

Like Mother, Like Daughter? An Economic Comparison of Immigrant Mothers and Their Daughters

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INTRODUCTION

The United States is said to be a nation of immigrants, who often incur enormous financial and social costs because they hope to make better lives for themselves and their children. This article uses a new methodology and fresh data to investigate the economic mobility of immigrants.

BACKGROUND

Intergenerational mobility can be gauged by comparing grown children with their parents

$$Y = \alpha + \beta X + \epsilon \quad (1)$$

where Y is the logarithm of some measure of the child's economic well-being, X is the logarithm of a similar measure of the parent's economic well-being, and the estimated parameter β is the elasticity of the child's economic well-being with respect to the parent's well-being. A value of β close to 0 indicates complete intergenerational mobility; a value close to 1 indicates no mobility. Economic well-being is usually measured by income, either for a single year or averaged over 3–5 years, with elasticity estimates ranging from 0.2 to 0.6 (for example, Solon, 1992; Zimmerman, 1992; and Mazumder, 2003). Charles and Hurst (2003) used net worth data and estimated an elasticity of 0.4. Corak (2006) gives a literature review and comparable elasticities for several different countries.

One weakness of intergenerational studies is that they have traditionally focused on fathers and sons. Chadwick and Solon (2002) and Aydemir, Chen, and Corak (2009) are evidently the only studies of this type that consider daughters and the former is the only study that looks at family income, rather than an individual's income. Family income is arguably the more relevant measure since one important aspect of economic mobility is the extent to which people marry people from different backgrounds.

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PSID Data

The primary source of data for most mobility studies is the Panel Study of Income Dynamics (PSID), which is based on an annual survey conducted by University of Michigan's Survey Research Center of approximately 5,000 families and their descendants. The PSID has the virtue of providing more than 40 years of panel data. One drawback is the relatively small samples, for example, Solon's seminal 1992 paper looked at 348 father-son pairs.

There are also issues related to the confounding effect of age on income. In Solon's study, the father's ages ranged from 27 to 68 years with an average of 42, while the son's ages ranged from 25 to 33 years, with an average of 30. Measures of economic status may not be reliable if they do not compare people at comparable stages of their lives.

Using Census Data to Measure Immigrant Mobility

Research on economic mobility in the United States has paid relatively little attention to immigrants. Myers and Cranford (1998) and Myers (1999) are important exceptions. They looked at decennial census data and concluded that adults who were the children of immigrants are generally more geographically dispersed and economically well off than are immigrants.

Chiswick (1977) and Carliner (1980) used 1970 U. S. Census data to compare the wages of first-, second-, and third-generation immigrant males. Borjas (1993, 1994) looked at several decennial censuses. He found that the country of origin was an important explanation of wage differentials among both first- and second-generation immigrants and that, as measured by average earnings in the worker's occupation, male wage differentials for first generation immigrants in the 1910 Census did not completely disappear among second generation immigrants in the 1940 Census and third-generation immigrants in the 1980 Census.

Smith (2003) used aggregate Census and Current Population Survey (CPS) data to compare the education and income of first, second, and third generation Hispanic male immigrants. Parrado and Morgan (2008) used aggregate Census and CPS data to compare the fertility of first, second, and third generation Hispanic female immigrants.

However, none of these studies compared immigrants with their children; instead they compared averages for first-generation immigrants with averages for later-generation immigrants – which is problematic because of the wide age ranges in the data and the fact that the relative income of immigrants depends on the year of immigration.

A more difficult problem is that the inverse relationship between income and fertility (Docquier, 2004; Jones, Schoonbroodt, and Tertilt, 2008) biases downward measures of economic mobility based on generational averages of census data. Suppose, for example, that there are two immigrant males, one earning \$40,000 and the other earning \$20,000 at the time of the 1980 Census. The first immigrant has one son who earns \$80,000 at the time of the 2000 Census; the second immigrant has three sons, each earning \$40,000 when the 2000 Census is taken. Each son earns 100 per cent more than his father, but the average income of the second generation is only 67 per cent higher than the average income of the first generation.

