

# A Comparative Analysis of the Nativity Wealth Gap<sup>\*</sup>, <sup>\*\*</sup>

**Thomas K. Bauer**

RWI Essen, Ruhr-University Bochum and IZA Bonn

**Deborah A. Cobb-Clark**

Australian National University and IZA Bonn

**Vincent Hildebrand**

Glendon College, York University and CEPS/INSTEAD

**Mathias Sinning<sup>\*\*\*</sup>**

RWI Essen and IZA Bonn

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**Abstract.** This paper investigates the source of the gap in the relative wealth position of immigrant households residing in Australia, Germany and the United States. Our results indicate that in Germany and the United States wealth differentials are largely the result of disparity in the educational attainment and demographic composition of the native and immigrant populations, while income differentials are relatively unimportant in understanding the nativity wealth gap. In contrast, the relatively small wealth gap between Australian- and foreign-born households exists because immigrants to Australia do not translate their relative educational and demographic advantage into a wealth advantage. On balance, our results point to substantial cross-national disparity in the economic well-being of immigrant and native families, which is largely consistent with domestic labor markets and the selection policies used to shape the nature of the immigration flow.

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## INTRODUCTION

The economic and social consequences of population aging are being debated in many countries worldwide. In the coming decades, many countries will experience a dramatic expansion in the proportion of the population over the age of 65 alongside a constant, or in some countries even declining, workforce-age population (Gruber and Wise 2001; Visco 2001). The anticipated fiscal pressure from the increased demand for old-age pensions and health care – in the face of a more or less constant tax base – have left governments contemplating their policy options, including the potential role of increased immigration. While experts agree that immigration alone cannot provide a long-term, permanent solution to the effects of population aging (Visco 2001; Holzmann 2005), even in the short term the power of large-scale immigration to mitigate the fiscal effects of population aging is limited by the extent to which immigrants accumulate wealth and achieve economic security in the same way as natives.

In particular, immigrant populations also age. This aging process depends not only on birth and death rates within the foreign-born population and the speed with which these rates assimilate to the respective fertility and mortality rates of natives, but also on past and future policy decisions regarding the size and composition of immigrant cohorts. In Australia, for example, the foreign-born population is currently aging more rapidly than the native-born population, while in Germany and the United States immigrants are as likely as the native-born to be over the age of 55.<sup>1</sup> Thus, like their native-born counterparts, substantial numbers of immi-

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<sup>1</sup>Fully 14.6% of the foreign-born population is between the ages of 55-64 in comparison to 7.9% of the Australian-born population. In effect, 35.7% of Australians aged 55-64 years old are foreign-born in comparison to 21.9% of the population overall (authors' calculations based on ABS 2003). In Germany and the United States, the age difference between the foreign born and natives is less severe. In Germany, 12.6% of the foreign-born population is between 55 and 64 years old, while 12.4% of the German-born population is in this age range (authors' calculations based on data from the Mikrozensus 2004). In the United States, the proportion of individuals aged 55 and above is virtually identical in the foreign- (20.2%) and native-born

grants are also at (or near) retirement age. Unfortunately, we know very little about immigrants' capacity to provide for themselves in old age, although there are reasons to believe that both wealth levels and portfolio allocations depend on nativity (Amuedo-Dorantes and Pozo 2002; Cobb-Clark and Hildebrand 2006a, 2006b).

This paper contributes to filling this void by analyzing the wealth gap between immigrant and native households in Australia, Germany and the United States. To this end, we take advantage of recent data collections in each of these countries that provide a unique opportunity to assess the wealth position of immigrant households. Differences in survey design and coverage will prevent us from directly comparing wealth levels across countries. However, following on studies of cross-national differences in the gender wage gap (Blau and Kahn 1992), we will assess how the nativity wealth gap differs across countries. We are particularly interested in addressing the following questions: First, how does household net worth vary by nativity status, region of origin, and immigration cohort? Second, how important are factors such as income differentials, disparities in educational attainment, and demographic characteristics in producing these wealth gaps? Finally, what can we say about the role that the institutional setting might play in generating any nativity wealth gap?

These are important questions given that wealth provides the resources necessary to maintain living standards in retirement or in times of economic hardship. Moreover, wealth is a fundamental component of overall economic well-being that directly influences immigrants' ability to integrate into host-country society. Wealthier families have more political influence and live in neighborhoods with better schools, enhanced health facilities, and less crime (Gittleman and Wolff 2000; Altonji and Doraszelski 2005). At the same time, immigrants' economic well-being is almost certainly linked to the institutional setting, making it difficult to generalize research findings across national boundaries.

Australia, Germany and the United States provide an interesting case study because they span the spectrum from a traditional immigration country accepting mainly permanent, skilled immigrants (Australia) to a country with a long history of (20.5%) populations (Schmidley 2001).

accepting only temporary, predominantly unskilled workers (Germany). The results of our comparative analysis are necessarily inferential, but nonetheless provide some important insights into the ways that the institutional framework might influence the relative wealth position of immigrant families.

Our results indicate that in Germany and the United States wealth differentials are largely the result of disparity in the educational attainment and demographic composition of the native and immigrant populations, while income differentials are relatively unimportant in understanding the nativity wealth gap. In contrast, the relatively small wealth gap between Australian- and foreign-born households cannot be explained by either the distribution of income or immigrants' characteristics. In particular, immigrants to Australia are older, have fewer children and are more educated than their native-born counterparts, which serves to narrow rather than widen the nativity wealth gap. We would expect immigrants to Australia to have a wealth advantage if they accumulated wealth in the same way as the native-born population. On balance, our results point to 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.

## **THE NATIVITY WEALTH GAP**

Conceptually, variation in household wealth stems from differences in inherited wealth, rates of return, or savings behavior, which in turn is a function of both income and consumption patterns. Thus, there are several ways in which both the wealth levels and portfolio choices of immigrants may differ on average from those of their native-born counterparts. Immigrants are usually non-representative of both the sending and receiving country populations, because disparity in the social and economic conditions in the home and the host countries leads to a self-selection amongst those who decide to migrate Borjas (1987). Migration policy is designed to select those individuals out of the population of potential migrants, who will be

allowed to enter a country. To the extent that these selection processes result in differences between natives and immigrants in terms of observable and unobservable characteristics, we would expect disparity in the wealth levels of these two populations. Moreover, given the nature of these selection processes it is likely that the nativity wealth gap will differ across receiving countries.

However, wealth levels may differ even when comparing similar native and immigrants. First, social norms in the sending country are likely to influence not only inter vivos transfers and inheritances, but also immigrants' post-migration savings behavior, asset allocation, and, consequently, rates of return. Chiteji and Stafford (1999), for example, argue that portfolio choices are influenced by a "social learning process" in which parents' decisions to hold certain kinds of assets can influence the financial choices of their children, while Dohmen et al. (2006) provide evidence that children's attitudes towards risk and trust are linked to those of their parents. Moreover, immigrants to Germany are significantly more risk averse than native-born Germans suggesting that attitudes towards risk may depend on nativity status (Bonin et al. 2006).

Second, theoretical models suggest that relative economic conditions (including labor market risk) in receiving and sending countries interact with expectations regarding return migration to determine immigrants' savings choices (Galor and Stark 1990; Djajic and Melbourne 1988; Djajic 1989; Dustmann 1997). Dustmann (1997), for example, shows that whether migrants save more or less than similar natives is theoretically a function of the correlation in labor-market shocks in the two countries. In related research, Amuedo-Dorantes and Pozo (2002) find that in the U.S. increased income uncertainty has a larger positive effect on the wealth level of natives, pointing to more precautionary savings amongst native-born families. The ability to diversify portfolios across two labor markets (rather than one) may reduce immigrants' income risk leading to less need for precautionary savings.

Third, immigrants face earnings profiles that appear to differ in terms of both levels and earnings risk. A large economics literature documents that immigrants experience on average a relative earnings gap at arrival that diminishes with years

of residence in the receiving country. The pattern is remarkably consistent, though the magnitude of the initial earnings gap and the speed of convergence continue to be debated (Chiswick 1978; Borjas 1994). Almost nothing is known about the role of earnings uncertainty, a lack of financial information, or variation in consumption behavior in producing wealth outcomes though all would be expected to contribute to producing a nativity wealth gap.

Empirical evidence suggests that Canadians accumulate more wealth than recent immigrants to Canada, though the nativity gap disappears amongst more established immigrants (Shamsuddin and DeVoretz 1998; Carroll, Rhee and Rhee 1994). Zhang (2002) also concludes that recent immigrants to Canada are at a relative wealth disadvantage, though he finds that the mean nativity wealth gap is not significantly different from zero for couples and is in fact positive and significant for singles. In contrast, the median net worth of U.S.-born households is approximately three times the median net worth of foreign-born households. Moreover, the extensive diversity in wealth position amongst immigrant households suggests that the process of economic and social integration in the United States has historically been very uneven (Cobb-Clark and Hildebrand 2006a).

Though the evidence is limited, nativity status is also likely to be linked to both the retirement expectations as well as the eventual retirement behavior of immigrants. Cobb-Clark and Stillman (2006), for example, demonstrate that relative to natives, middle-aged immigrants to Australia are more uncertain about the age at which they will retire, more likely to expect to never retire, and less likely to be formulating standard retirement plans. Some of this uncertainty may be generated by the fact that many immigrants anticipate either returning to their home country or moving frequently between the home and receiving countries after retirement (De Coulon and Wolff 2006). Thus, foreign-born status has large and direct effects on individuals' expectations regarding retirement. Whether these expectations reflect differences in the eventual retirement behavior of immigrant workers remains a question for future research.

## **INSTITUTIONAL SETTING**

The comparative nature of our analysis provides an opportunity to shed light on the ways in which a country's institutional setting might affect the nativity gap in wealth levels and portfolios allocations. Australia, Germany, and the United States provide an interesting case for studying this issue because, although each accepts large numbers of immigrants, the substantial differences in each country's domestic policies and institutions are almost certainly related to the relative wealth position of immigrants.

