages of this approach are discussed by Zhang (2003) and include: (1) a wealth gap can be generated at any point of the distribution, not just a single measure such as the mean wealth gap; (2) the method is semi-parametric so that no distributional assumptions on the dependent variable are needed; (3) the estimator is less sensitive to outliers; and (4) tests of the statistical significance of the gaps can easily be

conducted. In general, the q^{th} quantile regression fits the dependent variable as a linear function of some explanatory variables through the q^{th} quantile of the dependent variable.

Thus, to estimate the wealth gap between the NZ-born and migrants at the q^{th} quantile of the wealth distribution, it is only necessary to specify the q^{th} quantile conditional expectation of wealth, w_i, as a linear function of a constant and a dummy variable for being a migrant: $w_i = \alpha^q + \beta^q Migrant_i + \varepsilon_i^q$. The estimate of β^q represents the wealth gap between migrants and the NZ-born at the q^{th} quantile of their wealth distributions. This methodology can easily be extended to make comparisons between the three nativity groups for couples by including both a dummy variable for being in a migrant couple and a dummy variable for being in a mixed nativity couple in the quantile regression model. The estimates of the coefficients on these variables then represent the wealth gap between migrant couples and the NZ-born and between mixed nativity couples and the NZ-born, respectively, at a particular quantile of the wealth distribution.

Table 3 presents the estimated wealth gap between nativity groups at each decile of the wealth distribution. Single migrants have higher wealth than NZ-born singles at all points in the wealth distribution. The differences are significant at the 10th, 40th, 60th and 80th percentiles, with migrants having at least twice the wealth as the NZ-born at or below the median and 30-70% more wealth between the 60th and 80th percentiles in the wealth distribution. Mixed nativity couples generally have the same or slightly higher wealth than NZ-born couples, although there is some evidence that wealth may be lower for mixed couples above the 70th percentile (but, none of these differences are statistically significant). Migrant couples, on the other hand, have significantly lower wealth that NZ-born couples at all points in the wealth distribution, with the gap monotonically increasing at higher quantiles. Thus, by the 70th percentile, the wealth gap between migrant couples and NZ-born couples is $125,000 and, by the 90th percentile, it is $250,000.

These wealth gaps can be contrasted with more widely studied income gaps. In Table 4, we present the estimated income gap between nativity groups at each decile of the income distributions estimated using the HSS data. Singles migrants have similar incomes as NZ-born singles at all points in the income distribution. Combined with the above evidence, this may suggest that, given a particular level of income, single migrants save more than NZ-born singles. Interestingly, migrant couples only have lower incomes than NZ-born couples in the bottom half of the income distribution. So, in contrast to the singles, this suggests that, given a particular level of income, higher income NZ-born couples may save more than migrant couples.[6] As with the wealth distribution, the income distribution for mixed nativity couples is statistically indistinguishable from that for NZ-born couples.

The results in the previous tables do not control for differences between the groups in characteristics, such as age, education and income. As can be seen in Table 5, single migrants are older and more educated than NZ-born singles. Migrant and mixed nativity couples are of similar ages as NZ-born couples, but like singles, are more educated. Migrant couples are also significantly less likely to have ever received a large inheritance than both NZ-born and mixed nativity couples. Since these characteristics are related to the accumulation of wealth, if we do not control for these factors, we are unable to isolate the effect of nativity on wealth accumulation. In the next section, we use two methods to control for other factors that may explain nativity wealth differences in an attempt to isolate the unexplained portion of the wealth gap between nativity groups.

[6] The available data do not allow either the timing or form of any saving differences to be examined. However, if immigration does raise house prices it would enable "passive" savings by the NZ-born who were more likely to be incumbent homeowners while more recently arrived immigrants may face higher entry prices into the housing market.

III) Multivariate Estimates

Parametric Models

As indicated in Table 3, we find some evidence that migrants and the NZ-born have different levels of wealth and that these differences are more pronounced than the observed differences in the income distribution for these groups. However, income is only one factor which might explain the pattern of wealth accumulation. A snapshot of wealth, such as that provided by the HSS, is an encapsulation of many forces that have shaped peoples lives and the policies that have influenced their decisions up to the time of the survey. Ideally, we would like to measure all of these factors. While that is not possible, the HSS does contain a rich set of information on which we can draw.

We begin by estimating quantile regression models that allow us to describe how particular covariates are correlated with wealth and to gauge the extent to which these covariates explain nativity wealth differences at various wealth quantiles. These models control for many factors that might reasonably be considered as influencing the level of net wealth, including demographic characteristics, education, location, inheritances and income. While some of these variables may be chosen with lifetime wealth objectives in mind, we ignore any modelling of their endogeneity and treat them as predetermined, at least by the time the HSS observed respondents. Thus, these are purely descriptive regression models. However, the results show whether differences in wealth across nativity groups persist once we control for the relationship between other covariates and the wealth distribution.

Semi-Parametric Decomposition

We next use a semi-parametric approach proposed by DiNardo, Fortin and Lemieux (1996) for wage decompositions to examine what the distribution of wealth for migrants would be if

they had the characteristics of the NZ-born.[7] This approach requires fewer parametric assumptions than the quantile regression approach, but with a few trade-offs that we discuss below. Given the joint distribution of wealth, *w*, and characteristics, *x*, the marginal distribution of wealth for an observation with characteristics *x* can be written as $g(w) = \int f(w \mid x)h(x)dx$.[8] The observed density of wealth for an observation that is a migrant (*m*=1) is:

$$g(w \mid m=1) = \int f^{m}(w \mid x)h(x \mid m=1)dx \tag{2}$$

The counterfactual density of wealth for a migrant observation, if it were given the characteristics of the NZ-born (*m*=0) can be defined as:

$$\begin{aligned} g^{m}_{CF}(w) &= \int f^{m}(w \mid x)h(x \mid m=0)dx \\ &= \int f^{m}(w \mid x)h(x \mid m=1)\psi(x)dx \end{aligned} \tag{3}$$

which is based on the density of "re-weighted" observations for migrants.

The re-weighting factor is the ratio of two conditional densities:

$$\psi(x) = \frac{h(x \mid m=0)}{h(x \mid m=1)}. \tag{4}$$

By using Bayes rule (for the *j*th nativity group):

$$h(x \mid m=j) = \frac{prob(m=j \mid x)h(x)}{prob(m=j)} \tag{5}$$

the re-weighting factor can be expressed as:

[7] This approach is also used by Zhang (2003) to examine nativity wealth gaps in Canada and by Bauer et al. (2007) to compare the nativity wealth gap in the US, Australia, and Germany, and by Cobb-Clark and Hildebrand (2006b) to examine ethnic wealth gaps in the US.

[8] To translate this to the more familiar parametric approach of Oaxaca and Ransom (1994), intuitively, the conditional expectation, *f*( ) is similar to an estimated regression line and the marginal density of *x*, *h*( ) is analogous to the vector of characteristics.

$$\psi(x) = \frac{prob(m=1)}{prob(m=0)} \frac{prob(m=0 \mid x)}{prob(m=1 \mid x)}. \tag{6}$$

The first part of the re-weighting factor is the ratio of migrants to NZ-born in the population.[9] The second part is the ratio of two conditional probabilities, each of which can come from a (survey-weighted) logit regression of nativity status on explanatory variables, *x*.

With the counterfactual density from equation (3), one decomposition of the migrant-NZ-born wealth gap is based on:

$$g^{nz}(w) - g^{m}(w) = \underbrace{g^{nz}(w) - g^{m}_{CF}(w)}_{\text{unexplained}} + \underbrace{g^{m}_{CF}(w) - g^{m}(w)}_{\text{explained}}. \tag{7}$$

However, it is also possible to construct another counterfactual density, by giving the NZ-born the characteristics of migrants:

$$\begin{aligned} g^{nz}_{CF}(w) &= \int f^{nz}(w \mid x) h(x \mid m=1) dx \\ &= \int f^{nz}(w \mid x) h(x \mid m=0) \psi^{-1}(x) dx \end{aligned} \tag{8}$$

This alternative counterfactual density gives the decomposition:

$$g^{nz}(w) - g^{m}(w) = \underbrace{g^{nz}(w) - g^{nz}_{CF}(w)}_{\text{explained}} + \underbrace{g^{nz}_{CF}(w) - g^{m}(w)}_{\text{unexplained}}. \tag{9}$$

It is sometimes argued that equation (9), which uses the counterfactual density of wealth for the majority group given the characteristics of the minority group, is the more reliable decomposition (Barsky et al. 2002). For example, Cobb-Clark and Hildebrand (2006b) examine the wealth gap between Mexican-Americans and Whites in the US, where Mexican-Americans have a much narrower observed earnings distribution than Whites. Hence, re-weighting the wealth distribution of Mexican-Americans would involve extrapolating the conditional expected wealth function for this group into regions of the White earnings distribution where these group members are virtually nonexistent. Bauer et al. (2007) use a

[9] This is calculated using the survey weights. Note, that when estimating the counterfactual density, the product of the original survey weight and the re-weighting factor is used.

similar argument to justify focusing on counterfactual distributions of immigrant wealth created by reweighting the wealth distribution of native households.