This bias can be avoided by comparing parents with their children, instead of comparing the average income of first-generation immigrants with the average income of later-generation immigrants. A small number of studies have looked at matched parent-child data outside the United States. Gang and Zimmermann (2000) found relatively little relationship between the educational attainment of second-generation German immigrants and the educational attainment of their foreign-born parents. However, Riphahn (2003) found that advanced school attendance by second-generation German immigrants was correlated with parental education and Van Ours and Justus

Veenman (2003) found that the educational attainment of second-generation Dutch immigrants was related to the educational attainment of their parents.

We have not found any studies that use data for matched pairs of parents and children to investigate intergenerational economic mobility among US immigrants – which is unfortunate because assertions about the United States being a land of opportunity usually refer to the fact that so many immigrants come to the United States to build better lives for their children. The cliché is that parents sacrifice so that their children can thrive. Is this a myth or a reality? The widespread neglect of females is also unfortunate, since daughters and sons may lead quite different lives, and measures of economic mobility based on the experience of sons may not apply to daughters.

Using Median ZIP Code Income to Measure Economic Status and Permanent Income

Socioeconomic status is a multidimensional concept that encompasses such factors as income, wealth, education, and occupation. A more narrowly defined concept is permanent income – the annuity value of the sum of current wealth and the present value of labor income over one's lifetime (Friedman, 1957).

Annual income and financial wealth are noisy measures of economic status and permanent income because they depend on one's age, vary greatly from year to year, and are subject to reporting error. A better measure might be based on the observation that neighbourhoods that are safe and clean with attractive amenities (like good public schools) are more desirable and consequently more expensive to live in. More than 50 years ago, Ando and Modigliani (1960) suggested that, because it is costly to move from home to home, the value of the home a household lives in may be a good proxy for its economic status and permanent income. Several studies have, in fact, shown that median ZIP-codes income is a reasonable measure of economic status (for example, Gould, Davey, and LeRoy, 1989; Krieger, 1992; Geronimus, Bound, and Neidert, 1996; Gornick, 2003; Fryer and Levitt, 2004; Currie and Moretti, 2007; Miller, 2008).

People do experience changes in economic status during their lifetimes. The question is, if we want to compare the economic status of parents and their children at comparable stages of their lives, should we look at their current income or residence? Our assumption (which is not original) is that ZIP code is a better proxy for economic status than is current income.

A FRESH APPROACH

It has been estimated that one-fourth of the people living in Southern California were born in other countries and that almost one-fourth of all foreign-born residents of the United States live in Southern California (Myers, 1999). California is consequently a potentially rich source of data for investigating whether America is truly a land of opportunity for immigrants.

Birth Records

The California Department of Health Services (CDHS) maintains a statistical data base compiled from birth certificates for virtually all children born in California. The CDHS data identify the mother's birthplace for 99.96 per cent of all births, and this allows us to identify foreign-born mothers. The Committee for the Protection of Human Subjects and the Vital Statistics Advisory Committee allowed us to access otherwise confidential information on the child's first, middle, and last name; and the mother's first name and birth surname. Mothers can consequently be linked to their mothers, thereby creating an intergenerational data base. (A parallel study of fathers and sons is not possible because CDHS data do not include the father's first name or middle name.)

ZIP Codes and ZCTAs

CDHS birth data since 1982 include the mother's residential five-digit United States Postal Service (USPS) ZIP code. The most recent data are for 2007. Thus we look at CDHS birth data for the years 1982 through 2007.

Census data on household income by ZIP code are only available for the 1990 and 2000 censuses. (In each case, the income is for the preceding year, 1989 and 1999.) For each birth, we used income data from the 1990 Census if the birth occurred before 1995 and the income data from the 2000 Census otherwise. In practice, this meant that 1990 data were used for immigrant mothers and the 2000 data were used for their daughters. The California consumer price index (CPI) was used to convert the 1989 income data to 1999 dollars.

Income data in the 1990 Census are grouped by USPS ZIP codes, which are groups of mailing addresses. Income data in the 2000 Census are grouped by ZIP Census Tabulation Areas (ZCTAs), which are geographic areas based on census blocks that encompass ZIP codes. In most cases, ZCTAs are virtually identical to ZIP codes, in that all addresses with a given five-digit ZIP code are included in a ZCTA with the same five-digit code (US Census Bureau, 2010a). However, some ZCTAs include multiple ZIP-code addresses, in which case the ZCTA code is equal to the majority ZIP code for the area. Also, ZCTAs cover all land and water areas, even if there are no postal delivery addresses. Small land and water areas are assigned to a nearby ZCTA, larger areas are given special codes: a three-digit code + HH for a large water area and a three-digit code + XX for a large undeveloped land area. There were 1,516 California ZIP codes in 1990 and 1,674 ZCTAs in 2000.