### **Immigration Policy**

Australia, Germany and the United States are three countries with very different immigration histories and migration policies. Australia and the U.S. are both traditional, immigrant-receiving countries and immigration has been a cornerstone of economic, social, and cultural development. Historically, both countries favored immigration from Europe, leaving little scope for immigration from other continents. While the U.S. distributed visas based on the national origin of the foreign-born population enumerated in the 1920 U.S. census (Antecol, Cobb-Clark and Trejo 2004), Australia followed a "White Australia Policy" by first accepting mainly immigrants from Britain and only expanding the immigrant base to include migrants from other European countries after World War II. The United States moved away from selecting immigrants on the basis of national origin in 1965 (Briggs 1984); Australia followed in 1973 (Antecol et al. 2004).

In recent decades, both countries have broadly differentiated between three types of migrants: (i) immigrants accepted on humanitarian grounds (refugees and asylum seekers); (ii) family migrants; and (iii) economic migrants. Despite the similarities in this typology, however, migration policy in Australia and the United States differs substantially in the way in which visas are allocated across these three types of migrants. The United States places more weight on the reunification of families, with relatively few visas reserved for immigrants selected on the basis of their labor mar-

ket skills. In contrast, Australia has for many years placed relatively more weight on accepting economic migrants using numerical testing to judge the admissibility of skilled immigrants since the late 1970s (Birrell 1990). In 2002, for example, 40.5% of all immigrants to Australia entered the country as skilled workers under the point system, while 26.3% entered as family migrants. In contrast, only 16.4% of immigrants to the United States entered as employment-based immigrants, while 63.3% entered either as immediate relatives of U.S. citizens or as family-sponsored migrants (Antecol et al. 2004). Relative to continental Europe, humanitarian immigration played a rather minor role in both Australia and the United States.

In contrast to these traditional immigration countries, Germany refused to consider itself an immigrant-receiving country until the late 1990s despite the fact that it had more immigration per-capita than the United States in almost all years in the post-WWII period (Schmidt and Zimmermann 1992). Germany has also had a rather ad-hoc immigration policy which – unlike Australian and U.S. policy – has centered predominantly on temporary migration. Specifically, many low-skilled workers were actively recruited from Southern European countries for the German manufacturing industry in the 1960s and early 1970s when Germany faced a shortage of low-skilled labor. Even though these workers were expected to stay only temporarily, many of them decided to stay permanently (Schmidt and Zimmermann 1992; Bauer et al. 2005). Increasing social tensions and fears of a recession following the first oil-price shock led the German government to stop active labor recruitment in 1973. Since then immigration to Germany has been almost exclusively based on family reunification and humanitarian considerations. The European political situation in the late 1980s resulted in a dramatic increase in asylum seekers, refugees and family migrants as well ethnic Germans from Eastern European countries. In the early 1990s, however, the German government reduced individuals' rights to asylum under the German Constitutional Law and tightened the rules for the admission of ethnic Germans, leading to a sharp reduction of migrant inflows (Bauer, Larsen and Matthiessen 2004).

In response to an increased demand for high-skilled labor, Australia, Germany

and the United States have all recently adopted initiatives to expand the opportunities for skilled workers to immigrate. Like Canada and New Zealand, Australia has increased the number of visas for permanent migrants selected under the points system leading the number of skills-based immigrants to Australia to triple between 1995 and 2005 (AGDIC 2006). In contrast, Germany and the United States are focused in large part on the temporary inflow of highly-skilled workers. Specifically, the U.S. has dramatically increased the number of H1-B visas issued (Lowell 2001), whereas Germany passed a new immigration law relaxing the requirements for high-skilled foreigners to obtain permission to stay and to work in Germany (Bauer et al. 2004; Bauer and Kunze 2004).

This policy environment results in immigrant populations that are quite different in terms of their skills and settlement intentions. Immigrants to Australia are by and large relatively skilled and permanent. Immigrants to Germany, on the other hand, are mainly unskilled and, at least notionally, temporary. These differences are expected to contribute to producing a nativity wealth gap which is likely to be larger in Germany than in Australia.

### **Labor Markets**

There is a large literature assessing the relative earnings of immigrants and the role of immigration policy in the economic integration of immigrants. This research indicates that immigrants to Australia have a lower earnings disadvantage upon entry as well as a slower rate of earnings assimilation than immigrants to the United States (Chiswick and Miller 1985). Miller and Neo (2003) conclude that these differences stem from institutional differences in labor markets in the two countries. In particular, the complex system of award rates of pay (minimum wages) at the state and federal level provides immigrants with some degree of earnings protection when they first enter the Australian labor market, while the greater flexibility of the U.S. labor market speeds the earnings adjustment of new arrivals. At the same time, the German labor market is considered to be quite rigid in comparison to that in Australia or the United States. Both labor costs and unemployment in Germany are relatively

high and Germany follows a stronger redistribution policy through higher tax rates (OECD 2006). Consequently, it is perhaps not surprising that similar studies for Germany show that, upon arrival, immigrants face an even higher relative earnings disadvantage and experience no significant earnings assimilation over time (Bauer et al. 2005). These differences in the pattern of earnings assimilation are also in line with the Roy model proposed by Borjas (1987), which predicts that – given existing labor market institutions – the United States should receive better immigrants in terms of observed and unobserved characteristics compared to Australia and, in particular, Germany.

The economic integration of immigrants is also linked to immigration policy. Studies of the impact of selection policy on the earnings adjustment of immigrants typically adopt one of two empirical strategies. Some studies compare migrants' relative earnings trajectories across countries with different immigration policies, such as, for example, Canada and the United States (see Antecol et al. 2004). Others compare the earnings adjustment of immigrants entering in different admission categories, for example, skilled versus family migrants in Australia. Overall, these studies show that a policy of points testing can be effective in altering the skills mix of the immigrant flow in comparison to policies that predominantly select immigrants on the basis of their family relationships (Borjas 1993; Duleep and Regets 1992; Antecol, Cobb-Clark and Trejo 2003). Moreover, skills-based immigrants have a lower relative earnings disadvantage upon entry than comparable family migrants, but a lower speed of earnings assimilation (Jasso and Rosenzweig 1995; Duleep and Regets 1996).

Wealth accumulation is closely related to households' long-run earnings potential. To the extent that immigrants earn higher relative wages at entry in Australia and enjoy faster earnings adjustment in the United States, we would expect that the nativity wealth gap would be lower in these two countries than in Germany, where immigrants remain at an earnings disadvantage.

## Financial and Housing Markets

Institutional barriers associated with ethnicity, nativity, legal status, or language skills may limit migrants' access to financial markets and hinder the purchase of certain assets like housing. Osili and Paulson (2004), for example, find that U.S. immigrants are less likely to have savings or checking accounts than similar natives. For some, opening a bank account may be difficult due to a general lack of documentation, while other new arrivals may simply find it difficult to establish a credit rating.<sup>2</sup> Interestingly, the propensity to own a bank account decreases as the ethnic concentration of the metropolitan area increases suggesting that the social interactions embodied in ethnic enclaves may affect the way in which immigrants conduct their financial affairs (Osili and Paulson 2004). Consistent with this, Osili and Paulson (2005) also find that immigrants from countries with institutions that are more effective in protecting individual property rights are more likely to participate in U.S. financial markets.

Although evidence of a direct link is lacking, the inability – or unwillingness – to fully participate in the host country's financial markets is almost certainly related to the common finding that immigrant households have significantly lower home-ownership rates than comparable native households (Borjas 2002; Clark, Deurloo and Dieleman 1997; Coulson 1999; Myers and Lee 1996; Painter, Yang and Yu 2003). At the same time, there are important international differences in home-ownership rates among the domestic population more broadly. While the rate of home-ownership is similar in Australia and the United States (approximately 70%), it is much lower in Germany (approximately 40%) (Proxenos 2002). Proxenos (2002) argues that legal systems and laws of land tenure, governmental housing and tax policy, and lenders' margins – all of which vary substantially between countries – combine to produce an institutional setting which may be more or less favorable to home-ownership. The United States and Australia, for example, have legal environ-

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<sup>2</sup>Identity cards, known as *matriculas consulares*, issued by the Mexican government have had the greatest impact in giving illegal immigrants access into the U.S. banking system (Sheridan 2002).

ments in which the regulations regarding property ownership are transparent and consistent, while the U.S. housing finance system is amongst the most efficient in the world (Proxenos 2002).

These institutions almost certainly contribute to the relatively high home-ownership rates in these countries. Nothing is known, however, about the ways in which the broader institutional setting might lead to a nativity gap in home-ownership or indeed wealth levels more broadly.

### **Welfare and Pension Systems**

Limited access to social welfare programs and the potential for remigration may alter the savings behavior of immigrants and affect wealth accumulation. Shamsuddin and DeVoretz (1998), for example, find that the wealth levels of Canadian immigrants dissipate faster and are more sensitive to social security wealth in a way that is consistent with immigrants' limited access to Canada's old-age security pension. Such limitations are becoming more common. In 1996, for example, the United States passed the Personal Responsibility and Work Opportunity Reconciliation Act restricting non-citizens' access to the welfare system (Fix and Passel 2002). Similarly, Australia has moved to extend the period that new immigrants must wait before becoming eligible for income support (Chiswick and Miller 2006).

In Germany, access to the welfare system for foreigners is more complicated. Conditional on receiving permission to stay in Germany, immigrants are subject to the same eligibility rules as natives. Like natives, immigrants are only able to claim unemployment benefits after some qualification period. In particular, as the German unemployment system is an insurance-based system (like that in the United States) and not a welfare-based system (like that in Australia), individuals need to have a work history in order to claim unemployment benefits. Similarly, the social assistance system does not differentiate between natives and immigrants. Special rules do exist, however, for refugees and asylum seekers who are in the process of having their asylum status recognized. Until they are recognized as an asylum seeker, individuals receive lower benefits than in the regular social security scheme

(see Nielsen 2004).

