

WEALTH

AND ECONOMIC MOBILITY

NATHAN GRAW, CARLETON COLLEGE, PREPARED FOR THE URBAN INSTITUTE

KEY FINDINGS:

- Intergenerational transfers account for a substantial fraction of total wealth in the United States.
- Relative wealth mobility is slower than that for earnings.
- Relative earnings mobility is greater among families with large wealth stocks.
- Recent research suggests family wealth may have greater impacts on early childhood education than on differential access to college.
- Bequest recipients more often pursue self-employment and to own a home.
- The neighborhood in which a child grows up (which may be influenced by family wealth) appears to affect health outcomes. The effect on educational attainment and earnings is not clear.

*While earnings are the primary determinant of income in most households, family welfare and consumption are often more related to wealth held either as financial assets or real assets. Because a substantial fraction of the U.S. wealth stock is passed from one generation to the next through inter-vivos transfers and bequests, wealth can have large and important effects on absolute and relative mobility both across and within generations. In this section, we summarize three channels by which wealth may affect mobility. First, families with greater wealth stocks may be better able to finance education investments in their children, thus reinforcing financial advantages across generations. This channel underscores the potential **relevance of education** policy in determining the impact of wealth on relative mobility.*

Second, differences in wealth may affect neighborhood choices. Whether through the effects of community resources on child achievement or peer-to-peer spillover effects, neighborhood effects may strengthen intergenerational associations in achievement. Finally, family wealth may expand occupational choice. Wealth transfers may diminish *intergenerational mobility* by providing children from high-wealth families with start-up money for a business venture or insurance against failure in high-risk careers. *Intragenerational mobility*, however, may increase as inter-vivos transfers and bequests open doors to new, mid-career occupations.

This section finds several important conclusions within the literature:

- Intergenerational transfers account for a substantial fraction of total wealth in the United States.
- Relative wealth mobility is slower than that for earnings.
- Relative earnings mobility is greater among families with large wealth stocks.
- While scholars debate whether family wealth affects educational attainment, even those who argue for an effect find that differential access to college only modestly affects relative earnings mobility. Recent research suggests family wealth may have greater impacts on early childhood education.
- Bequest recipients are more likely to pursue self-employment.
- Bequest recipients are more likely to own a home.
- The neighborhood in which a child grows up (which may be influenced by family wealth) appears to affect health outcomes. The effect on educational attainment and earnings is not clear.

Literature Summary

While early theories of wealth accumulation emphasized saving across the life-cycle, economists now believe **intergenerational wealth transfers explain a substantial fraction of wealth holdings** in the United States. In their influential work, Kotlikoff and Summers (1981) estimate that between 45 percent and 80 percent of wealth is accounted for by inter-vivos and bequest transfers. Given the relative importance of transfers to wealth formation, it is not surprising that wealth persists across generations. For example, Mulligan (1997) estimates the intergenerational wealth *elasticity* in the United States to be around 0.5. Menchik (1979) finds a higher figure—roughly 0.75—among Connecticut families in the mid-twentieth century.¹ Either figure implies that the impacts of family wealth are felt for multiple generations.

Several studies find a correlation between family wealth and relative intergenerational mobility. Mazumder (2005) divides families into two groups—those with net worth above and below the sample median. He finds the intergenerational earnings elasticity is about 33 percent smaller in the high net worth group. This finding is consistent with Bowles and Gintis (2002) who report that roughly one-third of the intergenerational earnings correlation can be explained by child wealth.

Mazumder and Bowles and Gintis are careful to emphasize that these results do not necessarily imply that wealth causes earnings persistence. For instance, wealthier people may have different attitudes toward risk or time discounting—attitudes which are transmitted to children and so lead to greater child success. But theory does suggest several possible causal connections between

¹ The Mulligan estimate may be biased downward due to the fact that he measures the child's wealth at a relatively young age (around 35 years). Menchik addresses this concern by observing the child's wealth at the point of death. However, his resulting sample is highly selected because the method requires probate records for both parent and child be filed in Connecticut.

wealth and the parent-child association in earnings via education, occupation, and [neighborhood](#) choices.