However, in the current data there is less reason to favour one decomposition over the other. Figures 3 and 4 present non-parametric kernel density estimates of the income distribution by nativity for singles and couples, respectively. Figure 3 shows that the income distribution for singles is nearly identical for migrants and the NZ-born, while Figure 4 shows that, while the density of migrant couple incomes is somewhat to the left of that for the NZ-born, there is a very considerable overlap for all three nativity groups among couples. There is also considerable overlap in other factors, such as age. Thus, as in Zhang (2003), we present results from both versions of the decomposition.

This methodology can easily be extended to decompose the wealth gap between the three nativity groups defined for couples (NZ-born, both-migrant, mixed), by estimating the conditional probabilities using a (survey-weighted) multinomial logit regression model of nativity status on the explanatory variables, *x*. For both singles and couples, we decompose the nativity wealth gap into four separate vectors of wealth determinants: 1) a quadratic in the age of the respondent and partner (if a couple); 2) the number of years of school and post-school education of the respondent and partner (if a couple); 3) whether the single person or either member of the couple has ever received an inheritance of $10,000 or more and the amount of the inheritance;[10] and 4) a quadratic in the income of the single person or couple. One trade-off with using this semi-parametric approach is that only a limited set of separate vectors of wealth determinants can be considered because the number of unique orderings of

[10] Previous papers on the immigrant wealth gap in other countries have not examined the role that inheritances play in explaining wealth differences. Yet, this may emerge as an important factor because bequests, especially of parental dwellings, may be more conveniently transferred when the parents and adult children live in the same country. Inheritances are certainly important for explaining other wealth gaps; for example, Menchik and Jianakoplos (1997) find that differences in inheritances explain a significant part of Black-White wealth gap in the US. Thus, we examine whether differences in the availability of inheritances or how these are used by different nativity groups explain differences in wealth across nativity groups.

these vectors increases at a squared rate whenever a new vector is added.[11] We choose these four vectors because our descriptive results suggest that they are the most important factors influencing an individuals or couples position in the wealth distribution.

In addition to the questions of which decomposition to use and which characteristics to control for, the other important modelling question concerns the order in which each explanatory factor is considered. For example, the measured effect of age differences by nativity in shifting the counterfactual wealth distribution for migrants will depend on which factors had already been accounted for before age was considered. To deal with this issue we follow Shorrocks (1999), Hyslop and Maré (2003), Cobb-Clark and Hildebrand (2006b) and Bauer et al. (2007) and use all possible orderings of the factors, presenting results averaged across all orderings. For example, consider a three factor decomposition using age, education and inheritances. We would initially consider age alone. We would then use age and inheritances and calculate the change in the explained wealth gap due to age by comparing this with a decomposition with just inheritances. We would then use age and education, once again comparing with a decomposition that uses only education. Finally, we would use age, inheritances and education and find the marginal effect of age by comparing with a decomposition that uses just inheritances and education. The reported impact of age differences on the nativity wealth gap would be the average across these four sets of results.

Results

We present in Table 6 (singles) and Table 7 (couples) the results from estimating quantile regression models for the 10th, 25th, 50th (median), 75th and 90th percentile pooling nativity groups and controlling for all of the variables in these tables. Comparing the coefficients on the nativity groups in each table with the coefficients in Table 3 for models that had no other

[11] For example, a 3-factor decomposition has nine unique orderings, while a 4-factor decomposition has 16 unique orderings.

covariates shows the extent to which wealth difference are explained by differences in the included characteristics across nativity groups. For example, the gap between New Zealand-born singles and single migrants at the 90th percentile of the wealth distribution rises from $37,000 when no covariates are used to $150,000 once controlling for individual characteristics and location differences. In other words, the unexplained wealth advantage of single migrants at the upper-end of the wealth distribution is even larger once adjusting for differences in their age, education, income, inheritances and location compared to NZ-born singles.

Turning to the results for couples, the wealth gap between migrant couples and the NZ-born is generally unaltered by the inclusion of control variables, and hence remains unexplained, except at the 90th percentile where roughly half of the $250,000 gap is explained by differences in covariates. On the other hand, once controlling for differences in covariates, mixed nativity couples appear to have lower levels of wealth than NZ-born couples at the median and above, even though no wealth gap was apparent for this group at these quantiles when we do not control for covariates. This occurs because mixed nativity couples relative to NZ-born couples have characteristics that are associated with having higher levels of wealth, so the fact that there is no raw wealth gap for this group creates an unexplained gap when we condition on these characteristics.

Of particular interest, we control for a quadratic in years in New Zealand for migrants in the quantile regressions, allowing us to judge how wealth accumulation changes with assimilation (or for different cohorts of migrants since it is not possible to separate these factors in cross-sectional data). Examining the results for singles, wealth at the 10th (25th) percentile is increasing in years in NZ until 18 (27) years and then decreasing. On the other hand, wealth at the 75th (90th) percentile is decreasing in years in NZ until 22 (33) years and then increasing. There is no relationship between years in NZ and median wealth among

single migrants. Interestingly, years in NZ is not significantly related to the wealth of migrant or mixed nativity couples at any point in the wealth distribution. This may occur because we have constrained the relationship between years in NZ and wealth to be the same for migrant couples and mixed nativity couples.

We next turn to the results from the DiNardo, Fortin and Lemieux decomposition. Table 8 presents the results for singles using both counterfactual distributions.[12] Once controlling semi-parametrically for age, education, inheritances and income, there is little evidence that single migrants have different wealth than comparable NZ-born singles. The only exceptions are found when we use the characteristics of the NZ-born to generate counterfactual wealth distributions for migrants. Here, we find a significantly positive residual component at the 10th and 80th percentiles, i.e. controlling for characteristics, migrants still have higher wealth than the NZ-born at these points in the distribution. We find consistent evidence that the positive wealth gap for single migrants is almost entirely explained by differences in the age distribution between these groups. This is true at all points in the wealth distribution and using either weighting scheme. None of the other covariates explain a significant proportion of the wealth gap. Overall, these results indicate that the higher wealth observed for single migrants compared to NZ-born singles occurs because the migrants are more concentrated at ages where individuals have higher levels of wealth, which is consistent with the descriptive evidence presented in Table 5. This age effect is less apparent when using the more parametric quantile regression approach, which shows significant positive wealth gaps at the 75th and 90th percentiles, even when controlling for age.

[12] The approach outlined in the previous section allows us to estimate the entire counterfactual wealth distribution. We present results for the decomposition of the estimated wealth gaps between nativity groups at each decile of the wealth distributions. Bootstrapping methods using a normal approximation with 1,000 replications that account for the complex sample design are used to calculate standard errors.

Tables 9 and 10 present similar results for migrant couples and mixed nativity couples, respectively. Now there are three possible decompositions since the characteristics of any of the three nativity groups can be used to generate counterfactual wealth distributions for the other two groups. We present all three sets of results. First, in Table 9, we examine the findings for couples where both partners are migrants. Recall that migrant couples have less wealth than NZ-born couples at all points in the wealth distribution and these gaps persist (except at the 10th percentile) even after conditioning on the set of variables in Table 7 when using the quantile regression approach. However, the semi-parametric approach provides more nuanced results; most of this gap is unexplained by the different distribution of age, education, inheritances and income across these groups at the 10-30th percentiles, as well as, at the 90th percentile, whereas one-half to two-thirds of the gap is generally explained in the remainder of the wealth distribution. In this part of the distribution (e.g. between the 40th and 80th percentiles), differences in inheritances and in incomes are responsible for about an equal share of the explained gap. Lesser receipt of inheritances and lower incomes actually explain most of the wealth gap between migrant couples and NZ-born couples between the 30th and 80th percentiles of the wealth distribution, but age (and to a lesser extent education) differences between these groups suggest that migrant couples should have higher levels of wealth, and thus decrease the overall proportion of the wealth gap that is explained at these points in the distribution.

Next, in Table 10, we examine the findings for mixed nativity couples. Recall that these couples have a similar unconditional wealth distribution as the NZ-born and this similarity occurs even after controlling for the variables in Table 7 using the quantile regression approach, except perhaps at the top-end of the distribution. Using the more flexible, semi-parametric approach to control for age, education, income and inheritances, there is still little evidence that mixed nativity couples have different wealth than comparable NZ-born couples.