Given our focus on overall wealth levels, cross-country differences in pension systems are also of particular interest as these institutional differences affect the incentives to accumulate wealth. The pension system in Australia has two components: a means-tested, aged pension financed through general tax revenue, and private pension plans financed by mandatory worker and employer contributions. Currently, the standard retirement age is 65 for men and 62.5 for women (Gong, Ryan and Whelan 2006). In the United States, the Social Security program is also financed through general tax revenue. However, unlike the Australian Aged Pension, U.S. Social Security pays benefits to retirees (and their beneficiaries) under uniform formulas based on individuals' previous earnings histories without regard to recipients' wealth or non-wage income. Most U.S. workers also save for retirement through employer-sponsored defined benefit or defined contribution pension plans and through tax-deferred savings accounts called IRAs (individual retirement accounts). Germany's pay-as-you-go state pension system is similar to U.S. Social Security in that it is not means-tested. Individuals earn points that are calculated from their individual annual contributions to the pension system. For employed individuals, these contributions amount to 19.5% of gross income; half of which is paid by the employer and half of which is paid by the employee. There are other possibilities to save for old-age, for example through employer-sponsored pensions or life insurance plans. These savings vehicles are relatively unimportant in Germany in comparison to the United States and Australia however.

The OECD (2005) reports that the mandatory pension systems in Australia and the United States deliver a lower average pension than in Germany. In Germany, the weighted average pension reaches about 42.6% of average earnings, whereas the average pension in Australia (39.1%) and the United States (36.5%) is a much smaller fraction of average earnings. Comparisons of average pension wealth, i.e. the present value of the future stream of pension payments, are useful for taking account of different features of specific pension systems – for example, the level at which pensions are paid, the standard retirement age, life expectancy and the adjustment

of pensions to wage and price growth (OECD 2005). These calculations indicate that the net pension wealth for individuals with average earnings is highest in Germany (\$262,000) followed by Australia (\$189,000) and the United States (\$183,000).

We can only speculate about how these cross-country differences in welfare and pension systems affect the nativity wealth gap. Restricted access to the welfare system and the relatively low replacement rate of the U.S. pension system would be expected to lead immigrants to accumulate wealth in order to cope with any financial difficulties and provide for their own retirement. Thus, we might expect the nativity wealth gap to be smaller in the United States than in Australia or Germany. At the same time, these institutional differences may have a more direct effect on the way in which wealth is held – liquid vs. non-liquid assets or pension vs. non-pension wealth – rather than simply on the overall wealth level. Unfortunately, our data do not permit the inclusion of pension or social security wealth in our measure of net worth, preventing us from addressing these issues directly.

## **DATA AND DESCRIPTIVE ANALYSIS**

### **Data Sources**

This paper uses data from three nationally representative panels which all provide information about migration histories and comparable measures of household wealth. The Australian data come from the Household, Income and Labour Dynamics in Australia (HILDA) Survey which is a longitudinal survey of Australian households (see Wooden, Freidin and Watson 2002). Our analysis exploits the 2002 release of HILDA (wave 2) encompassing approximately 13,000 individual respondents living in more than 7,000 households. Wave 2 included a special module on household wealth making the HILDA Survey the only Australian microdata source which allows questions regarding nativity and the distribution of wealth to be examined.

The data used to study the nativity wealth gap in Germany have been extracted from the German Socio-Economic Panel (GSOEP). The GSOEP is a representative longitudinal survey which started in 1984 and includes German and immigrant

households. In 2005, approximately 22,000 persons in nearly 12,000 households were sampled. Here we use data from the 2002 wave.<sup>3</sup> As less than 2% of the foreign-born population lives in East Germany, our analysis focuses on households residing in West Germany. Immigrants are defined as foreign-born individuals who immigrated to Germany after 1948 (including foreign-born persons with German citizenship).

Data for the United States are drawn from the 2001 panel of the Survey of Income and Program Participation (SIPP). The SIPP is the only U.S. microdata set containing information about migration histories and household wealth for a broad cross-section of the immigrant population (see Cobb-Clark and Hildebrand 2006a). The 2001 SIPP panel is a short rotating panel which is representative of the civilian, non-institutionalized population living in the United States. Approximately 35,000 households were interviewed in the first wave of the 2001 panel. Each household in the sample was interviewed at four month intervals over a period of roughly three years beginning in February 2001. Information on immigrants is obtained from the wave 2 migration history module and household wealth data are drawn from the wave 3 module on assets and liabilities collected between October 2001 and January 2002.

To facilitate comparisons across the three countries, we restricted all three estimation samples to include only native- and foreign-born, couple-headed households in which the reference person is between 25 years and 75 years old. Native-born households include all couple-headed households in which both partners were born in Australia, Germany or the United States, respectively. A couple-headed, foreign-born household is defined as a household in which both partners were born outside of

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<sup>3</sup>The data used in this paper were extracted from the GSOEP Database provided by the DIW Berlin (<http://www.diw.de/GSOEP>) using the Add-On package PanelWhiz v1.0 (Oct 2006) for Stata(R). PanelWhiz was written by Dr. John P. Haisken-DeNew ([john@panelwhiz.eu](mailto:john@panelwhiz.eu)). The PanelWhiz generated DO file to retrieve the GSOEP data used here and any Panelwhiz Plugins are available upon request. Any data or computational errors in this paper are our own. Haisken-DeNew and Hahn (2006) describe PanelWhiz in detail.

the respective host country. In all three cases we have dropped “mixed households” in which one partner is native-born and the other is foreign-born.<sup>4</sup> Excluding all observations with missing values on one or more of the variables of interest results in samples of: 2,245 native- and 591 foreign-born households in Australia, 2,392 native- and 270 foreign-born households in Germany, and 10,296 native- and 1,057 foreign-born households in the United States.

### **The Level of Net Worth**

Our measures of total household net worth are derived from wealth components that are either estimated at the household level or directly measured at the individual level and then aggregated to the household level. An overview of the specific components of each country’s net worth measure is provided in Appendix Table A1. As the scope of financial investments differs across countries, each survey asks about a somewhat different range of asset types. Moreover, while information about many detailed forms of country-specific financial investments was gathered in both Australia and the United States, only a single broadly defined measure of the value of financial assets is observed for Germany. Fortunately, the resulting measure of financial wealth for Germany is comparable to those derived from both the Australian and U.S. data. Unlike financial wealth, the remaining components of our net worth measures (business equity, housing equity, vehicles equity and total value of debt) are largely the same across all three countries.<sup>5</sup>

To assess the quality of HILDA’s wealth information, Heady (2003) compares HILDA’s estimate of aggregate net worth to national statistics compiled by the

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<sup>4</sup>In particular, we dropped 698 mixed households from the Australian sample and 1,684 households from the GSOEP. Moreover, 695 mixed households were dropped from the U.S. sample.

<sup>5</sup>Marks, Heady and Wooden (2005) provide a comprehensive and detailed description of the household wealth module of HILDA. The components of net worth in the GSOEP are described in Schäfer and Schupp (2006). The Social Security Administration (2003) provides a description of the way wealth is measured in the SIPP.

Reserve Bank of Australia (RBA). This comparison of aggregate values suggests that the overall household net worth derived from HILDA data is fairly accurate. Although the aggregate value of total debt derived from HILDA is 20% lower than the corresponding RBA figure, HILDA's overall estimate of household net worth is only 6.5% lower than the RBA estimate.

Schäfer and Schupp (2006) compare the aggregate level of net worth derived from the GSOEP to the aggregate wealth level obtained from the Income and Expenditure Survey 2003 conducted by the Federal Statistical Office. They find that aggregate net worth in the GSOEP is about 13% lower than the corresponding value in the Income and Expenditure Survey, indicating that wealth levels in the GSOEP are somewhat understated. An additional shortcoming of the GSOEP data is that a large number of households (about 36%) report a net worth equal to zero and have therefore been dropped from the GSOEP estimation sample. However, since the proportion of native and immigrant households amongst all households reporting zero net worth does not deviate substantially from the overall proportions of native and immigrant households in the total sample, we believe that this does not cause a serious selectivity bias in our estimation results.

In general, SIPP data are not usually thought of as the best source of information for studying U.S. wealth. The Survey of Consumer Finance (SCF) provides a more comprehensive measure of wealth than do alternative data sources that measure the upper tail of the wealth distribution particularly poorly (Juster and Kuester 1991; Wolff 1998; Juster, Smith and Stafford 1999). Unfortunately, SCF data do not identify immigrants making it unsuitable for our purposes. In an effort to understand the limitations of SIPP data, the Social Security Administration (2003) compares SIPP wealth data to wealth levels in the SCF and the Panel Study of Income Dynamics (PSID). The results reveal that the SIPP estimate of median net worth is only about two-thirds that of the SCF and 74% that of the PSID. As estimates of liabilities are essentially the same across surveys, much of the underestimate of net worth results from assets being underestimated. Underestimation of assets in the upper tail of the wealth distribution accounts for about 72% of the difference in the SIPP and SCF

estimates of asset levels, while asset categories not measured in the SIPP account for an additional 13%. Only a very small proportion (at most 15%) of the disparity in assets is attributable to underestimation of assets among the non-elderly (Social Security Administration 2003). Thus, we minimize the disadvantages of using SIPP data to assess wealth holdings in the United States by eliminating very wealthy households from our sample and focusing on median (rather than mean) wealth.

In addition to cross-national differences in the extent to which our data sources measure overall net worth, there are also important differences in the way in which pension wealth is measured in each survey. Information about pension entitlements in the GSOEP is limited to the cash surrender value of life insurance policies, private pensions plans and building savings accounts. These assets are included as a component of financial wealth in our measure of net worth for Germany. However, in addition to private pension wealth, HILDA also collects data about employer-provided pension wealth. In the United States, the total value of funds in Thrift/401K accounts is available in the assets and liabilities module of the SIPP, while the value of pension benefits in defined-contribution plans could in principle be extracted from the SIPP's pension module (wave 7). However, as in most wealth surveys, the value of assets held in defined-benefit pensions and social security entitlements are not available in SIPP. Consequently, in order to make our measures of net worth as comparable as possible across countries, we do not include the available information about employer-provided pensions (HILDA), Thrift/401K (SIPP) accounts or defined-contribution pension wealth (SIPP) in our respective measures of net worth for Australia and the United States.