The seminal [economic theory of intergenerational mobility](#) emphasizes the potential importance of credit in financing child education investments. If borrowing is limited, families with few financial assets may be unable to provide an education appropriate to the ability of their children. Because wealth is strongly correlated with family earnings, the result is lower intergenerational earnings mobility (in both absolute and relative terms) among low-earning families than among high-earning families. [Studies looking directly at intergenerational mobility](#) have found only limited evidence of distortions caused by financial constraints. While relatively few studies have looked at education programs' direct effects on intergenerational mobility, the huge number of [studies looking at college attendance patterns](#) can shed indirect evidence on the question. While some scholars conclude that family finances play a role in determining higher education investments, others explain correlations between family income and college attendance as artifacts of intergenerational correlations in ability. Scholars in the former group estimate that perhaps 5 percent to 10 percent of intergenerational earnings persistence is accounted for by differential access to credit.

Similar principles may apply to occupational choice, particularly the decision to become self-employed. Such ventures often involve significant start-up costs. As with education, such occupational opportunities may be fostered by family wealth. And unlike education, few government programs seek to open access to credit for these ventures. In the UK, roughly half of young would-be entrepreneurs who fail to start a business cite limited access to credit as the primary impediment (Blanchflower and Oswald 1998). Research suggests that individuals receiving inheritances or other windfall capital gains are as much as twice as likely to become self-employed. Moreover, business prospects of the self-employed improve substantially upon receipt of an inheritance—revenues increase by about 20 percent.

These findings are relevant to issues of mobility both across and within generations. By making family capital available to children, wealthy families can improve the position of their children relative to others by opening up entrepreneurial avenues. These advantages can be substantial: Quadrini (1999) finds that about 50 percent of households in the top 5 percent of the wealth distribution are self-employed. What is more, the advantages of such activity may extend even to the third generation because children of entrepreneurs are twice as likely as children in general to be self-employed early in their working careers. By these mechanisms, the role of wealth in occupational choice may reduce relative intergenerational mobility. By contrast, intragenerational mobility may be enhanced. Self-employed individuals are much more likely to experience upward mobility within the wealth distribution.

Capital constraints may also affect housing choices. [Research finds strong relationships between wealth and homeownership, and between homeownership and child achievement.](#) Ownership is estimated to reduce the high school drop out rate by 7 to 9 percentage points and the rate of teen pregnancy by 2 to 4 percentage points. What is more, the magnitude of these effects is stronger at the bottom of the income distribution. Taken alone, these findings suggest that homeownership may increase relative intergenerational mobility. However, because high income families are more likely to have access to the wealth required to buy a home, the ultimate effect of homeownership on mobility may be negative.

Even conditional on owning a home, a wealth-housing interaction may affect mobility through choice of [neighborhood](#). Economic and sociological theories of neighborhood effects model *external benefits* from living in good neighborhoods. Economists are especially interested in