Unfortunately, there is no way to create a perfect match between the ZIP codes recorded on birth certificates and the ZCTAs that the Census Bureau used to group income data in 2000. However, we can make a reasonable approximation based on information about the geographic center of each 2000 ZIP code (US Census Bureau, 2000b) and ZCTA (US Census Bureau, 2000c). If the distance between the geographic center of a 2000 ZIP code and 2000 ZCTA with the same five-digit code is less than 1 mile, we assume that these are essentially the same geographic area – which is what we are looking for when we use geographic residence to measure economic status.

Measuring Permanent Income

In order to determine whether the daughter's economic status is higher or lower than her mother's status, we rank order median income in the 1990 ZIP codes and 2000 ZCTAs and calculate percentiles to account for the fact that there are more 2000 ZCTAs than 1990 ZIP codes. Thus, if the mother lived in a 1990 ZIP code that was in the 30th percentile and her daughter lived in a 2000 ZCTA that was in the 35th percentile, we characterize this as an increase in economic status.

The Control Group

The CDHS data allow us to identify the daughters of California-born mothers. However, CDHS data do not identify the father's birthplace and only go back one generation on the mother's side. Thus we do not know whether the daughter of a California-born mother has a foreign-born father or whether the California-born mother is herself the daughter of immigrants. So, we use as our control group daughters whose mothers were born in California and whose mother and father are both white. For simplicity, we refer to these as California-born mothers.

It might be misleading to compare mothers and daughters at different stages of their lives, for example, to compare a mother when she had her fourth child with her daughter when she had her first child. We consequently compare mothers and their daughters at comparable stages of their

lives. Specifically, if the daughter was her mother's first child, we compare the mother's ZIP code with the daughter's ZIP code when she had her first child. Similarly, if the daughter was her mother's second child, we compare the ZIP codes of the mother and daughter when each had her second child. We further restricted our data set to mothers and daughters whose ages are no more than one year apart at the time they gave birth, but this had little effect on the results.

METHODS

Borjas (1992, 1993, 1994) argues that the intergenerational income elasticity (β in Equation 1) may be different for immigrants than for the general population because of "ethnic" or "social" capital. Borjas (1995) argues that ethnic neighbourhoods have cultural and socioeconomic effects on the accumulation of human capital that constrain intergenerational economic mobility.

Thus, one research question is simply how much geographic mobility there is between generations: how often do the grown daughters of foreign-born mothers live in different ZIP codes from their mothers, as evidenced by the fact that the geographic center of the daughter's ZIP code is more than 1 mile from the center of her mother's ZIP code? A second research question is economic mobility. Do the daughters of immigrant mothers have higher or lower economic status than their mothers and how is this economic mobility related to their decision to move to a new ZIP code?

RESULTS

Our data set consists of 15,920 foreign-born mother-daughter pairs and 21,461 California-born mother-daughter pairs. The average age at which the mother gave birth was 22.5 years for foreign-born mothers and 21.5 for California-born mothers. These are somewhat younger ages than for California women as a whole, whose average age when giving birth was 27.2 years for all mothers and 24.8 years for first-time mothers during this time period.

Ninety five-per cent confidence intervals for the probability that a daughter will live in a different ZIP code from her mother are 0.846 ± 0.006 for foreign-born mothers and 0.850 ± 0.005 for California-born mothers. The two-sided p-value for a difference-in-proportions test of the null hypothesis that the probability of moving to a different ZIP code does not depend on whether the mother was foreign-born is 0.367. Daughters frequently move to different ZIP codes and the difference between the mobility frequencies for the daughters of foreign-born and California-born mothers is not substantial or statistically persuasive.

Ninety five per cent confidence intervals for average distance moved by daughters who move are 46.82 ± 1.47 miles for the daughters of foreign-born mothers and 49.64 ± 1.12 miles for the daughters of California-born mothers. The two-sided p-values for a difference-in-means test of the null hypothesis that the average distance moved does not depend on whether the mother was foreign-born is 0.003. Although the observed difference is statistically significant at the 5 per cent level, it is not substantial. On average, daughters who moved lived nearly 50 miles from their birthplace and the distance moved by the daughters of foreign-born mothers was only 5.6 per cent less than the distance moved by the daughters of California-born mothers.