Mixed couples have a negative residual component at the 80th percentile of the wealth distribution using the first re-weighting scheme and a negative residual at mean of the wealth distribution using the third re-weighting scheme, meaning that, once counterfactual characteristics are assigned to a particular group, their wealth is predicted to be higher than it is actually. We find some evidence, depending on the weighting scheme used, that differences in education between mixed couples and NZ-born couples contribute to higher levels of wealth for mixed couples in most points in wealth distribution. Below the median, these differences explain one-third to two-thirds of the small positive wealth gap for mixed nativity couples, while at the median and above, these differences suggest that these couples should have even higher relative wealth than what is actually observed (this is consistent with the negative, albeit insignificant, residual components found at the median and above).

Robustness

Ideally, we would like to know whether the relationship between permanent income and wealth differs by nativity, but all we observe in our data is a cross-sectional estimate of income at different ages for different individuals. If the life-cycle relationship between income and wealth accumulation differs for migrants and the NZ-born, then controlling for income will potentially bias the estimates of the relationship between the other characteristics and wealth. In unreported results, we re-estimate the semi-parametric decomposition model excluding income as an explanatory factor. It appears that excluding income from the decomposition has a limited effect on our main findings for singles with the difference in age distributions still explaining almost the entire positive wealth gap found for single migrants. For couples, we find that excluding income leads to a higher proportion of the wealth gap between migrants and the NZ-born being unexplained. This is consistent with income differences, controling for other characteristics, being an important explanation for differences in wealth. Otherwise, the results remain substantively unchanged. This is also true

for the results for mixed nativity couples, where excluding income from the decomposition has little impact on our main findings.

IV) Conclusions

The economic assimilation of immigrants is an important area for study and policy, especially in countries, such as New Zealand, where nearly one in four individuals is foreign-born, with forty per cent of immigrants having arrived within the past ten years. This large and recent immigration may have effects on the overall income and wealth distribution, on portfolio allocation and on prices in asset markets, most especially for housing. It is therefore of interest to ask the following question: How large is the wealth gap between immigrants and the New Zealand-born and what explains any gaps that exist? In this study, we use data from the 2001 Household Saving Survey to estimate quantile regression models and to use a semi-parametric decomposition technique that allow us to answer these questions by examining differences across the entire wealth distribution, rather than at just a single point like the mean. We also distinguish between immigrants who are single, immigrants whose spouse or partner is New Zealand-born and immigrant couples where both individuals are foreign-born.

We find that single migrants have higher wealth than NZ-born singles at all points in the unconditional wealth distribution, but that this positive wealth gap is almost entirely explained by differences in the age distribution between these groups. Once controlling semi-parametrically for age, education, inheritances and income, there is little evidence that single migrants have different wealth than comparable NZ-born singles. Mixed nativity couples have similar unconditional wealth as NZ-born couples, but migrant couples have significantly lower unconditional wealth that NZ-born couples at all points in the wealth distribution, with the gap monotonically increasing at higher quantiles. Controling semi-parametrically for age, education, income and inheritances, there is still little evidence that mixed nativity couples have different wealth than comparable NZ-born couples. However, for migrant couples, we

find evidence that while most of the wealth gap is unexplained at the 10-30th percentiles, as well as, at the 90th percentile, one-half to two-thirds of the gap is generally explained in the remainder of the wealth distribution, where differences in inheritances and in incomes are responsible for about an equal share of the explained gap.

Although we may have answered some questions about immigrant wealth there are several others that deserve future examination. For example, New Zealand admits immigrants both from countries that are wealthier than New Zealand and from those that are poorer. Thus, it would be interesting to see how wealth gaps and assimilation differ between immigrants from these two groups of countries; unfortunately, country of birth is not collected in the HSS. Similarly, most immigrants come through channels that select on skills, but many also come through family reunification or humanitarian streams. Wealth gaps and the rate of assimilation may depend on these details of immigration policy; again which are not measured in the HSS. Since assimilation is difficult to observe with cross-sectional data, where cohort and time effects are conflated, future analyses will benefit most from using the Survey of Family Income and Employment (SoFIE) which will soon provide biannual longitudinal data on wealth and also measures nativity, years in New Zealand and country of birth.

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Table 1 – Net Worth by Nativity Group of Respondent

	Singles		Couples	
Nativity Group	Mean	Median	Mean	Median
Panel A: Mean/Median (Standard Error) of Net Worth				
NZ-Born	116,628	24,178	352,703	190,879
	(9,245)	(4,343)	(19,529)	(12,167)
Migrant	127,715	57,000	211,248	116,710
	(16,332)	(20,447)	(16,986)	(19,277)
Mixed			318,773	191,334
			(24,083)	(11,710)
Panel B: Difference Between Migrants and NZ-Born in Mean/Median (Standard Error)				
Migrant - NZ-Born	11,087	32,822	-141,455	-74,169
	(18,488)	(19,710)	(24,971)	(17,595)
Mixed - NZ-Born			-33,929	455
			(29,609)	(15,673)
Observations	1,682		2,565	

Note: All standard errors account for the complex sample design. Those for the median are calculated by bootstrapping using a normal approximation with 1,000 replications.

Table 2 – Net Worth Components by Nativity Group of Respondent - Mean (Standard Deviation)

	Singles		Couples		
Nativity Group	NZ-Born	Migrant	NZ-Born	Migrant	Mixed
Own Home	0.411	0.509	0.666	0.562	0.709
	(0.017)	(0.051)	(0.014)	(0.031)	(0.029)
Total Net Worth	116,628	127,715	352,703	211,248	318,773
	(9,245)	(16,332)	(19,529)	(16,986)	(24,083)
Equity in Primary Residence	41,426	70,288	92,381	81,456	104,974
	(2,992)	(10,673)	(4,131)	(7,218)	(8,124)
Overseas Property Equity	573	749	558	7,540	2,221
	(273)	(484)	(520)	(3,722)	(1,533)
Total Property Equity	53,078	81,379	110,834	100,321	123,620
	(4,926)	(11,608)	(4,920)	(8,791)	(9,069)
Net Assets in Trusts	18,241	21,710	89,552	48,811	96,157
	(5,359)	(14,960)	(15,832)	(14,088)	(25,990)
Total Value of Farms	9,511	839	47,620	10,083	29,002
	(3,574)	(842)	(7,648)	(5,002)	(12,550)
Total Value of Businesses	9,251	10,343	51,265	15,367	36,735
	(2,358)	(5,769)	(10,371)	(5,006)	(7,830)
Total Bank Assets	11,064	8,013	16,339	24,671	19,724
	(1,715)	(1,587)	(1,379)	(5,721)	(3,151)
Total Bank Debts	2,541	3,201	7,353	4,435	4,034
	(621)	(1,618)	(2,040)	(1,771)	(1,295)
Total Financial Assets	7,302	6,915	27,461	15,636	20,286
	(1,410)	(2,348)	(4,076)	(3,629)	(6,162)
Superannuation	9,349	9,775	28,707	13,108	23,575
	(1,831)	(4,157)	(2,439)	(2,956)	(3,753)
Observations	1,498	184	1,915	262	388

Note: All standard errors account for the complex sample design.

Table 3 – Net Worth Quantiles for Immigrants and the New Zealand-Born

Wealth Quantile	10th	20th	30th	40th	50th	60th	70th	80th	90th
Panel A: Singles									
NZ-Born	-4,500	0	1,943	9,600	24,178	60,884	110,493	180,696	321,800
Migrant	0	500	8,029	29,250	57,000	105,000	139,697	246,000	358,430
Migrant - NZ-Born	4,500*	500	6,086	19,650*	32,822	44,116*	29,204	65,304*	36,630
	(962)	(1,135)	(5,034)	(9,118)	(19,710)	(18,790)	(29,847)	(32,224)	(69,223)
Panel B: Couples									
NZ-Born	6,500	40,500	81,700	128,944	190,879	266,450	369,667	509,000	817,508
Migrant	-20	9,348	39,295	64,335	116,710	183,086	245,551	368,810	564,035
Mixed	12,796	57,850	104,100	146,108	191,334	280,310	360,000	466,600	691,354
Migrant - NZ-Born	-6,520*	-31,152*	-42,405*	-64,609*	-74,169*	-83,364*	-124,116*	-140,190*	-253,473*
	(1,970)	(4,881)	(9,772)	(15,269)	(17,595)	(20,964)	(31,636)	(36,830)	(58,583)
Mixed - NZ-Born	6,296	17,350*	22,400	17,164	455	13,860	-9,667	-42,400	-126,154
	(6,728)	(8,670)	(11,598)	(11,958)	(15,673)	(23,959)	(30,635)	(30,788)	(86,570)

Note: Wealth gaps that are statistically significant at the 5% level are indicated by *. The standard errors are calculated by bootstrapping using a normal approximation with 1,000 replications that account for the complex sample design.