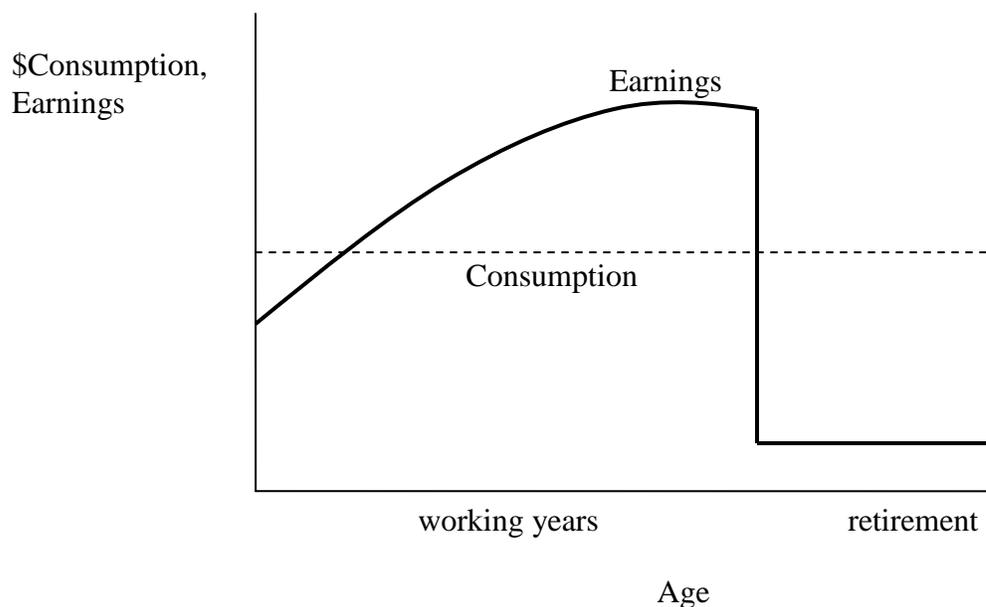
human capital spillovers—the benefit of living or working with others possessing large amounts of skill. But other neighborhood characteristics that may be relevant include the unemployment rate, public resources, and community cohesion. Empirical research on the impact of neighborhood quality reports mixed findings. Early estimates suggested large neighborhood externalities, but methodological improvements show those findings to be biased upward. Recent estimates show that increasing the average level of education by one year may raise average earnings as little as none to as much as 1.2 percent. Random assignment studies find better neighborhoods produce potentially important improvements in mental and physical health, but little evidence of improved educational and economic outcomes.

THE ROLE OF INTERGENERATIONAL TRANSFERS IN WEALTH ACCUMULATION

Early economic theories of wealth accumulation emphasized lifecycle patterns in earnings and consumption (Modigliani and Brumberg 1954 and Ando and Modigliani 1963). Earnings follow a hump-shaped pattern over the lifecycle, growing with experience during early decades of employment, leveling off (and perhaps even declining) in the later working years, and then falling to near-zero levels in retirement. While households could force their consumption to follow a similar pattern, economic models typically assume that a distaste for consumption variation leads to “consumption smoothing”: families save in good times in order to be able to weather bad periods. Through debt financing, families may even borrow against future earnings to support consumption in early years.

The figure below presents a stylized version of this lifecycle model of savings and consumption. Early in life, households borrow against their much higher future earnings. Then, during the peak of their working years, households save a large portion of their earnings to fund low-earning retirement years. But for the inconvenience of an unexpectedly early death, lifetime consumption equals lifetime earnings. Thus, this model of household behavior explains wealth as the byproduct of “lumpy” earnings combined with a desire for smooth consumption.

Hump-Shaped Earnings and Consumption Smoothing in the Lifecycle Savings Model



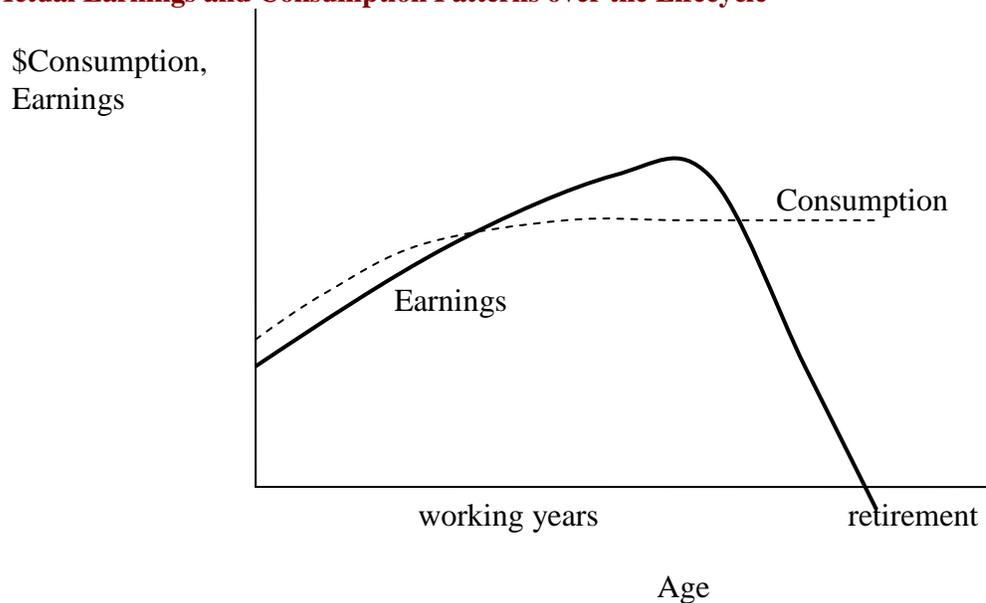
Kotlikoff and Summers (1981) empirically test this explanation for wealth accumulation and argue that US wealth holdings cannot be explained by lifecycle savings alone: much wealth is accumulated via transfers from one generation to the next. The Kotlikoff-Summers critique is based on two accounting identities:

$$W = L + T \quad \text{and} \quad L = E - C.$$

W is total wealth which can be divided into two types, lifecycle wealth (L) and transfer wealth (T). By definition, the former type is the difference between earnings (E) and consumption (C).

Using data on consumption and earnings from 1900 through 1974, Kotlikoff and Summers estimate the magnitude of lifecycle wealth L and compare it with total wealth W . In 1974, they find lifecycle wealth totaled \$733 billion—only 21.9 percent of the total 1974 household wealth.² The residual—nearly 80 percent—must flow through wealth transfers. This indirect method of estimating transfer wealth is motivated by concerns with the quality of transfer data as compared with earnings and consumption data. Data on gifts and bequests are rarely collected and, when they are, often lack important information on the timing of receipt. Despite these limitations, Kotlikoff and Summers also directly estimate transfers and find them to account for at least 46 percent of US wealth.³ Gale and Scholz (1994) find similar results using a different source of data.

Actual Earnings and Consumption Patterns over the Lifecycle



In total, transfers appear to account for between 50 percent and 80 percent of total wealth. The explanation for this is clearly evident in data on lifecycle consumption. Kotlikoff and Summers find that, contrary to the lifecycle smoothing hypothesis, consumption closely tracks earnings from early- to mid-adulthood. Around age 50, households begin to save in a manner reflecting lifecycle savings motives. (The figure above shows a stylized version of the data as presented in Figure 1 of Kotlikoff 1988.) This late adoption of lifecycle savings leaves little time for much wealth accumulation.

² The original 1981 paper reports an estimate of 18.9 percent. However, Modigliani (1984) identified an error in the handling of durable goods which is addressed in Kotlikoff and Summers (1986). The correction increased the fraction of wealth attributable to lifecycle savings by three percentage points.

³ Of course, the estimation rests on several key assumptions including the age at which we consider the individual independent of parents, the degree of under-reporting in self-employed earnings, the shape of earnings and consumption profiles after age 75, and the ratio of female to male earnings. In all but the first, Kotlikoff and Summers make assumptions that inflate the importance of lifecycle wealth. The age of independence is assumed to be 18. As a result, college education investments are counted as transfers. Modigliani (1988) shows that eliminating these education expenses from the sum of transfers reduces the fraction of wealth attributable to transfers by 10 percentage points. For a full discussion of the Kotlikoff-Summers methodology, see Kotlikoff (1988) and Modigliani (1988).

On a microeconomic level, Wolff (2002) examines who receives these transfers. In 1998, non-Hispanic whites were more likely to report receiving a transfer (23.8 percent) than non-Hispanic African Americans (10.8 percent), Asians (9.8 percent), or Hispanics (4.2 percent). High-income (>\$250,000) households were about three times as likely to receive a transfer (38.9 percent) as low-income (<\$15,000) households (13.7 percent). Similarly, the mean present value of transfers was larger for high-income households (\$2,416,800) than for low-income households (\$155,400). Somewhat surprisingly, however, transfers play a larger role in wealth accumulation of low-income households: transfers made up 44.8 percent of net worth among these households as compared to only 18 percent of net worth among high-income households. (Results are similar if families are divided into groups by wealth level rather than income level.)