Table 1 shows that, overall, more than half of the daughters of foreign-born mothers live in a higher percentile ZIP code than did their mother, while more than half of the daughters of California-born mothers live in a *lower* percentile ZIP code than did their mother. The two-sided p-value is 1.0×10^{-8} for a difference-in-proportions test of the null hypothesis that the probability of moving to a higher-percentile ZIP code does not depend on whether the mother was foreign born.

TABLE 1

FRACTION OF TIMES THAT DAUGHTER'S ZIP CODE PERCENTILE IS HIGHER THAN MOTHER'S ZIP CODE PERCENTILE

	Foreign-Born Mothers			California-Born Mothers		
	Higher	Lower	P-value*	Higher	Lower	P-value*
All Daughters	0.522	0.478	4.0×10^{-8}	0.492	0.508	0.019
Daughters Who Move	0.557	0.443	2.6×10^{-40}	0.501	0.499	0.824
Daughters Who Stay	0.280	0.720	5.6×10^{-109}	0.387	0.613	5.7×10^{-38}

*: Two-sided p-values for a binomial test of the null hypothesis that the daughter's ZIP code percentile is equally likely to be higher or lower than her mother's ZIP code percentile.

Geographic mobility is related to economic mobility. For foreign-born mothers, 56 per cent of the daughters who move go to a higher-percentile ZIP code, while 72 per cent of the daughters who do not move find their economic status deteriorating. For California-born mothers, daughters who move are equally likely to move to a higher or lower percentile ZIP code, while 61 per cent of the daughters who do not move find their economic status deteriorating. There are many reasons why an area may experience a deterioration in its relative income, for example, urban flight. Our concern here is not why areas decline but rather whether geographic mobility is related to economic mobility.

Table 2 shows the median ZIP code percentiles and real income for mothers and their daughters. For foreign-born mothers, the median percentile is 2.8 percentage points higher for daughters than for their mothers. In contrast, for California-born mothers, the median percentile is 3.3 percentage points *lower* for daughters than for their mothers. Another way to look at these changes is to note that the median ZIP-code percentile is 11.0 percentage points higher for California-born mothers than for foreign-born mothers, but only 4.9 percentage points higher for their daughters. That is, more than half of the difference between California-born and foreign-born ZIP-code percentiles disappears after one generation.

The income data tell a very similar story. On average, the daughters of foreign-born mothers experience a substantial increase in real income when they move to a different ZIP code and a decline if they do not move. Because more than 80 per cent do move, median real income

TABLE 2

MEDIAN RESIDENTIAL ZIP CODE PERCENTILES AND INCOME, 2000 DOLLARS

	Foreign-Born Mothers			California-Born Mothers		
	Mother	Daughter	P-value*	Mother	Daughter	P-value*
ZIP code percentiles						
All Daughters	36.52	39.35	1.7×10^{-31}	47.54	44.28	0.001
Daughters Who Move	35.93	40.25	2.3×10^{-54}	48.14	44.89	0.072
Daughters Who Stay	37.52	33.45	5.1×10^{-71}	45.88	41.37	1.3×10^{-22}
Income, 2000 dollars						
All Daughters	37,970	38,271	9.0×10^{-9}	43,181	40,459	4.1×10^{-17}
Daughters Who Move	37,612	38,711	2.9×10^{-27}	43,416	40,695	2.0×10^{-8}
Daughters Who Stay	38,464	36,064	3.2×10^{-115}	42,589	39,225	5.7×10^{-51}

*: Two-sided p-values for a Wilcoxon signed-rank test of the null hypothesis that the median of the paired mother-daughter differences is zero.

increases overall for the daughters of foreign-born mothers. For the daughters of California-born mothers, real income falls across the board but the decline is largest for daughters who do not move. The overall decline is not surprising since real median ZIP-code income in California fell by 2.9 per cent between 1990 and 2000. Real median ZIP-code income is 13.7 per cent higher for California-born mothers than for foreign-born mothers, but only 5.7 per cent points higher for their daughters. Again, more than half of the difference between California-born and foreign-born ZIP-code income disappears after one generation.