Due to these cross-national differences in the components of net worth, a direct comparison of our absolute measures of net worth across countries is not possible. This is not particularly problematic given our research interests. More importantly, we have no evidence that the merits of our net worth measure within a country differ substantially between native- and foreign-born populations. Consequently, following the literature on international comparisons of the gender earnings gap (Blau and Kahn 1992), our analysis concentrates on relative rather than absolute

wealth measures. In particular, since wealth levels are not directly comparable across countries, we focus instead on comparing the proportion of the nativity wealth gap which is attributable to different (explained or unexplained) factors. In order to facilitate such a comparison, we convert our measures of net worth into U.S. dollars using purchasing power parity (PPPs) conversion factors provided by the OECD for the year 2002.<sup>6</sup>

Information about the level of wealth held by native- and foreign-born households in each country is presented in Tables 1-3. Overall, native-born households have higher net worth than immigrant households, though the nativity wealth gap is considerably smaller in Australia than in Germany or the United States. Specifically, the net worth of immigrants to Australia is approximately 90% of the average wealth level of their Australian-born counterparts, while immigrant households hold only about 45% to 50% of the net worth of native households in Germany and the United States. Moreover, there is very little difference in the proportion of Australian-born (99%) and immigrant households (97%) with positive net worth. In contrast, immigrant households in both Germany and the United States are much less likely to report positive net worth than are native households.<sup>7</sup> This lower propensity to hold positive net worth is only a partial explanation for the overall nativity wealth gap in these two countries however. Conditional on having positive net worth, immigrant households still hold only about half the wealth of native households in Germany (52%) and the United States (55%). In contrast, those immigrant households with positive net worth hold approximately 90% of the wealth level of Australian-born households.

Figures 1-3 show of the unconditional wealth gap between natives and immigrants together with a 95% confidence interval over the entire wealth distribution for all

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<sup>6</sup>The conversion factors are 1.340 for Australia, 0.959 for Germany and 1.000 for the United States. See <http://www.oecd.org/std/ppp/>.

<sup>7</sup>For Germany, this difference is attributable to the higher share of immigrants reporting a negative net worth since households with zero wealth levels have been dropped from the GSOEP sample.

three countries. These figures show that in all three countries native-born households have a wealth advantage over immigrant households at almost all points of the wealth distribution. In Australia, however, this wealth gap appears not to be statistically significant in most parts of the wealth distribution. In contrast, the nativity wealth gap appears to be increasing in wealth levels in Germany and the United States. At the 25<sup>th</sup>-percentile, for example, the wealth gap is smallest in the United States with immigrants holding \$15,792 less than natives (see Figure 3), followed by Australia with a nativity gap of \$26,224 (see Figure 1) and Germany with a nativity gap of \$32,325 (see Figure 2). At higher wealth levels, however, the nativity wealth gap is smallest in Australia (about \$45,000 at the 75<sup>th</sup> percentile) compared to a gap of about \$105,000 in the United States and more than \$200,000 in Germany.

Tables 1-3 further describe the relevant socioeconomic and demographic characteristics of native and immigrant households.<sup>8</sup> The cross-country disparities in the characteristics of immigrants and natives are largely as expected given differences in immigration policies and institutional settings. In all three countries immigrant households have a lower income on average than native-born households. Again, this disparity is smallest for Australia. Moreover, immigrant households in Australia also have fewer children under the age of 18 and have older heads with more education than native-born households. In Germany and the United States, these patterns are reversed. There are also differences in the distribution of the immigrant population across entry cohorts and sending regions. In Australia and Germany, the majority of the immigrant population arrived either between 1965 and 1974 or after 1984, whereas in the U.S. more than half of the immigrant population captured in the SIPP arrived after 1984. Immigrants to Australia primarily stem from Europe and Asia, while in Germany most immigrant households originate in Central/Eastern Europe or Turkey and immigrants to the United States come predominantly from Asia and Mexico.

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<sup>8</sup>Variable definitions are given in the Appendix.

## Determinants of Net Worth

In order to understand how wealth levels vary with household characteristics, it is first useful to analyze the determinants of household net worth. As the distribution of net worth is usually skewed to the right, linear regression models are typically estimated using a log transformation of wealth in order to obtain a log-normally distributed dependent variable (see e.g. Shamsuddin and DeVoretz 1998). A log transformation is not appropriate for households with zero or negative net worth, however. Consequently, we estimate a quantile regression model to analyze the determinants of household net worth at the median of the distribution.<sup>9</sup>

Specifically, we estimate the following cross-sectional quantile regression model of the determinants of net worth ( $W_{hc}$ ) for native and immigrant households  $h$  residing in country  $c$ ,

$$W_{hc} = \beta_{0c}^q + \mathbf{X}_{hc}\beta_{1c}^q + I_{hc}(\beta_{2c}^q + \mathbf{D}_{hc}\beta_{3c}^q + \mathbf{R}_{hc}\beta_{4c}^q) + \varepsilon_{hc}^q, \quad (1)$$

where  $q$  reflects a specific percentile of the distribution,  $X_{hc}$  contains information about income (i.e. current household net income),<sup>10</sup> education (in years for the household head) and demographic characteristics (number of children younger than 18, age and age squared of the household head). Additionally,  $I_{hc}$  is an indicator variable reflecting immigrant status,  $D_{hc}$  is a vector of indicator variables capturing arrival cohorts, and  $R_{hc}$  is a vector of indicator variables reflecting immigrants' regions of origin. Finally, the vector  $\beta_c^q$  includes the model parameters to be estimated and  $\varepsilon_{hc}^q$  is an error term with the usual properties.

In order to facilitate interpretation of our results, the model includes the full set

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<sup>9</sup>An alternative approach to the log transformation is the adoption of an inverse hyperbolic sine transformation (Burbidge, Magee and Robb 1988; Cobb-Clark and Hildebrand 2006a; Sinning 2006). However, due to the nonlinear nature of this transformation, the calculation of the required marginal effects is computationally demanding.

<sup>10</sup>We also estimated an alternative specification including a quadratic in household net income. The quadratic term was insignificant in all cases and was dropped from the model.

of entry cohorts and regions of origin. We achieve identification of the overall constant by restricting the estimated coefficients on these variables to sum to zero, i.e. we restrict  $\sum_m \beta_{3cm}^q = 0$  and  $\sum_n \beta_{4cn}^q = 0$ , where  $m$  and  $n$  are the numbers of immigration cohorts and regions of origin respectively. Consequently,  $\beta_{2c}^q$  is interpreted as the overall difference in the wealth level of native and immigrant households (i.e., the overall nativity wealth gap) conditional on characteristics, while  $\beta_{3c}^q$  and  $\beta_{4c}^q$  capture the deviations of specific entry cohorts and regions of origin from this overall wealth gap.

Estimation results from our median quantile regression ( $q = 50$ ) are presented in Table 4 for all three countries. These results indicate that – controlling for household characteristics – the median net worth of immigrant households is significantly lower than the median net worth of native-born households in Australia and Germany, whereas the conditional nativity wealth gap is insignificant in the United States. This indicates that while immigrants and natives with similar characteristics have similar levels of net worth in the United States, this is not the case in Germany and Australia, where immigrants remain at a wealth disadvantage. In fact, the conditional wealth gap is larger than the unconditional wealth gap in Australia indicating that the relatively small unconditional wealth gap stems in part from the fact that immigrants to Australia are relatively advantaged in those characteristics associated with having higher wealth. In most cases, the other wealth covariates have the expected signs. Median net worth in all three countries is significantly increasing in household net income as well as in the educational attainment and age of the household head. We do find quite different patterns in the effect of age on median net worth. Somewhat surprisingly, our estimates suggest that median net worth is increasing with the number of children below age of 18 though this effect is only significant for Germany and the United States. While this may indicate that households with children accumulate more wealth, it may also indicate that only wealthier households have children.

# DECOMPOSITION OF THE WEALTH GAP

## Decomposition Method

We investigate the source of the nativity wealth gap using the semi-parametric decomposition method proposed by DiNardo, Fortin and Lemieux (1996). This approach allows us to assess the relative impact of various sets of explanatory factors on differences in the wealth distribution between native and immigrant households (see Cobb-Clark and Hildebrand 2006c). In particular, we partition the determinants of wealth into three main factors: (i) income ( $y$ ); (ii) educational attainment ( $e$ ); and (iii) household demographic composition ( $z$ ). We can then write the wealth distribution of group  $j$  as follows:

$$\begin{aligned}
 f^j(w) &\equiv f(w|I = j) & (2) \\
 &= \int_y \int_e \int_z f(w, y, e, z|I = j) dz dedy \\
 &= \int_y \int_e \int_z f(w|y, e, z, I = j) f_{y|e,z}(y|e, z|I = j) \times \\
 &\quad f_{e|z}(e|z, I = j) f_z(z|I = j) dz dedy.
 \end{aligned}$$

where  $I$  is our indicator of immigrant status and  $j = (0, 1)$ . Equation (2) comprises four conditional densities: the conditional wealth distribution  $f$  given the full set of wealth determinants and immigrant status  $I$ , the conditional income distribution ( $f_{y|e,z}$ ) given education, household demographic composition and immigrant status, the conditional education distribution  $f_{e|z}$  given demographics and immigrant status and finally the distribution  $f_z$  of demographic characteristics conditional on immigration status.