Table 4 – Household Income Quantiles for Immigrants and the New Zealand-Born

Wealth Quantile	10th	20th	30th	40th	50th	60th	70th	80th	90th
Panel A: Singles									
NZ-Born	9,500	13,127	15,000	17,474	21,000	27,698	32,000	41,471	60,000
Migrant	10,119	13,282	15,529	19,200	24,255	29,529	35,000	42,500	56,000
Migrant - NZ-Born	619	155	529	1,726	3,255	1,831	3,000	1,029	-4,000
	(2,352)	(794)	(824)	(1,870)	(2,668)	(2,874)	(4,882)	(4,765)	(7,027)
Panel B: Couples									
NZ-Born	22,976	33,000	41,300	50,000	58,250	67,500	78,500	90,588	120,000
Migrant	14,765	22,000	26,022	34,000	42,500	58,258	72,000	88,000	110,000
Mixed	25,588	38,300	45,000	50,925	57,566	66,588	76,000	90,000	116,925
Migrant - NZ-Born	-8,211*	-11,000*	-15,278*	-16,000*	-15,750*	-9,242	-6,500	-2,588	-10,000
	(2,127)	(1,470)	(2,158)	(3,117)	(6,837)	(7,164)	(6,756)	(6,152)	(10,808)
Mixed - NZ-Born	2,612	5,300	3,700	925	-684	-912	-2,500	-588	-3,075
	(2,005)	(2,746)	(1,872)	(1,691)	(1,627)	(2,531)	(4,128)	(3,001)	(15,421)

Note: Wealth gaps that are statistically significant at the 5% level are indicated by *. The standard errors are calculated by bootstrapping using a normal approximation with 1,000 replications that account for the complex sample design.

Table 5 – Sociodemographic Characteristics by Nativity Group - Mean (Standard Deviation)

	Singles		Couples		
Nativity Group	NZ-Born	Migrant	NZ-Born	Migrant	Mixed
Age	43.9	47.7	45.9	47.2	46.2
	(0.5)	(1.3)	(0.4)	(0.9)	(0.7)
Partner's Age			46.0	47.2	45.7
			(0.4)	(0.9)	(0.7)
Years of Secondary School	3.36	3.67	3.48	3.90	3.70
	(0.05)	(0.16)	(0.04)	(0.13)	(0.08)
Partner's Years of Secondary School			3.41	3.82	3.75
			(0.04)	(0.14)	(0.07)
Years of Post-Secondary School	1.81	2.43	1.78	2.64	2.38
	(0.08)	(0.24)	(0.06)	(0.21)	(0.13)
Partner's Years of Post-Secondary School			1.74	2.69	2.18
			(0.06)	(0.19)	(0.13)
Ever Inherit > $10,000	0.169	0.169	0.295	0.157	0.326
	(0.013)	(0.034)	(0.014)	(0.026)	(0.029)
Amount of Inheritance	11,772	21,664	24,062	13,921	27,474
	(1,815)	(9,155)	(3,062)	(4,195)	(5,273)
Total Individual/Couple Income	31,089	29,586	69,599	60,508	74,091
	(1,203)	(2,391)	(1,692)	(4,141)	(4,306)
Years in New Zealand		25.1		17.6	31.8
		(1.6)		(1.1)	(1.1)
Partner's Years in New Zealand				16.7	
				(1.1)	
Observations	1,498	184	1,915	262	388

Note: All standard errors account for sample weights.

Table 6 – Quantile Regression Estimates of the Determinants of Net Worth for Singles

Percentile	10th	25th	50th	75th	90th
Migrant	7,207	-4,407	-7,804	55,737**	149,991**
	-5,842	-3,417	-13,472	-8,634	-10,851
Years in New Zealand / 10	11,161*	10,435**	9,545	-38,083**	-98,261**
	-4,355	-2,661	-10,395	-7,498	-10,128
Years in New Zealand Squared / 100	-3,152**	-1,885**	-25	8,505**	14,882**
	-828	-493	-1,901	-1,502	-2,103
Age	6,881**	562	-21,069**	-40,073**	-48,213**
	-2,308	-1,217	-4,252	-3,587	-5,783
Age Squared / 100	-11,753*	-985	50,708**	100,397**	128,707**
	-4,749	-2,565	-8,976	-7,712	-12,682
Age Cubed / 1000	725*	241	-3,364**	-7,073**	-9,481**
	-313	-173	-606	-529	-886
Male	-4,512*	-2,885**	-1,371	-3,799	701
	-1,874	-937	-3,144	-2,612	-4,976
Maori	-4,303+	-7,740**	-9,450**	-14,634**	-18,037**
	-2,340	-984	-3,290	-2,666	-5,039
Neither Pakeha or Maori	-14,920**	-9,300**	-3,341	-2,817	-19,806*
	-3,537	-2,345	-6,943	-5,360	-7,741
Years of Secondary School	1,632**	3,108**	3,260**	1,156	-972
	-590	-338	-1,194	-1,133	-1,975
Years of Post-Secondary School	-3,347**	-3,274**	-2,581**	-1,577*	5,655**
	-495	-241	-733	-639	-1,255
Never Married	1,848	1,574	-1,663	-8,694**	-13,830*
	-1,921	-967	-3,495	-2,986	-6,035
Has Dependent Children	-806	-936+	-2,246	-5,930**	-10,123**
	-1,175	-548	-1,754	-1,295	-2,191
Age of Youngest Children	-226	164	-59	-1,545**	-2,379**
	-171	-107	-406	-341	-605
Ever Inherit > $10,000	16,413**	19,403**	30,435**	34,265**	-807
	-2,396	-1,410	-4,408	-3,472	-5,803
Amount of Inheritance / 1000	33**	403**	848**	1,203**	1,561**
	-8	-13	-33	-29	-24
Expect Future Inheritance	4,754*	7,870**	9,090*	17,873**	17,849**
	-1,894	-1,045	-3,596	-3,064	-5,605
Total Income (Thousands)	695**	949**	1,458**	2,635**	5,164**
	-57	-35	-111	-89	-163
Total Income Squared (Thousands)	-206**	-191**	-119**	-341**	-816**
	-13	-7	-26	-21	-39
Main Income Source - Self-Employed/Other	19,539**	68,631**	149,825**	208,826**	571,135**
	-3,515	-1,681	-5,385	-4,466	-7,014
Main Income Source - Superannuation	509	5,781**	7,511	-12,209+	28,170**
	-3,476	-1,921	-6,761	-6,580	-8,463
Main Income Source - Income Support	4,254+	4,657**	10,329**	14,360**	38,571**
	-2,498	-1,171	-3,936	-3,205	-5,572
Rural Household	3,832+	7,254**	4,571	18,376**	105,654**
	-2,320	-1,444	-4,827	-4,454	-8,860
Northland	4,144	10,517**	6,460	-22,971**	-29,097**
	-3,670	-1,733	-6,072	-5,149	-10,519
Waikato	5,219+	7,626**	-1,218	-14,882**	-18,004*
	-3,003	-1,484	-5,110	-4,554	-8,011
Bay of Plenty	2,398	8,542**	4,118	-1,798	-14,794+
	-3,396	-1,595	-6,247	-4,302	-7,863
Hawkes Bay / Gisborne	2,244	8,793**	-2,209	-17,209**	-5,787
	-5,020	-2,147	-7,253	-6,179	-10,096
Taranaki	-2,540	5,572**	-3,188	-18,689**	4,615
	-4,720	-1,917	-6,462	-5,408	-11,574
Whanganui / Horewhenua	1,535	1,623	-15,144*	-28,452**	-47,474**
	-3,949	-1,831	-7,675	-6,149	-10,626
Wellington	-968	5,132**	-2,429	-24,423**	-18,922+
	-3,180	-1,637	-6,297	-5,595	-11,374
Nelson	-6,328+	-2,780+	-213	-13,970**	-12,509
	-3,428	-1,556	-5,366	-4,758	-7,682
Tasman / West Coast / Marlborough	-3,670	5,981**	-400	3,054	4,806
	-4,104	-1,842	-6,222	-5,353	-11,038
Canterbury	-1,814	-2,456	-6,439	-28,615**	-30,555**
	-2,669	-1,556	-5,201	-4,343	-7,739
Otago	-354	1,460	-1,200	-30,748**	-18,840*
	-3,984	-2,042	-6,429	-5,826	-9,334
Southland	-3,313	7,784**	-6,595	-30,213**	-59,524**
	-4,447	-1,983	-6,551	-5,744	-9,542
Observations	1,682	1,682	1,682	1,682	1,682

Note: Coefficients that are statistically significant at the 5% level are indicated by *. The standard errors account for sample weights.