Thus, for foreign-born mothers, there is a striking difference in the economic fortunes of daughters who move and daughters who stay, in that the former experience an improvement in economic status and the latter experience a decline. The correlation between the distance moved and the difference between the mother and daughter's percentiles is less than 0.01. What evidently matters is not how far daughters move, but the fact that they do move.

Another way to investigate intergenerational mobility is to estimate the elasticities between mother and daughter real ZIP-code incomes using Equation 1. Table 3 shows 95 per cent confidence intervals for the estimated elasticities across generations. The differences in the estimated elasticities between immigrant and California-born mothers are, overall and for daughters who move, statistically significant and indicate somewhat more intergenerational mobility for the daughters of foreign-born mothers than for the daughters of California-born mothers. The differences in the estimated elasticities for daughters who stay within 1 mile of their birth residence are small and not statistically persuasive. The contrast between the low elasticities for daughters who move and the elasticities near one for daughters who stay is consistent with our earlier observation that geographic mobility is related to economic mobility.

DISCUSSION

Previous studies of intergenerational economic mobility in the United States have paid relatively little attention to immigrants and to women. Those studies that looked at immigrants used census averages, which have a variety of problems – most notably the biases introduced by the inverse relationship between economic status and fertility. The present study avoids that bias by using birth records to identify matched pairs of mothers and daughters. This study is limited by the fact that the data are for daughters who gave birth before the age of 26. However, each matched pair was at a similar stage of life.

Geographic mobility and economic mobility are likely to be understated by the absence of data on older daughters. Many daughters surely move after the age of 26 and daughters who have children after the age of 26 are more likely to be highly educated and have professional careers (Hewlett, 2002; Ellwood, Wilde, and Batchelder, 2004). We do not know if this geographic and economic mobility at older ages is more pronounced for the daughters of foreign-born or California-born mothers.

TABLE 3
95% CONFIDENCE INTERVALS FOR THE ESTIMATED ELASTICITY OF ZIP-CODE INCOME

	Foreign-Born Mothers	California-Born Mothers	P-Value*
All Daughters	0.417 ± 0.014	0.443 ± 0.012	0.004
Daughters Who Move	0.334 ± 0.015	0.358 ± 0.013	0.022
Daughters Who Stay	0.989 ± 0.015	0.986 ± 0.013	0.706

*: Two-sided p-values for a t-test of the null hypothesis that the elasticity does not depend on whether the mother was foreign-born.

This study is also limited by the use of California birth records. Although California is the nation's largest state and more than one-fourth of all foreign-born residents of the United States live in Southern California, we do not have data for immigrant mothers who give birth outside California or for daughters who leave California. Our results almost certainly understate geographic mobility and are likely to understate economic mobility, too, because daughters who move outside California are likely to have relatively high human capital and/or to have married someone with high human capital. We have no way of knowing whether these propensities are more substantial for the daughters of foreign-born or California-born mothers.

California birth records for the years 1982 through 2007 document the intergenerational geographic and economic mobility of the daughters of foreign-born mothers. Approximately 85 per cent of the daughters of foreign-born mothers live in different ZIP codes from their mothers, and those daughters who changed ZIP codes are more likely to move to higher-percentile ZIP codes than are the daughters of California-born mothers.

The differences between both the ZIP-code percentiles and the real income of the daughters of foreign-born mothers and the daughters of California-born mothers are less than half the size of the differences between their mothers. The intergenerational income elasticity for immigrant mothers and their daughters is smaller than for the California-born control group, which again indicates more intergenerational mobility. Our data do not allow us to estimate the relative importance of various mechanisms, such as education or marriage, that underly this mobility.

Overall, our results do not indicate that immigrant women are confined to ethnic neighbourhoods that constrain intergenerational mobility. If anything, the daughters of immigrant women have equal geographic mobility and more economic mobility than do the daughters of white women who were born in California. Our results do support Borjas' argument that ethnic neighbourhoods can constrain intergenerational mobility in that daughters who do not leave the neighbourhoods they were born in tend to experience a decline in economic status, while daughters who move experience a substantial improvement. It is not clear whether upward economic mobility leads to geographic mobility, or vice versa, but the two are clearly related.

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