Following DiNardo et al. (1996), the wealth gap between immigrant and native households can then be decomposed into three separate components explained by disparities in conditional income distributions, educational backgrounds, and demographic characteristics respectively and a fourth “unexplained” component arising from differences in the conditional (on  $y$ ,  $e$ , and  $z$ ) wealth distributions of immigrants and natives. This decomposition is achieved by constructing a series of counterfactual wealth distributions in which the conditional income, education and

demographic distributions amongst native-born households ( $j = 0$ ) are selectively replaced with the distributions faced by their foreign-born counterparts ( $j = 1$ ).<sup>11</sup> These counterfactual distributions are then used to isolate the effect of various wealth determinants on the nativity wealth gap.<sup>12</sup>

## Decomposition Results

In order to understand the source of the disparity in the wealth levels of natives and immigrants, we decompose the nativity wealth gap into three separate vectors of wealth determinants: 1) a quartic in income; 2) educational attainment, which includes years of education for the household head and the spouse; and 3) household composition, which includes an indicator variable for children less than age 18 in the household, as well as a cubic in the age of both partners.<sup>13</sup>

One advantage of the DiNardo et al. (1996) approach is that by estimating the entire counterfactual wealth distribution it is possible to decompose differences in summary statistics for these wealth distributions. In what follows, we consider two

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<sup>11</sup>The net worth distribution of immigrants is considerably narrower than that of natives in all three countries. Therefore, reweighting the immigrant wealth distribution would involve extrapolating the immigrant conditional wealth distribution beyond the income range actually observed in the data. For that reason, we have chosen to create our counterfactual distributions by reweighting the wealth distribution of native households (see Barsky et al. 2002).

<sup>12</sup>The proportion of the wealth gap attributable to each of the explanatory factors will depend on the sequence (or order) in which we consider them (DiNardo et al. 1996). As we have no particular preference for one sequence over another, we will calculate each in turn and present results based on the simple average across all possible sequences (see Cobb-Clark and Hildebrand 2006c).

<sup>13</sup>To compare the decomposition results to the estimates of the quantile regression, we also estimated a more parsimonious model including only household net income, education of the household head, an indicator variable for children less than 18 and a quadratic function in age of the household head. The decomposition results from this alternative specification do not differ substantially from those presented in Table 5 and are available upon request.

alternative statistics that are useful in describing the differences in the wealth holdings of natives and immigrants: first, the nativity wealth gap at various percentiles of the distribution and second, the disparity in wealth dispersion as reflected in the gap between the 90-10, 90-50, and 50-10 percentiles of the wealth distribution. Our results are obtained by calculating each of the relevant counterfactuals and then taking the simple average of these statistics over all of the possible decomposition sequences. Bootstrapping methods using a normal approximation with 1,000 replications are used to calculate standard errors. Results for the decomposition analysis for all three countries are reported in Table 5.

We find that native-born households are wealthier than foreign-born households (see Table 5) throughout the entire wealth distribution. At the same time, the magnitude of the nativity wealth gap differs substantially across countries. Immigrants to Australia have approximately \$18,000 less wealth at the median than native-born Australians – a gap which is not significantly different from zero. In the United States the median nativity wealth gap is three times higher than that in Australia (approximately \$54,000), while in Germany the median wealth gap exceeds \$128,000. The nativity wealth gap is even larger at the top of the wealth distribution reaching \$200,000 in the United States and as much as \$300,000 in Germany at the 90th percentile. These results point to substantial disparity in the economic well-being of immigrant and native families. Moreover, this disparity varies dramatically across receiving countries and is consistent with cross-national differences in the policies used to select immigrants. In particular, German selection policy has resulted in an immigrant population that is largely unskilled and, at least notionally, temporary, while immigrants to Australia are both skilled and permanent. Given this, it is not surprising that the nativity wealth gap is much larger in Germany than in Australia.

Interestingly, income differentials explain relatively little of this nativity wealth gap. In fact, conditional income functions have a statistically insignificant effect (at the 5%-level) on the overall nativity wealth gap throughout the entire wealth distribution in all three countries. Moreover, the income component of the decomposition

is small in magnitude. Specifically, income differentials explain only a modest fraction – between  $-5\%$  and  $15\%$  – of the very large nativity wealth gap at any point in the German and U.S. wealth distributions. Relative to Germany and the United States, income differentials appear to account for a much larger share of the wealth gap between immigrant and native households in Australia. For example, at the median, more than \$7,000 of the overall \$18,000 nativity wealth gap in Australia (38%) stems from the fact that foreign- and Australian-born households have different incomes. However, it is important to note that the wealth gap itself is much smaller in Australia and, as already noted, the effect of this income differential on the wealth gap is not statistically significant. Overall, these results suggest that – conditional on the household’s educational attainment and demographic characteristics – income disparities do not themselves lead to a significantly higher nativity wealth gap. This result is particularly surprising in light of the empirical evidence demonstrating the large nativity earnings gap and the often slow earnings assimilation of immigrants in these countries. At the same time, economic theory suggests that it is permanent rather than current income that is most closely related to consumption, savings decisions, and ultimately wealth accumulation. Our data unfortunately do not provide us with a sensible permanent income measure and our results are consistent with the theoretically weaker relationship between current income and wealth.<sup>14</sup> Any effects of our inability to control for disparities in permanent income will be captured in the unexplained component of the nativity wealth gap.

In all three countries, differences in educational attainment account for much more of the nativity wealth gap than do the conditional income functions. This is

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<sup>14</sup>More specifically, our analysis controls for current, after-tax household income because none of our data sets provide a measure of permanent income. As a robustness check, we proxied permanent income using a measure of predicted income following Blau and Graham (1990). We found that using predicted income did not affect the results of the decomposition analysis substantially. However, using predicted income makes identifying the effects of education and demographic characteristics more challenging. Consequently, we report only results based on current income.

particularly important as educational qualifications are often one of the key factors underlying a nation's immigration selection process. Again, Australia stands out relative to the United States and Germany, as immigrants have more education on average than native-born Australians. Our decomposition analysis indicates that this educational advantage contributes to reducing the nativity wealth gap in Australia. In other words, if immigrants to Australia had the same educational qualifications as the native-born population we would expect that immigrants' wealth disadvantage at the median would be approximately \$14,000 higher than we observe it to be. On the other hand, the relative educational disadvantage of immigrant households in the United States and Germany accounts for a substantial portion of their wealth disadvantage. Specifically, educational differences account for about one quarter of the nativity wealth gap in Germany. In the United States, disparities in conditional education functions explain an increasingly large proportion of the nativity wealth gap as one moves up the wealth distribution – leaving more than half of the nativity wealth gap explained by educational differences at the 90th percentile. Thus, selection policies which ultimately shape the nature of the immigration flow are likely to have a large effect on the relative wealth holdings of the immigrant population.

A household's demographic characteristics – in particular partners' ages and numbers of children – also explain a large portion of the nativity wealth gap in all three countries. In Australia, immigrant households are typically older and less likely to have children than native-born households. Consequently, their relative demographic characteristics, like their relative educational advantage, contribute to reducing the overall nativity wealth gap by approximately \$29,000. In the United States, however, 26% of the median wealth gap is explained by households' demographic characteristics, while demographic composition explains between 13 and 48% of the observed wealth gap in Germany. To the extent that this simply reflects differences in households' position in the life cycle, the gap in wealth resulting from demographic composition may not be particularly worrying. At the same time, immigrants' fertility patterns can differ widely across regions of origin suggesting that the national-origin mix of the immigrant population is likely to be related to the

magnitude of the nativity wealth gap.

Overall, these results indicate that wealth differentials are largely the result of disparity in the education level and demographic composition of the native and immigrant populations, while income differentials play a role that is relatively minor. Interestingly, Australia differs from the United States and Germany in that the educational and demographic differences serve to narrow rather than widen the nativity wealth gap. If immigrants to Australia accumulated wealth in the same way as the native-born population, we would expect that they would have a median wealth advantage of approximately \$36,000. Instead we observe a median wealth gap of \$18,000 implying that immigrant households to Australia accumulate substantially less wealth given their characteristics than similar native-born households. Thus, although we observe a very small wealth gap in Australia, this gap is completely unexplained. In Germany, approximately half of the observed \$128,000 median nativity wealth gap is unexplained by immigrants' income, education, and demographic characteristics. Much less of the wealth gap in the United States is unexplained by immigrants' characteristics. Only about \$15,000 of the overall \$54,000 gap at the U.S. median cannot be explained by the fact that immigrants to the United States have lower income, less education, and are on average younger with larger families.

Thus, the relatively small wealth gap in Australia obscures the fact that immigrant households are relatively advantaged in their characteristics. Unfortunately, they do not translate their educational and demographic advantage into higher wealth levels. In Germany more than half of the wealth gap is unexplained, while in the U.S. only one third of the gap cannot be explained by the relatively less favorable educational and demographic structure of immigrant households.

## **CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH**

Given the increasing numbers of individuals worldwide living outside their country of birth, it is imperative that researchers move beyond a narrow focus on the eco-

economic assimilation of immigrant workers to also consider the economic well-being of immigrant families and the economic integration of immigrant communities more broadly. Many traditional immigrant-receiving countries are facing aging immigrant populations as large numbers of immigrants reach retirement age. The extent to which these immigrants have accumulated sufficient wealth to provide for themselves in old-age is, however, largely unknown. This is problematic as there are many reasons to believe that nativity status may affect wealth holdings and asset portfolios. This paper uses recent data collections which link wealth holdings to migration histories to analyze the relative wealth position of immigrant and native households in Australia, Germany, and the United States.

Our results indicate that native-born households are wealthier than immigrants households across the entire wealth distribution. At the median, immigrant households in Australia hold approximately \$18,000 less wealth than native households. This nativity wealth gap is substantially higher in both Germany and the United States reaching approximately \$54,000 in the United States and more than \$128,000 in Germany at the median. Using the semi-parametric decomposition method proposed by DiNardo et al. (1996) we demonstrate that income disparities between native- and foreign-born households are not the primary explanation of these wealth gaps. Rather wealth differentials are largely the result of differences in the educational attainment and household composition of native and immigrant households. Once these differences are taken into account, the nativity wealth gap at the median falls substantially in Germany and in fact becomes positive (though insignificant) in the United States. In contrast, the relatively small wealth gap between Australian- and foreign-born households becomes larger once differentials in household characteristics are taken into account indicating that immigrants to Australia do not translate their relative educational and demographic advantage into a wealth advantage. In particular, we would expect immigrant households to have a wealth advantage if they accumulated wealth in the same way as the Australian-born.