Table 7 – Quantile Regression Estimates of the Determinants of Net Worth for Couples

Percentile	10th	25th	50th	75th	90th
Migrant Couple	-1,663	-47,144**	-69,867**	-154,353**	-129,851*
	-16,506	-15,194	-24,378	-45,931	-54,323
Mixed Nativity Couple	377	-15,412	-38,229*	-63,727*	-77,844*
	-10,463	-10,257	-16,506	-31,677	-39,215
Years in New Zealand / 10	-17,383+	-2,253	-4,228	26,352	-44,382
	-10,298	-9,528	-15,609	-28,355	-27,619
Years in New Zealand Squared / 100	3,478	-666	1,724	-3,768	9,040
	-2,176	-2,118	-3,437	-6,044	-5,775
Partner's Years in New Zealand / 10	-2,081	-10	19,520	43,308	35,753
	-10,158	-10,086	-16,343	-31,453	-36,392
Partner's Years in New Zealand Squared / 100	1,452	1,134	-1,949	-7,419	-3,867
	-2,205	-2,327	-3,677	-6,898	-7,769
Age	6,404	-5,334	-1,246	-40,873	-60,481+
	-8,340	-9,366	-15,006	-28,005	-34,334
Age Squared / 100	-8,145	17,081	13,216	98,685	165,733*
	-17,853	-19,533	-31,694	-60,222	-73,787
Age Cubed / 1000	406	-1,178	-990	-6,430	-12,214*
	-1,209	-1,302	-2,145	-4,137	-5,056
Partner's Age	-18,087*	-11,761	-11,584	2,583	17,485
	-8,377	-8,991	-14,754	-27,478	-31,880
Partner's Age Squared / 100	42,053*	31,392+	32,688	1,009	-41,534
	-17,989	-18,902	-31,092	-58,276	-67,784
Partner's Age Cubed / 1000	-2,929*	-2,216+	-2,318	-53	4,003
	-1,216	-1,264	-2,096	-3,945	-4,605
Both Maori Couple	-43,152**	-54,195**	-56,826**	-91,308**	-74,963**
	-9,502	-8,938	-12,816	-23,821	-26,938
Mixed Maori Couple	-24,774**	-32,285**	-52,339**	-56,489*	20,297
	-8,272	-7,008	-11,725	-22,074	-29,204
Other Couple	-7,245	4,824	-5,736	22,935	846
	-10,269	-9,506	-15,018	-28,595	-36,436
Years of Secondary School	4,679*	10,366**	16,232**	27,285**	31,287**
	-2,034	-2,111	-3,533	-6,748	-8,406
Years of Post-Secondary School	-2,070	-1,275	-1,381	426	-419
	-1,369	-1,179	-1,879	-3,579	-3,865
Partner's Years of Secondary School	2,844	2,783	3,007	-549	21,732*
	-2,118	-2,139	-3,533	-6,894	-9,189
Partner's Years of Post-Secondary School	1,107	10	-2,030	3,456	-4,714
	-1,142	-1,176	-1,895	-3,674	-4,261
Married Couple	17,521**	15,075*	29,174**	35,061+	55,980**
	-6,439	-6,504	-10,172	-18,956	-19,972
Has Dependent Children	1,742	1,661	9,143*	16,826*	26,124**
	-2,582	-2,486	-3,823	-7,507	-9,331
Age of Youngest Children	71	778	-11	1,093	776
	-554	-536	-927	-1,874	-2,251
Ever Inherit > $10,000	29,201**	32,221**	48,718**	38,510*	8,483
	-6,689	-6,030	-9,780	-18,800	-23,654
Amount of Inheritance / 1000	185**	583**	782**	1,149**	2,488**
	-43	-36	-65	-116	-115
Expect Future Inheritance	24,128**	15,810**	17,821*	12,252	51,184**
	-5,049	-5,054	-8,201	-16,310	-19,837
Total Income (Thousands)	444**	1,205**	1,963**	3,473**	3,069**
	-92	-85	-150	-299	-382
Total Income Squared (Thousands)	73**	-3	22	-66	660**
	-15	-14	-32	-51	-59
Main Income Source - Self-Employed/Other	29,004**	59,195**	125,817**	189,012**	319,237**
	-6,275	-6,309	-9,795	-18,407	-21,552
Main Income Source - Superannuation	-28,979*	-26,601*	-73,337**	-109,169**	-192,291**
	-12,796	-12,299	-19,518	-41,399	-47,835
Main Income Source - Income Support	-25,152*	-30,188**	-29,316+	-19,701	-3,104
	-11,346	-11,152	-16,614	-29,570	-35,585
Rural Household	-547	-8,542	46,047**	135,688**	305,114**
	-7,293	-7,141	-11,034	-20,893	-24,024
Northland	30,011**	35,839**	14,462	-70,123+	-154,249**
	-11,412	-11,111	-19,489	-39,180	-43,668
Waikato	12,887	6,545	-7,295	-44,444	1,455
	-9,643	-9,633	-15,216	-29,779	-37,667
Bay of Plenty	25,168**	4,489	16,263	-14,462	-8,549
	-9,495	-10,343	-16,354	-31,348	-35,980
Gisborne	31,961*	30,749*	20,232	50,667	38,426
	-13,249	-13,595	-22,741	-48,290	-69,820
Hawkes Bay	4,009	-8,986	-20,899	-59,884+	-96,568*
	-11,539	-11,151	-17,028	-33,884	-41,562
Taranaki	23,908*	20,020+	7,353	-19,566	60,228
	-10,193	-10,550	-17,273	-35,461	-47,795
Manawatu / Whanganui	1,772	-8,115	-22,575	-49,631	-24,565
	-9,583	-9,486	-15,805	-32,309	-38,822
Wellington	-12,521	-12,650	-18,534	-77,818**	-97,174**
	-8,570	-7,979	-12,985	-25,543	-30,291
Marlborough / Nelson / Tasman / West Coast	14,634	10,932	18,714	-45,638	-75,479+
	-9,739	-9,164	-15,155	-31,093	-42,661
Canterbury	2,365	4,291	-4,659	-58,738*	-59,500+
	-7,901	-7,921	-12,885	-25,176	-32,215
Otago	-4,863	-12,823	-65,264**	-132,969**	-177,073**
	-9,907	-9,654	-15,691	-31,122	-38,303
Southland	-2,243	-10,518	-26,225	-62,327+	-21,247
	-11,709	-11,043	-17,896	-35,052	-43,019
Observations	2,560	2,560	2,560	2,560	2,560

Note: Coefficients that are statistically significant at the 5% level are indicated by *. The standard errors account for sample weights.

Table 8 – Semi-Parametric Decomposition of Differences in Net Worth for Immigrants and the New Zealand-Born Singles

Migrant - NZ-Born		Counterfactuals Generated for Migrants					Counterfactuals Generated for the New Zealand-Born				
Wealth Gap	Raw Gap	Age	Education	Inheritences	Income	Residual	Age	Education	Inheritences	Income	Residual
10th Percentile	4,500*	0	0	0	0	4,500*	3,254	-2,446	-105	-613	4,410
	(962)	(1,599)	(533)	(181)	(276)	(2,028)	(7,365)	(14,800)	(3,242)	(34,457)	(41,322)
20th Percentile	500	464	-32	-6	-352	426	517	-144	-40	-240	407
	(1,135)	(698)	(433)	(165)	(332)	(579)	(7,360)	(15,182)	(5,005)	(34,488)	(41,970)
30th Percentile	6,086	4,701	681	-155	-999	1,858	3,950	995	-149	-1,227	2,517
	(5,034)	(3,056)	(2,065)	(1,034)	(1,920)	(4,180)	(6,650)	(17,254)	(7,848)	(35,399)	(46,134)
40th Percentile	19,650*	15,290*	-360	-812	-1,170	6,703	11,115	2,837	-192	-2,930	8,820
	(9,118)	(6,255)	(4,148)	(2,421)	(3,952)	(8,208)	(8,075)	(19,990)	(5,174)	(36,598)	(48,910)
Median	32,822	30,258*	-6,603	-2,637	-8,048	19,852	30,860*	6,207	521	-6,265	1,499
	(19,710)	(13,793)	(8,094)	(4,285)	(6,973)	(14,389)	(11,913)	(20,072)	(4,711)	(36,466)	(52,272)
60th Percentile	44,116*	28,591*	-11,382	-2,834	-7,135	36,876	40,899*	3,923	1,161	-7,183	5,316
	(18,790)	(10,961)	(10,728)	(5,241)	(8,385)	(20,706)	(10,565)	(19,041)	(6,061)	(35,096)	(48,378)
70th Percentile	29,204	29,711	-28,339	-612	-6,809	35,253	39,272*	8,235	708	-10,360	-8,651
	(29,847)	(16,237)	(15,896)	(8,134)	(9,107)	(30,333)	(11,198)	(18,405)	(6,739)	(33,721)	(51,733)
80th Percentile	65,304*	36,728*	-36,079	-1,088	-11,838	77,580*	42,056*	19,906	5,475	-15,201	13,069
	(32,224)	(16,718)	(19,259)	(11,743)	(12,343)	(37,470)	(12,704)	(17,941)	(11,206)	(33,165)	(52,393)
90th Percentile	36,630	39,796	-54,938	10,680	-43,450	84,541	66,965*	39,890	18,720	-32,486	-56,460
	(69,223)	(27,141)	(39,170)	(36,654)	(31,982)	(72,396)	(20,102)	(21,932)	(22,224)	(37,018)	(84,073)
Mean	11,087	16,056*	-13,501	-2,173	-9,895	20,600	27,617*	3,672	5,948	-11,260	-14,890
	(15,364)	(6,165)	(7,674)	(7,029)	(7,944)	(18,229)	(8,564)	(15,013)	(7,768)	(32,228)	(41,620)

Note: Components for the wealth gap that are statistically significant at the 5% level are indicated by *. The standard errors are calculated by bootstrapping using a normal approximation with 1,000 replications that account for the complex sample design.

Table 9 – Semi-Parametric Decomposition of Differences in Net Worth for Migrant Couples and the New Zealand-Born Couples

Migrant Couple - NZ-Born		Counterfactuals for Migrants and Mixed Nativity					Counterfactuals for NZ-Born and Mixed Nativity					Counterfactuals for NZ-Born and Migrant Couples				
Wealth Gap	Raw Gap	Age	Educ	Inherit	Income	Residual	Age	Educ	Inherit	Income	Residual	Age	Educ	Inherit	Income	Residual
10th Percentile	-6,520*	1,636	-541	-1,014*	-2,069	-4,532	5,938*	3,341	-2,780*	-5,789*	-7,230	3,398	2,009	-685	-3,287*	-7,954*
	(1,970)	(944)	(940)	(482)	(1,348)	(2,651)	(2,468)	(1,914)	(800)	(1,496)	(3,838)	(1,779)	(1,295)	(822)	(1,516)	(3,522)
20th Percentile	-31,152*	7,191*	2,266	-4,143	-10,357	-26,110*	14,780*	9,868*	-7,981*	-12,589*	-35,231*	12,971*	5,252	-3,933	-13,347*	-32,094*
	(4,881)	(3,597)	(3,364)	(2,694)	(5,631)	(7,390)	(4,590)	(2,869)	(1,608)	(3,106)	(6,926)	(4,845)	(3,120)	(3,906)	(6,509)	(9,843)
30th Percentile	-42,405*	18,702*	6,239	-13,191*	-25,484*	-28,671	20,341*	13,967*	-11,678*	-18,424*	-46,611*	19,493*	7,576	-13,706*	-27,726*	-28,042
	(9,772)	(6,380)	(8,301)	(5,357)	(9,313)	(17,852)	(6,607)	(4,091)	(2,526)	(4,291)	(10,557)	(7,378)	(5,941)	(6,892)	(8,702)	(16,200)
40th Percentile	-64,609*	17,625	4,203	-21,165*	-36,276*	-28,995	24,227*	14,536*	-15,618*	-21,072*	-66,682*	20,593*	4,438	-22,182*	-32,531*	-34,926
	(15,269)	(9,047)	(11,125)	(7,654)	(11,623)	(21,297)	(7,641)	(4,770)	(3,596)	(5,484)	(15,066)	(9,804)	(7,825)	(9,532)	(11,369)	(20,012)
Median	-74,169*	25,723*	2,207	-27,588*	-39,530*	-34,982	28,149*	16,707*	-24,039*	-32,415*	-62,571*	29,925*	5,724	-30,143*	-41,520*	-38,156
	(17,595)	(10,699)	(14,177)	(11,146)	(17,048)	(32,547)	(9,119)	(6,489)	(5,356)	(7,671)	(17,718)	(12,023)	(10,717)	(14,655)	(16,408)	(31,268)
60th Percentile	-83,364*	28,652*	4,758	-35,906	-48,816	-32,051	30,436*	20,286*	-31,651*	-41,660*	-60,777*	34,985*	6,777	-43,752	-49,314*	-32,059
	(20,964)	(11,361)	(20,604)	(21,160)	(24,932)	(56,631)	(10,716)	(8,726)	(7,858)	(11,075)	(21,315)	(13,567)	(15,316)	(23,896)	(24,191)	(48,869)
70th Percentile	-124,116*	25,795	7,871	-79,671*	-70,591	-7,520	38,594*	31,619*	-36,707*	-61,453*	-96,169*	37,943*	13,836	-80,458*	-70,230	-25,207
	(31,636)	(14,967)	(29,217)	(28,603)	(37,968)	(75,561)	(12,778)	(11,902)	(11,173)	(17,346)	(33,377)	(18,647)	(24,141)	(35,228)	(38,850)	(70,329)
80th Percentile	-140,190*	27,293	2,002	-86,688*	-84,684*	1,888	33,776*	31,699	-37,690*	-63,750*	-104,224*	29,238	10,272	-79,746	-80,908	-19,046
	(36,830)	(18,676)	(30,843)	(35,035)	(42,372)	(69,170)	(14,637)	(19,831)	(15,643)	(27,132)	(47,178)	(21,846)	(39,416)	(42,424)	(63,203)	(105,220)
90th Percentile	-253,473*	17,730	6,258	-40,863	-44,573	-192,025*	49,085	64,056	-54,358	-96,595	-215,661	18,823	41,180	-28,706	-6,977	-277,794*
	(58,583)	(24,536)	(29,248)	(35,781)	(36,292)	(61,525)	(27,791)	(53,324)	(48,868)	(98,897)	(129,538)	(31,655)	(45,835)	(48,988)	(98,908)	(133,734)
Mean	-141,455*	20,941*	6,974	-33,944*	-42,139*	-93,288*	29,180*	34,334*	-24,556*	-46,365	-134,048*	26,497*	23,236	-32,317*	-30,910	-127,961*
	(21,614)	(9,042)	(12,442)	(12,098)	(15,361)	(29,321)	(10,491)	(16,175)	(10,692)	(27,816)	(37,598)	(11,658)	(13,563)	(15,794)	(27,261)	(39,996)

Note: Components for the wealth gap that are statistically significant at the 5% level are indicated by *. The standard errors are calculated by bootstrapping using a normal approximation with 1,000 replications that account for the complex sample design.

Table 10 – Semi-Parametric Decomposition of Differences in Net Worth for Mixed Nativity Couples and the New Zealand-Born Couples

Mixed Couple - NZ-Born		Counterfactuals for Migrants and Mixed Nativity					Counterfactuals for NZ-Born and Mixed Nativity					Counterfactuals for NZ-Born and Migrant Couples				
Wealth Gap	Raw Gap	Age	Educ	Inherit	Income	Residual	Age	Educ	Inherit	Income	Residual	Age	Educ	Inherit	Income	Residual
10th Percentile	6,296	900	1,521	178	-29	3,727	-378	367	1,854	-2,665	7,118	2,194	2,127	624	-1,655	3,007
	(6,728)	(2,656)	(2,802)	(1,092)	(840)	(5,234)	(4,178)	(3,236)	(2,489)	(2,311)	(7,986)	(1,769)	(1,108)	(731)	(1,203)	(6,763)
20th Percentile	17,350*	6,888	10,647*	1,432	-329	-1,287	6,947	2,293	1,871	-7,135*	13,374	5,482	4,547*	1,385	-2,615	8,551
	(8,670)	(4,610)	(4,876)	(1,749)	(1,529)	(9,071)	(5,961)	(4,633)	(3,795)	(3,589)	(10,467)	(3,997)	(1,730)	(1,608)	(2,477)	(8,605)
30th Percentile	22,400	5,120	11,558*	2,047	216	3,460	12,489	2,740	4,382	-13,090*	15,879	7,303	7,173*	2,416	-3,700	9,208
	(11,598)	(5,275)	(5,389)	(2,832)	(1,740)	(12,209)	(6,975)	(6,037)	(5,458)	(4,859)	(13,338)	(5,560)	(2,648)	(2,668)	(3,826)	(11,257)
40th Percentile	17,164	4,155	8,521	2,490	-1,380	3,378	17,726*	1,599	-254	-13,267*	11,360	9,029	7,011*	3,105	-4,136	2,155
	(11,958)	(5,549)	(5,722)	(2,655)	(2,285)	(14,061)	(7,616)	(6,708)	(6,210)	(5,872)	(15,000)	(7,007)	(3,308)	(3,891)	(5,412)	(13,444)
Median	455	1,001	13,943*	892	-317	-15,065	19,897*	245	-7,520	-21,828*	9,661	13,089	8,840	3,946	-5,590	-19,829
	(15,673)	(6,320)	(6,642)	(3,092)	(3,095)	(14,712)	(9,923)	(11,339)	(8,507)	(8,329)	(20,335)	(8,435)	(4,526)	(5,767)	(7,855)	(17,822)
60th Percentile	13,860	9,988	36,213*	6,619	-3,020	-35,940	19,037	-8,528	6,508	-20,438	17,282	14,264	10,506	4,434	-4,708	-10,636
	(23,959)	(11,927)	(13,878)	(6,441)	(6,830)	(28,865)	(13,423)	(15,850)	(13,670)	(13,717)	(31,955)	(9,020)	(6,347)	(6,586)	(11,439)	(25,638)
70th Percentile	-9,667	-286	22,129*	2,042	-5,626	-27,925	29,265	3,885	-22,314	-33,033	12,529	18,774	15,822	5,047	-3,404	-45,906
	(30,635)	(10,258)	(10,838)	(4,364)	(7,434)	(29,528)	(15,711)	(17,694)	(13,711)	(19,431)	(40,378)	(12,952)	(13,800)	(11,109)	(22,798)	(39,540)
80th Percentile	-42,400	13,922	35,633*	305	-10,221	-82,039*	33,680	-2,274	-33,544	-30,637	-9,626	17,059	18,583	5,824	-2,068	-81,799
	(30,788)	(11,629)	(15,628)	(5,723)	(10,783)	(31,277)	(18,697)	(24,931)	(18,743)	(30,259)	(53,735)	(14,596)	(33,329)	(13,447)	(50,990)	(85,307)
90th Percentile	-126,154	24,229	8,912	578	-3,317	-156,556	71,646*	34,068	-48,027	-29,284	-154,557	9,334	39,582	6,848	33,141	-215,059
	(86,570)	(22,603)	(39,356)	(11,376)	(37,653)	(89,298)	(35,259)	(59,542)	(57,787)	(105,112)	(139,280)	(23,588)	(41,009)	(23,714)	(90,581)	(129,030)
Mean	-33,929	5,496	7,549	3,650	-1,479	-49,145	22,983*	17,022	-1,468	-17,370	-55,097	10,231	20,397	3,584	7,016	-75,158*
	(26,858)	(6,743)	(13,976)	(5,820)	(11,492)	(32,090)	(10,705)	(16,256)	(13,984)	(26,823)	(39,418)	(9,443)	(11,127)	(7,488)	(24,686)	(36,028)