On balance, the substantial cross-national disparity in the economic well-being of immigrant and native families is largely consistent with the selection policies

used to shape the skills and settlement intentions of the immigration population. These policies ensure, for example, that immigrants to Australia are generally both permanent and relatively skilled, while immigrants to Germany, are mainly unskilled and notionally temporary. It is not surprising then that we observe the nativity wealth gap to be larger in Germany than in Australia. These wealth differentials are most likely reinforced by labor market differences which lead immigrants to earn higher relative wages at entry in Australia and enjoy faster earnings adjustment in the United States, but remain at an earnings disadvantage in Germany. At the same time, given the large empirical literature documenting these cross-national differences in the relative labor market outcomes of immigrants, we might have expected a larger role for income disparities in producing these nativity wealth gaps.

A number of issues remain important topics for future research. Unfortunately, given the nature of our data, we have been unable to directly assess how cross-national differences in welfare and pension systems affect the nativity wealth gap. Moreover, we can only speculate about how institutional barriers associated with ethnicity, nativity, legal status, or language skills might limit immigrants' ability to access to accumulate financial or housing wealth. Making progress in these areas is likely to be largely dependent on the development of data sets which allow detailed comparisons to be made across a number of institutional settings. At the same time, a deeper understanding of the role of immigration policy in shaping the nativity wealth gap is likely to come from a comparison of the wealth levels and asset portfolios of immigrants selected on the basis of productive skills or family relationships rather than out of humanitarian concerns. Such a comparison is likely to be particularly important in the case of Australia as our results suggest that the nativity wealth gap is largely driven by behavioral differences in the accumulation of wealth. Expanding our focus on first-generation immigrants to also consider the wealth holdings of second-generation immigrants is an important first step in understanding the extent to which the nativity wealth gaps we observe are driven by the relatively higher investments that immigrants make in the human capital of their

children. Finally, future research should explore the extent to which nativity wealth gaps arise out of differentials in the consumption and saving patterns of native-born and immigrant households.

# APPENDIX

TABLE A1: Components of Net Worth

HILDA	GSOEP	SIPP
Total interest earning assets in banks	Value of financial assets	Total interest earning assets in banks
+ Total interest earning assets in other institutions		+ Total interest earnings in other institutions
+ Total stocks and mutual funds		+ Equity in stocks and mutual funds
+ Total other investments <sup>a</sup>	+ Equity in other assets <sup>b</sup>	+ Equity in other assets <sup>c</sup>
		+ Equity in IRA and KEOGH accounts
- Total value of unsecured debt	- Value of financial debts	- Total value of unsecured debt
= <b>A. Net Financial Wealth</b>	= <b>A. Net Financial Wealth</b>	= <b>A. Net Financial Wealth</b>
Business equity	Business equity	Business equity
= <b>B. Business Equity</b>	= <b>B. Business Equity</b>	= <b>B. Business Equity</b>
Housing and real estate equity	Housing and real estate equity (incl. vehicles)	Housing and real estate equity
= <b>C. Housing Equity</b>	= <b>C. Housing Equity</b>	= <b>C. Housing Equity</b>
Total value of vehicles <sup>d</sup>	(see C.)	Vehicles equity
= <b>D. Vehicles Equity</b>	= <b>D. Vehicles Equity</b>	= <b>D. Vehicles Equity</b>
<b>A + B + C + D</b>	<b>A + B + C + D</b>	<b>A + B + C + D</b>
= <b>Net Worth</b>	= <b>Net Worth</b>	= <b>Net Worth</b>

*Note:* <sup>a</sup> Life insurances + trust funds + collectibles. <sup>b</sup> Life insurances + equity in tangible assets. <sup>c</sup> Including mortgages held from sale of real estate. <sup>d</sup> Car loan is included in the total value of unsecured debt (see A.) which also includes other loans, higher purchase and overdraft.

TABLE A2: Definition of Variables

Variable	HILDA	GSOEP	SIPP	Description
Household Net Income	X	X	X	Monthly household net income in \$US purchasing power parities.
Age	X	X	X	Age in years.
Kids<18	X	X	X	Number of children below 18 years in household.
Education	X	X	X	Education in years.
New South Wales	X			0/1-variable; 1 if region: New South Wales; 0 otherwise.
Victoria	X			0/1-variable; 1 if region: Victoria; 0 otherwise.
Queensland	X			0/1-variable; 1 if region: Queensland; 0 otherwise.
South Australia	X			0/1-variable; 1 if region: South Australia; 0 otherwise.
Western Australia	X			0/1-variable; 1 if region: Western Australia; 0 otherwise.
Tasmania	X			0/1-variable; 1 if region: Tasmania; 0 otherwise.
Northern Territories	X			0/1-variable; 1 if region: Northern Territories; 0 otherwise.
Australian Capital Territory	X			0/1-variable; 1 if region: Australian Capital Territory; 0 otherwise.
Berlin		X		0/1-variable; 1 if region: Berlin; 0 otherwise.
Schleswig-Holstein		X		0/1-variable; 1 if region: Schleswig-Holstein; 0 otherwise.
Hamburg		X		0/1-variable; 1 if region: Hamburg; 0 otherwise.
Lower Saxony		X		0/1-variable; 1 if region: Lower Saxony; 0 otherwise.
Bremen		X		0/1-variable; 1 if region: Bremen; 0 otherwise.
North Rhine-Westphalia		X		0/1-variable; 1 if region: North Rhine-Westphalia; 0 otherwise.
Hesse		X		0/1-variable; 1 if region: Hesse; 0 otherwise.
Rhineland-Palatinate, Saarland		X		0/1-variable; 1 if region: Rhineland-Palatinate, Saarland; 0 otherwise.
Baden-Wuerttemberg		X		0/1-variable; 1 if region: Baden-Wuerttemberg; 0 otherwise.
Bavaria		X		0/1-variable; 1 if region: Bavaria; 0 otherwise.
New England			X	0/1-variable; 1 if region: New England; 0 otherwise.
Middle Atlantic			X	0/1-variable; 1 if region: Middle Atlantic; 0 otherwise.
East North Central			X	0/1-variable; 1 if region: East North Central; 0 otherwise.
West North Central			X	0/1-variable; 1 if region: West North Central; 0 otherwise.
South Atlantic			X	0/1-variable; 1 if region: South Atlantic; 0 otherwise.
East South Central			X	0/1-variable; 1 if region: East South Central; 0 otherwise.
West South Central			X	0/1-variable; 1 if region: West South Central; 0 otherwise.
Mountain			X	0/1-variable; 1 if region: Mountain; 0 otherwise.
Pacific			X	0/1-variable; 1 if region: Pacific; 0 otherwise.
<1965	X	X	X	0/1-variable; 1 if year of immigration before 1965; 0 otherwise.
1965-1974	X	X	X	0/1-variable; 1 if year of immigration between 1965 and 1974; 0 otherwise.
1975-1984	X	X	X	0/1-variable; 1 if year of immigration between 1975 and 1984; 0 otherwise.
>1984	X	X	X	0/1-variable; 1 if year of immigration after 1984; 0 otherwise.

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TABLE 1: Descriptive statistics, Australia\*

	Natives			Immigrants		
	Mean	Std.Dev.	N	Mean	Std.Dev.	N
<b>Net Worth</b>						
Net Worth	303224.92	9491.62	2245	270364.56	16469.61	586
Median Net Worth	187661.94	5687.43	2245	163452.23	12069.60	586
Net Worth if >0	314922.39	9752.36	2153	283954.98	16890.15	559
% >0	0.985	0.003	2245	0.972	0.011	586
<b>Net Worth by Age Group</b>						
25-34	154352.32	14765.99	522	128382.40	42870.77	62
35-44	243860.32	17132.34	627	189925.13	22995.46	140
45-54	350660.49	18251.76	506	335109.21	39368.59	170
55-64	504535.58	34341.88	329	323100.47	34525.07	110
65-75	339686.63	18938.60	261	293117.71	34385.96	104
<b>Components of Net Worth</b>						
Net Financial Wealth	58920.34	3751.83	2245	45653.62	5973.97	586
Business Equity	38860.77	4113.19	2245	27746.22	6722.70	586
Housing Equity	185542.80	5791.37	2245	182319.18	10116.71	586
Vehicles Equity	19901.01	672.79	2245	14645.54	1231.30	586
<b>Explanatory Variable</b>						
Household Net Income	48142	973.09	2245	42465	1991.43	586
Age	47	0.30	2245	51	0.58	586
Kids<18	0.973	0.026	2245	0.765	0.045	586
Education	11.91	0.05	2245	12.14	0.14	586
<b>Place of Residence</b>						
New South Wales	0.306	0.011	2245	0.373	0.024	586
Victoria	0.249	0.010	2245	0.283	0.021	586
Queensland	0.230	0.010	2245	0.112	0.014	586
South Australia	0.079	0.006	2245	0.074	0.010	586
Western Australia	0.087	0.006	2245	0.128	0.014	586
Tasmania	0.032	0.004	2245	0.005	0.002	586
Northern Territories	0.004	0.002	2245	0.007	0.004	586
Australian Capital Territory	0.013	0.002	2245	0.018	0.005	586
<b>Immigration Cohort</b>						
<1965				0.168	0.016	586
1965-1974				0.227	0.019	586
1975-1984				0.138	0.017	586
>1984				0.467	0.024	586
<b>Place of Origin</b>						
English Speaking				0.321	0.021	586
Europe				0.278	0.021	586
Asia				0.278	0.023	586
Other				0.123	0.016	586

Note: \* Amounts in \$US Purchasing Power Parities.

TABLE 2: Descriptive statistics, Germany\*

	Natives			Immigrants		
	Mean	Std.Dev.	N	Mean	Std.Dev.	N
<b>Net Worth</b>						
Net Worth	223349.55	8427.31	2392	101382.27	13998.67	270
Median Net Worth	194851.92	6601.05	2392	26068.82	9375.52	270
Net Worth if > 0	241333.02	8656.55	2254	125740.01	15267.20	232
% > 0	0.935	0.009	2392	0.839	0.034	270
<b>Net Worth by Age Group</b>						
25-34	93806.17	13146.352	223	38028.870	13635.20	48
35-44	190495.28	11450.291	628	96401.651	34609.47	77
45-54	250658.92	16524.554	601	125767.663	17972.43	70
55-64	267542.46	19473.813	548	128424.120	45302.43	47
65-75	256273.21	24876.566	392	100040.386	29976.37	28
<b>Components of Net Worth</b>						
Net Financial Wealth	35893.16	2187.07	2392	17649.78	3139.11	270
Business Equity	9338.67	1610.77	2392	3056.10	2419.63	270
Housing Equity	87616.80	3856.87	2392	42170.67	5287.57	270
<b>Explanatory Variables</b>						
Household Net Income	35629.88	476.81	2392	30921.91	1212.16	270
Age	51	0.40	2392	48	1.14	270
Kids<18	0.705	0.028	2392	1.189	0.112	270
Education	12.456	0.085	2392	11.333	0.204	270
<b>Place of Residence</b>						
Berlin	0.026	0.006	2392	0.009	0.006	270
Schleswig-Holstein	0.047	0.007	2392	0.022	0.012	270
Hamburg	0.019	0.004	2392	0.001	0.001	270
Lower Saxony	0.137	0.011	2392	0.162	0.034	270
Bremen	0.013	0.003	2392	0.016	0.010	270
North Rhine-Westphalia	0.255	0.014	2392	0.273	0.049	270
Hesse	0.078	0.008	2392	0.086	0.021	270
Rhineland-Palatinate, Saarland	0.084	0.009	2392	0.066	0.018	270
Baden-Wuerttemberg	0.149	0.011	2392	0.250	0.041	270
Bavaria	0.185	0.011	2392	0.116	0.024	270
<b>Immigration Cohort</b>						
<1965				0.046	0.015	270
1965-1974				0.349	0.050	270
1975-1984				0.214	0.036	270
>1984				0.390	0.044	270
<b>Region of Origin</b>						
OECD Member Country				0.189	0.050	270
Central and Eastern Europe				0.379	0.043	270
Turkey				0.293	0.041	270
Ex-Yugoslavia				0.086	0.025	270
Other				0.053	0.020	270

Note: \* Amounts in \$US Purchasing Power Parities.

TABLE 3: Descriptive statistics, USA\*

	Natives			Immigrants		
	Mean	Std.Dev.	N	Mean	Std.Dev.	N
Net Worth	164540.14	2842.71	10296	83461.76	5756.68	1057
Median Net Worth	74527.67	1365.35	10296	20223.23	2600.87	1057
Net Worth if >0	188104.74	3104.15	9116	105300.46	6838.57	851
% >0	0.887	0.003	10296	0.814	0.012	1057
<b>Net Worth by Age Group</b>						
25-34	48110.96	2877.41	1745	32239.60	5724.63	271
35-44	117174.07	4081.29	2786	78349.49	11717.96	327
45-54	175079.07	5503.12	2577	85034.19	9078.37	253
55-64	252345.96	8817.99	1768	126279.39	18702.38	132
65-75	268793.09	9417.61	1420	224905.73	35261.45	74
<b>Components of Net Worth</b>						
Net Financial Wealth	56518.75	1585.74	10296	15520.22	2361.47	1057
Business Equity	14786.63	1105.28	10296	9281.11	2670.33	1057
Housing Equity	87954.94	1419.09	10296	55365.65	3509.45	1057
Vehicles Equity	5279.82	88.54	10296	3294.77	211.77	1057
<b>Explanatory Variable</b>						
Household Net Income <sup>a</sup>	17440	148.99	10296	13024	397.31	1057
Age	48	0.13	10296	44	0.38	1057
Kids<18	0.859	0.011	10296	1.359	0.041	1057
Education	13.56	0.02	10296	12.11	0.13	1057
<b>Place of Residence</b>						
New England	0.048	0.002	10296	0.047	0.007	1057
Middle Atlantic	0.133	0.004	10296	0.168	0.012	1057
East North Central	0.173	0.004	10296	0.081	0.009	1057
West North Central	0.080	0.003	10296	0.019	0.004	1057
South Atlantic	0.191	0.004	10296	0.164	0.012	1057
East South Central	0.069	0.003	10296	0.004	0.002	1057
West South Central	0.114	0.003	10296	0.119	0.011	1057
Mountain	0.050	0.002	10296	0.057	0.007	1057
Pacific	0.115	0.003	10296	0.337	0.015	1057
<b>Immigration Cohort</b>						
<1965				0.062	0.008	1057
1965-1974				0.112	0.010	1057
1975-1984				0.263	0.014	1057
>1984				0.563	0.016	1057
<b>Place of Origin</b>						
Europe <sup>b</sup>				0.143	0.012	1057
Asia				0.305	0.015	1057
Mexico				0.305	0.015	1057
Central/South America				0.173	0.012	1057
Other				0.074	0.008	1057

Note: \* Amounts in \$US. <sup>a</sup> Quarterly income reported. <sup>b</sup> Includes also Canada and Australia.

TABLE 4: Median Quantile Regressions

	<b>Australia</b>		<b>Germany</b>		<b>United States</b>	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Household Net Income	2.38***	0.11	4.19***	0.19	3.50***	0.06
Education	20650.58***	1826.69	7708.47***	1496.99	8202.90***	365.55
Kids<18	6049.07	3876.88	20517.36***	4342.53	4002.60***	839.49
Age	19310.05***	2471.12	7956.52***	2685.01	-731.80	494.64
Age <sup>2</sup>	-105.85***	25.43	-34.37	26.08	46.40***	4.96
Immigrant	-53796.69***	12192.24	-56215.74***	17740.61	5179.19	4179.43
<b>Immigration Cohorts</b>						
Year of Migration<1965	3831.95	20030.93	-3147.45	36598.12	31361.66***	9041.61
Year of Migration 1965-1974	7244.25	17142.15	-4811.77	22228.99	-13409.98**	6792.27
Year of Migration 1975-1984	3276.68	20772.59	3151.13	24216.88	-691.53	5380.89
Year of Migration >1984	2489.54	30585.28	4808.09	25702.41	-17260.14***	4640.14
<b>Regions of Origin</b>						
English Speaking	-12497.31	15075.65				
Europe	18537.27	17441.70				
Asia	-4129.83	17356.74				
Other	-42783.16	55068.28				
OECD			-5151.02	28596.07		
Central and Eastern Europe			16094.94	27021.08		
Ex-Yugoslavia			-1848.85	33072.04		
Turkey			-15575.61	23728.79		
Other			6480.54	44744.27		
Europe					6471.63	6688.56
Asia					-9372.72*	5036.50
Mexico					34072.31***	5101.39
Central/South America					-7087.35	5939.91
Other					-24083.88***	8473.25
Constant	-748484.71***	60235.44	-395370.20***	68194.57	-160248.32***	12765.05
N	2,836		2,662		11,353	

TABLE 5: DFL decomposition – Foreign-Born to Native-Born Households

	Raw Gap	Income	Education	Demography	Unexplained
<b>Australia</b>					
10 <sup>th</sup>	8406.71 [3271.86]	3201.99 [1822.20]	-5998.38 [2111.02]	-13285.69 [3332.39]	24488.80 [5214.50]
		(38)	(-71)	(-158)	(291)
25 <sup>th</sup>	24358.95 [11172.24]	6981.46 [3596.68]	-8195.39 [3157.14]	-22188.30 [5211.24]	47761.19 [12097.16]
		(28)	(-33)	(-91)	(196)
50 <sup>th</sup>	18258.95 [13411.77]	7069.77 [8561.36]	-13958.95 [4742.80]	-28583.20 [5823.40]	53731.34 [14862.45]
		(38)	(-76)	(-156)	(294)
75 <sup>th</sup>	42611.94 [20422.06]	2118.53 [31848.92]	-25169.90 [9147.20]	-45157.58 [13445.70]	110820.90 [29826.16]
		(4)	(-59)	(-105)	(260)
90 <sup>th</sup>	47971.64 [61100.36]	8975.62 [69697.91]	-34494.52 [15935.78]	-43300.49 [20525.02]	116791.04 [81868.40]
		(18)	(-71)	(-90)	(243)
<b>Germany</b>					
10 <sup>th</sup>	16214.80 [2988.34]	563.95 [595.79]	2365.31 [1421.54]	5464.89 [2200.65]	7820.64 [4058.24]
		(3)	(14)	(33)	(48)
25 <sup>th</sup>	20855.05 [4373.83]	702.81 [1022.94]	4862.35 [1519.60]	10076.12 [2600.25]	5213.76 [3369.02]
		(3)	(23)	(48)	(25)
50 <sup>th</sup>	128309.18 [16731.41]	2013.90 [4534.49]	31400.50 [8713.06]	30213.85 [12741.35]	64680.92 [21750.74]
		(1)	(24)	(23)	(50)
75 <sup>th</sup>	163404.61 [17588.14]	4193.78 [6033.80]	31694.04 [8815.23]	24849.40 [9739.70]	102667.38 [19162.90]
		(2)	(19)	(15)	(62)
90 <sup>th</sup>	290208.56 [51989.02]	8662.15 [15122.47]	59878.00 [19644.25]	38675.71 [17587.95]	182992.69 [43936.22]
		(2)	(20)	(13)	(63)
<b>United States</b>					
10 <sup>th</sup>	1980.55 [1002.31]	235.17 [406.04]	858.69 [276.14]	2471.01 [433.84]	-1584.32 [1191.00]
		(12)	(43)	(125)	(-80)
25 <sup>th</sup>	15792.23 [843.46]	2300.61 [1691.97]	6330.20 [1189.68]	5385.51 [647.80]	1775.92 [940.01]
		(15)	(40)	(34)	(11)
50 <sup>th</sup>	54304.44 [3070.84]	4261.18 [12503.11]	20583.84 [8753.94]	14282.74 [2511.23]	15176.68 [6270.28]
		(8)	(38)	(26)	(28)
75 <sup>th</sup>	105479.49 [8497.99]	2310.24 [30542.10]	53708.05 [13452.16]	28424.52 [6514.46]	21036.68 [30635.88]
		(2)	(51)	(27)	(20)
90 <sup>th</sup>	195645.38 [19098.54]	-10506.57 [47451.95]	114300.30 [21711.34]	47908.96 [10526.87]	43942.69 [54541.00]
		(-5)	(58)	(24)	(22)