Note: Components for the wealth gap that are statistically significant at the 5% level are indicated by *. The standard errors are calculated by bootstrapping using a normal approximation with 1,000 replications that account for the complex sample design.

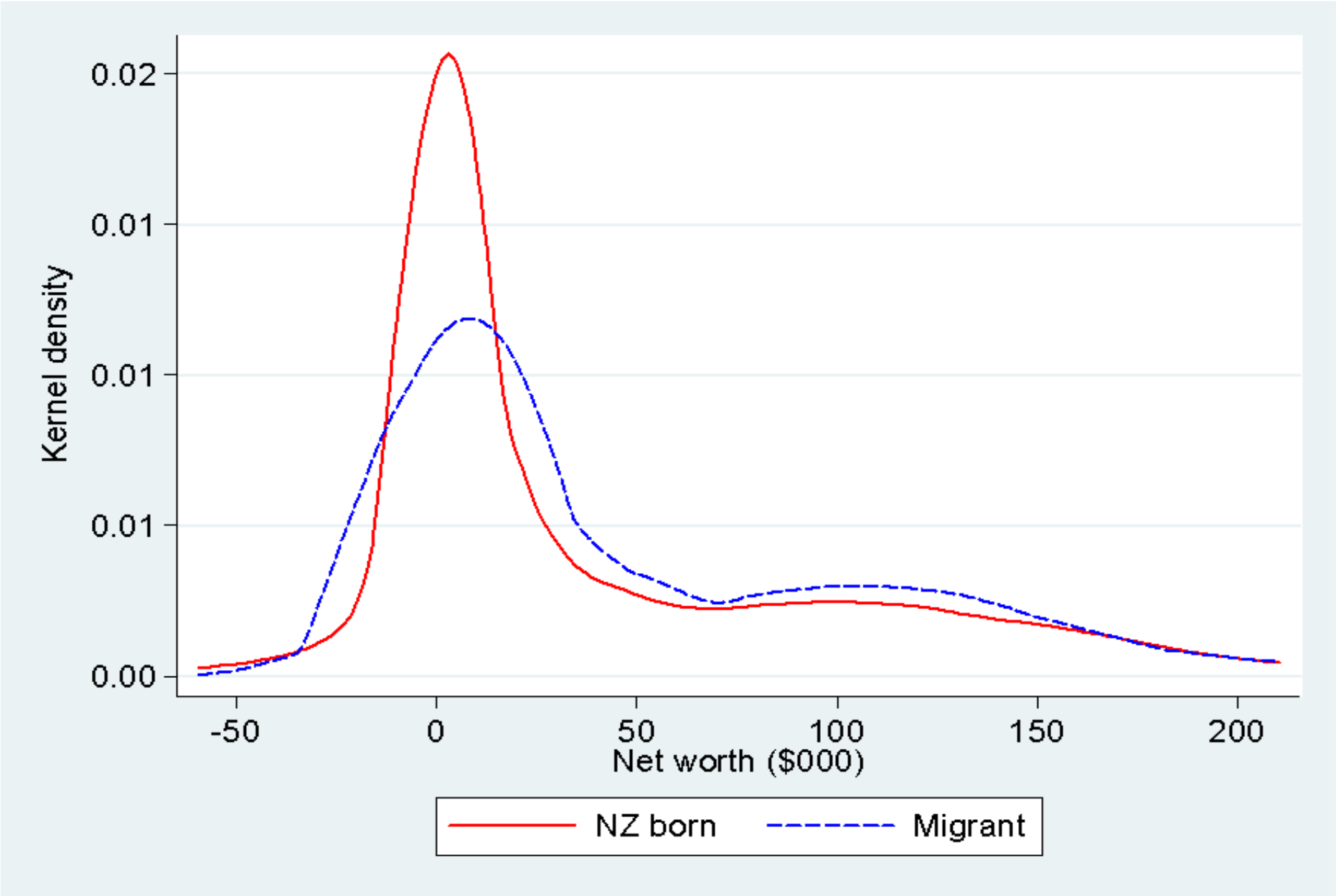

Figure 1 – Estimated Wealth Distributions by Nativity for Singles