TABLE 5 CONTINUED

	Raw Gap	Income	Education	Demography	Unexplained
<b>Australia</b>					
P50-P10	9852.23 [12843.23]	3867.78 [7155.99]	-7960.57 [3310.28]	-15297.51 [4785.65]	29242.53 [14048.90]
P75-P25	18252.98 [19279.64]	-4862.93 [28887.76]	-16974.50 [6889.46]	-22969.27 [12255.80]	63059.70 [26968.97]
P90-P50	29712.68 [58122.60]	1905.84 [63121.00]	-20535.57 [13126.89]	-14717.28 [18971.63]	63059.70 [76404.09]
<b>Germany</b>					
P50-P10	112094.37 [16181.05]	1449.94 [4349.59]	29035.19 [8177.96]	24748.95 [12047.39]	56860.27 [20810.98]
P75-P25	142549.55 [16557.07]	3490.97 [5372.75]	26831.68 [8337.29]	14773.28 [8522.17]	97453.61 [18190.84]
P90-P50	161899.38 [49808.38]	6648.25 [12621.29]	28477.49 [18006.86]	8461.86 [14629.50]	118311.77 [44959.63]
<b>United States</b>					
P50-P10	52323.89 [2885.75]	4026.02 [12190.67]	19725.15 [8661.20]	11811.73 [2329.58]	16761.01 [5991.53]
P75-P25	89687.26 [8345.93]	9.63 [29006.83]	47377.85 [13050.21]	23039.01 [6278.24]	19260.76 [29958.23]
P90-P50	141340.94 [18409.38]	-14767.76 [43039.32]	93716.47 [24026.03]	33626.22 [9654.78]	28766.01 [51815.23]

*Note:* Percentage of total variation explained in parenthesis. Standard errors of explained variation are reported in brackets.

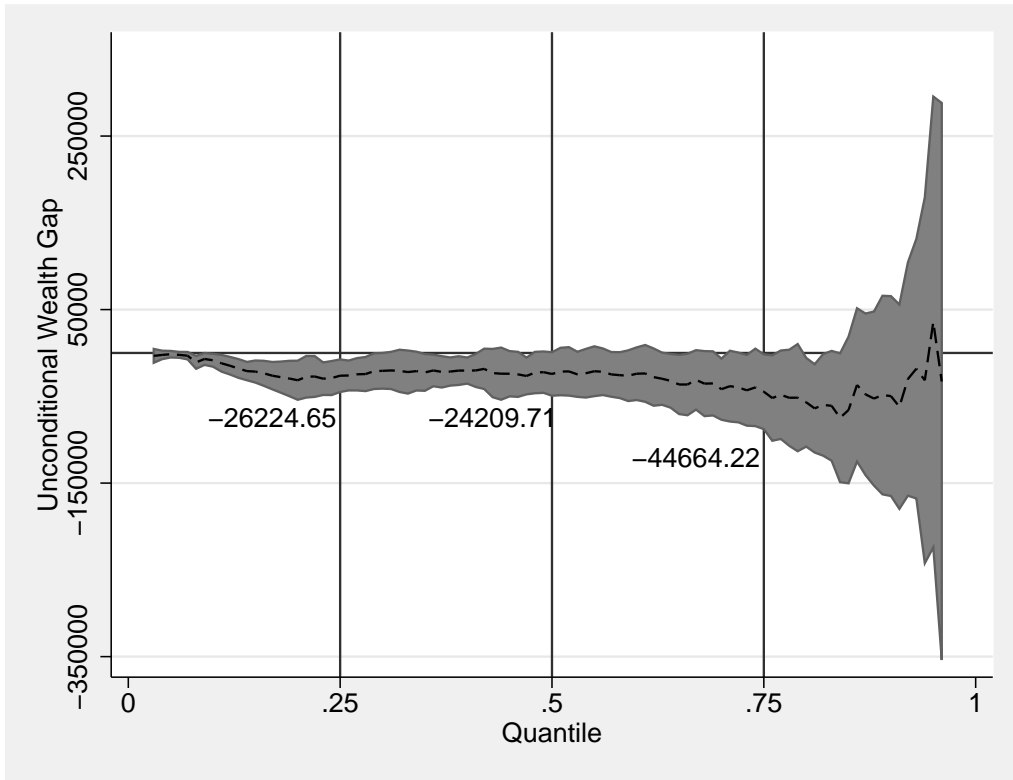


FIGURE 1: Unconditional Nativity Wealth Gap, Quantile Regression Estimates, Australia

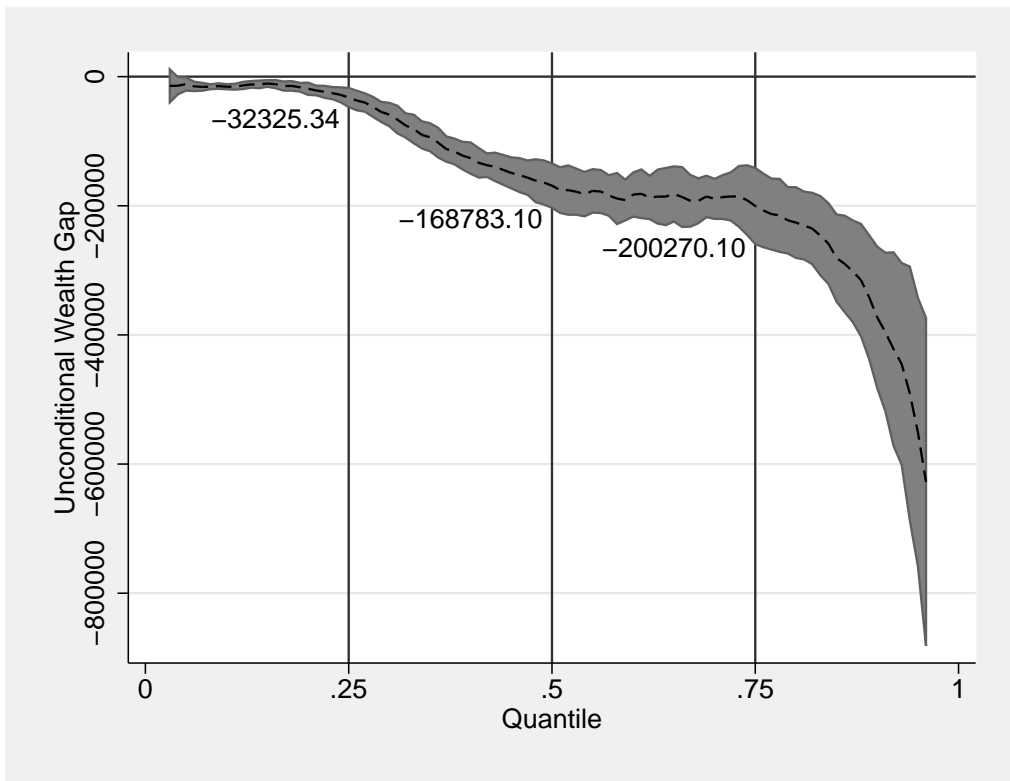


FIGURE 2: Unconditional Nativity Wealth Gap, Quantile Regression Estimates, Germany

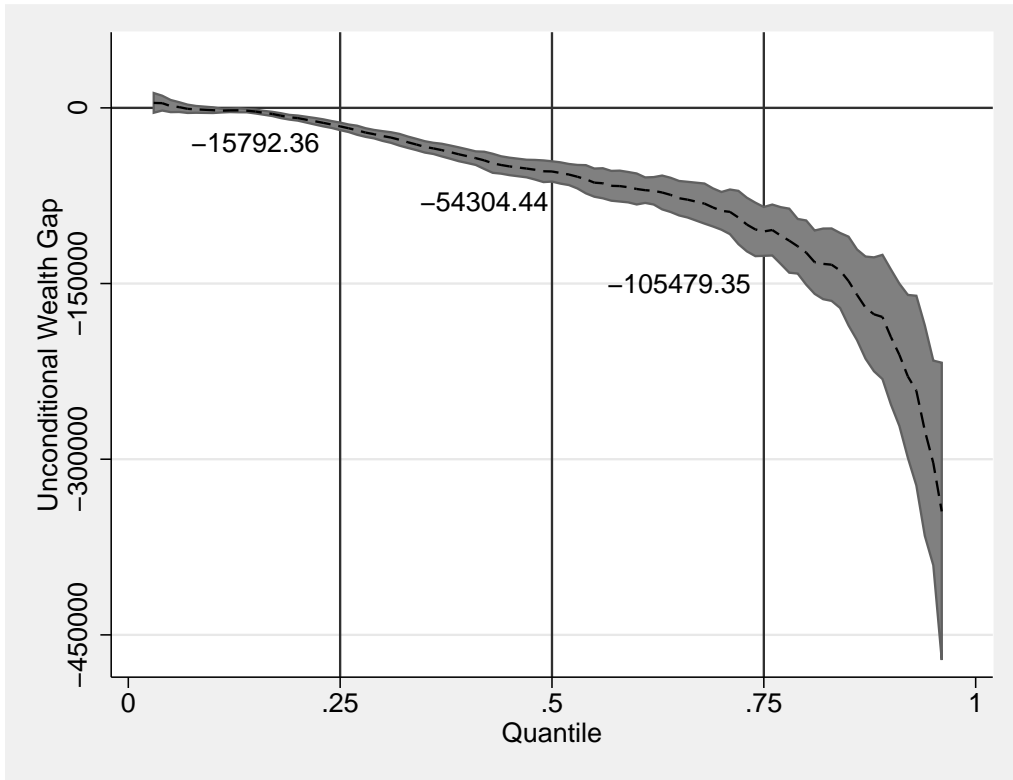


FIGURE 3: Unconditional Nativity Wealth Gap, Quantile Regression Estimates, USA