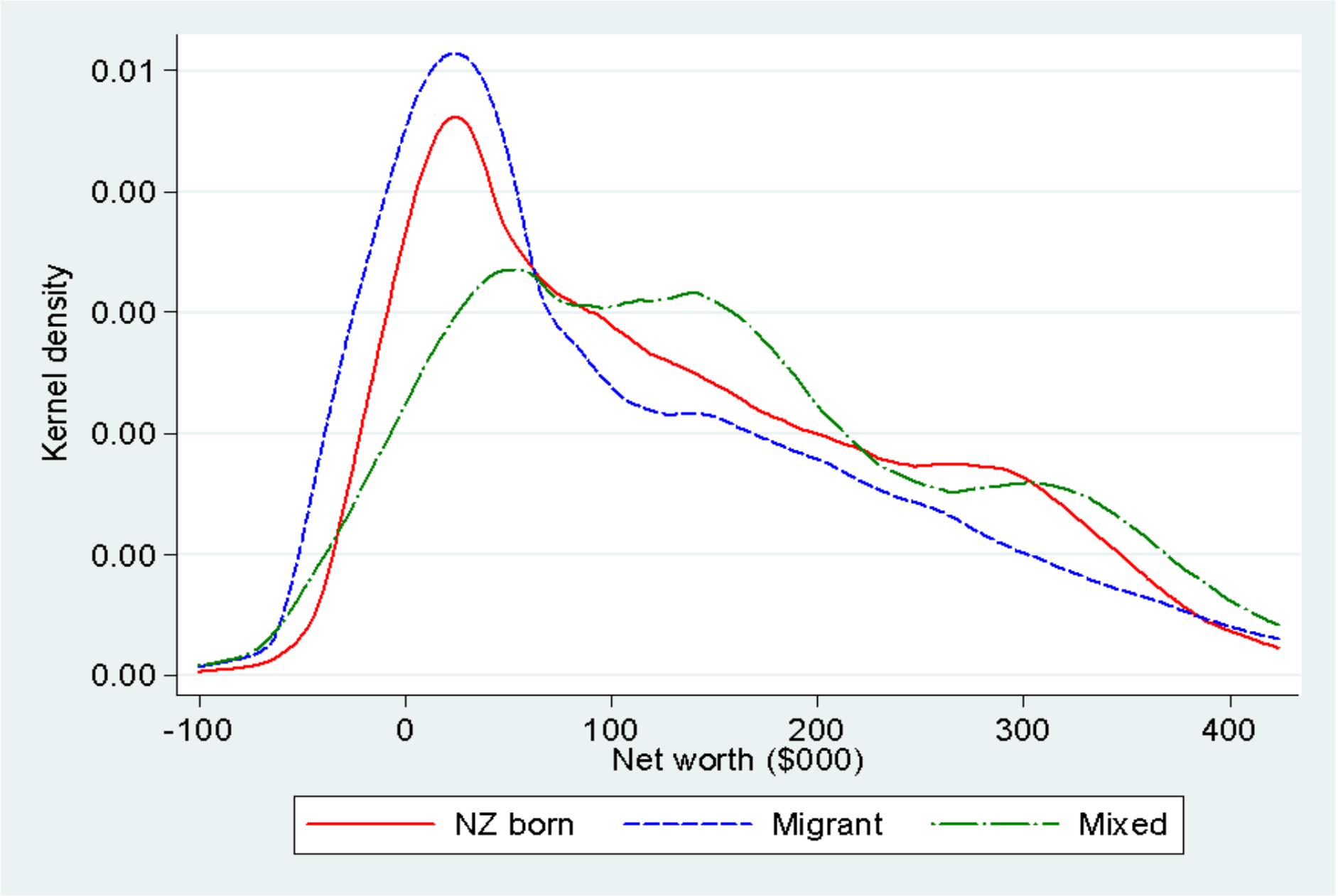

Figure 2 – Estimated Wealth Distributions by Nativity for Couples

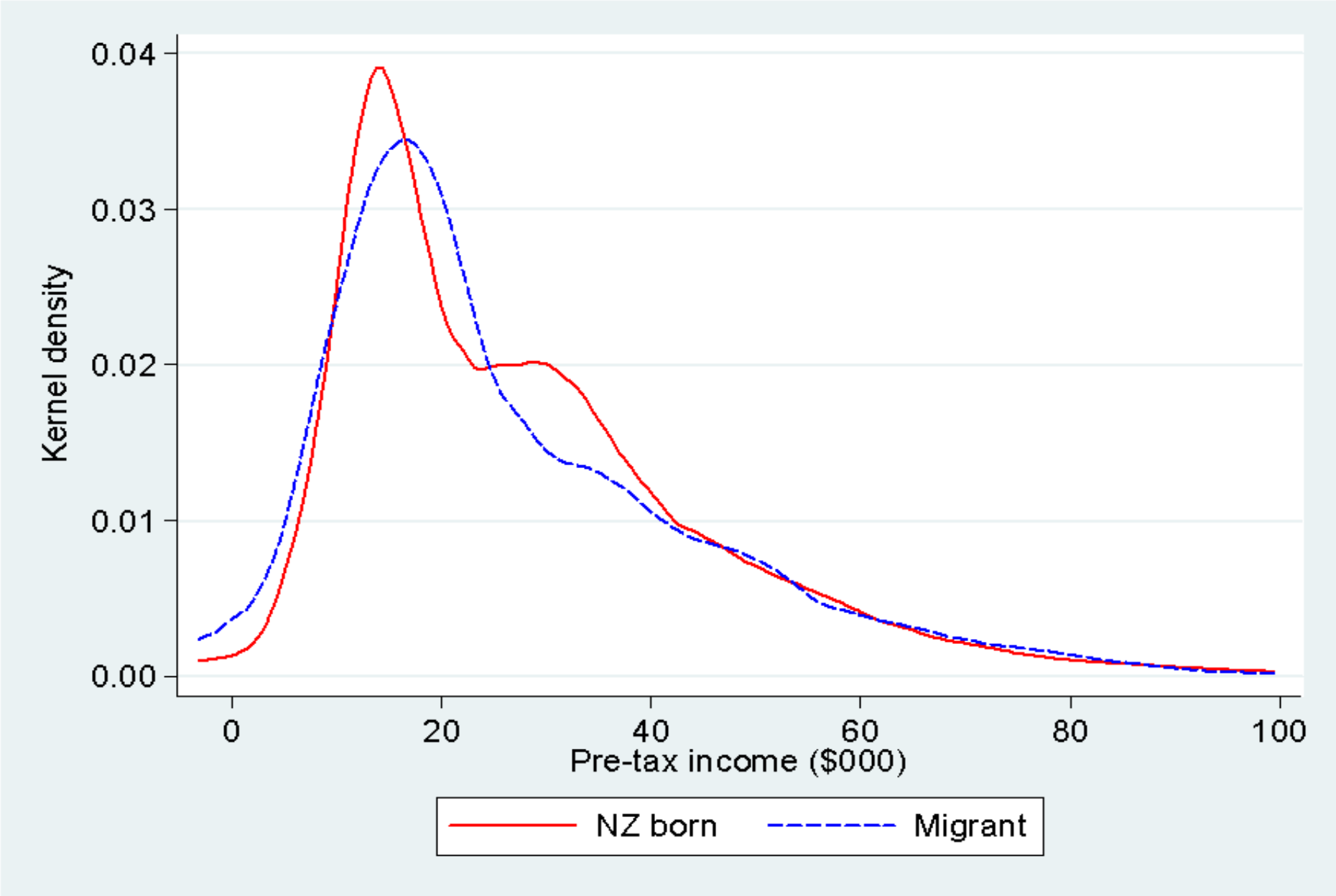

Figure 3 – Estimated Income Distributions by Nativity for Singles

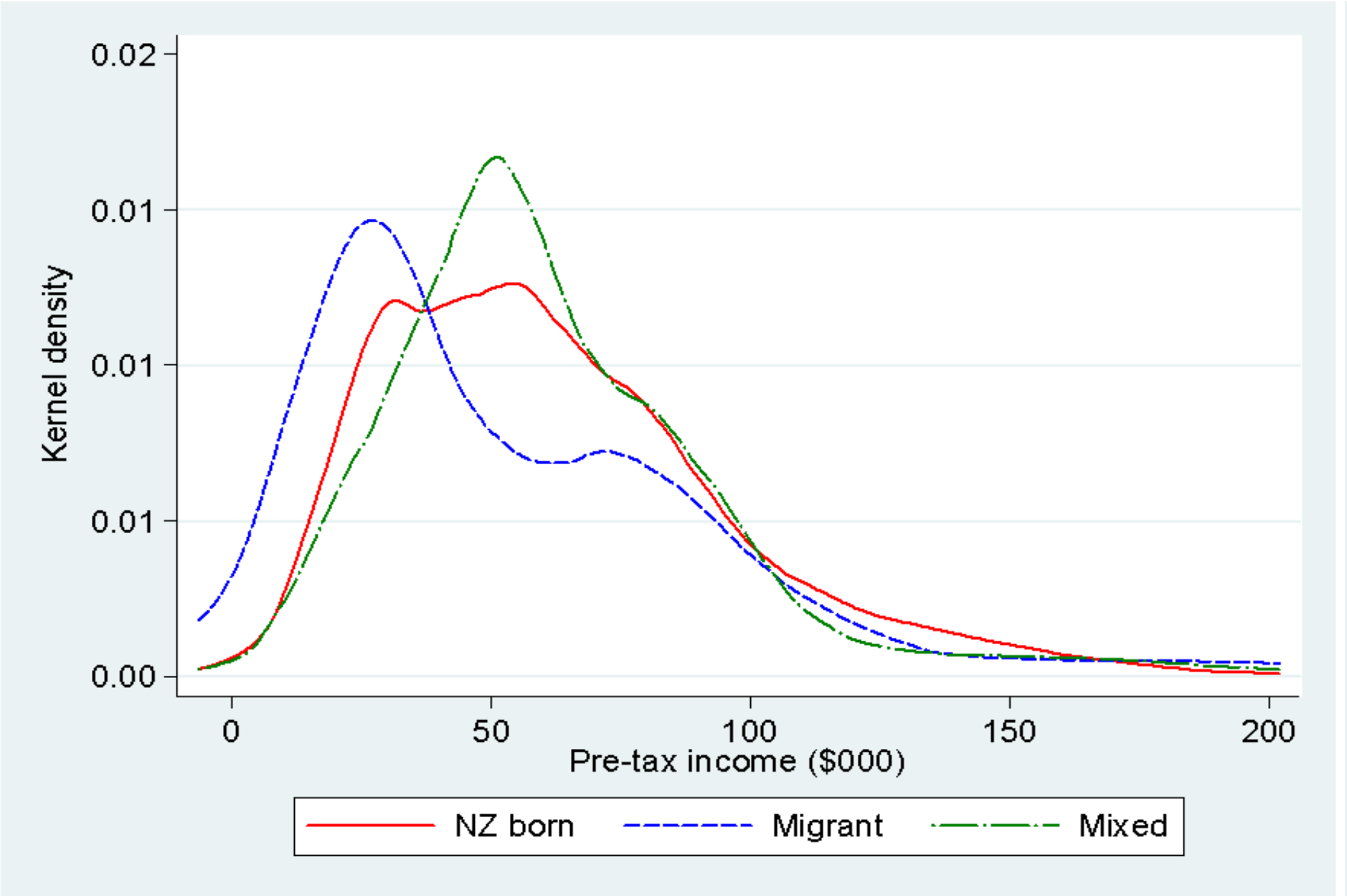

Figure 4 – Estimated Income Distributions by Nativity for Couples

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