The purpose of distinguishing lifecycle from transfer wealth is two-fold. First, we seek to know the answer to a basic accounting question: What fraction of wealth is accumulated via transfers and bequests as opposed to lifecycle saving? On this point, the literature appears to have reached a consensus that a substantial proportion of wealth is acquired by transfers (though authors continue to debate the exact fraction). Second, we wish to test models like the lifecycle savings model to see whether they adequately capture economic behavior. This second question is relevant to **questions of tax policy**: such as, how wealth holdings or intergenerational mobility respond to changes in the inheritance tax.

Because transfers clearly play a substantial role in wealth accumulation, it may seem that the lifecycle model is contradicted and so cannot be used to analyze the effects of policy changes. However, Dynan et al. (2002) show that the model can be made consistent with the data by introducing uncertainty. When parents do not know how long they will live (and annuity markets are incomplete), a dollar of savings may simultaneously serve lifecycle and bequest motives. In the event the parent lives a long life, the dollar will be used to support the parent's consumption in old age. But if the parent does not live as long, the dollar will be bequeathed to the child. So, while we know that much wealth is accumulated via transfers, the debate continues over which economic models are best suited for policy analysis.

FAMILY WEALTH AND SELF-EMPLOYMENT

The **self-employed** comprise an important minority. Quadrini (1999) finds a strong correlation between wealth and self-employment in U.S. data. Among households with wealth holdings large enough to place them in the top 5 percent of the distribution, fully half are self-employed. In fact, using a calibrated simulation Quadrini argues that it is impossible to understand the skewed wealth distribution in the United States without recognizing the role of the entrepreneur.

In the last two decades, a substantial literature has developed to explain entrepreneurship. And within that literature access to credit is a persistent theme. Evans and Jovanovic (1989) provide a theoretical model in which workers' entrepreneurial interests can be constrained by credit in two ways. First, business ventures often require substantial start-up capital. While children of high-wealth families may be able to find financial support, others may be locked out of self-employment due to lack of funds. Second, even if an individual manages to begin a business, limited access to credit may reduce the scope of the venture. Over time, successful businesses generate revenues which support further expansion and so the impact of credit diminishes. By these mechanisms, family wealth may increase both income and wealth persistence across generations.

Empirical research provides evidence of binding credit constraints in the area of entrepreneurship. Evans and Jovanovic find that the probability of self-employment is higher among households with large family assets. Similarly, Holtz-Eakin et al. (1994a) find a greater likelihood of newly filing a Schedule C tax form (for self-employment income) among those who receive bequests. This U.S.-based evidence is corroborated by similar evidence found in studies of Sweden and Britain. (See Lindh and Olhsson 1996, and Blanchflower and Oswald 1998.)⁴

It is difficult to compare estimates of these effects across studies due to differences in the definition of "self-employment," but all agree that the magnitude of the effect is substantial. (Depending on the definition, the self-employed make up anywhere from 3 percent to 20 percent of the U.S. workforce.) Holtz-Eakin et al. (1994a) find that receiving a \$100,000 (in 1981 dollars) inheritance—roughly the mean in their sample—increases the probability of Schedule C filing by 3 percentage points over a four year span. In Sweden, Lindh and Olhsson (1996) report a 2 percentage point increase in self-employment resulting from inheritance receipt. These results are comfortably close to the 1.3 percentage point increase predicted by the Evans-Jovanovic model.

Conditional on becoming self-employed, research also suggests credit plays a role in business success. Entrepreneurs who have received an inheritance employ greater levels of capital in their business—a \$100,000 (in 1981 dollars) inheritance increases liquid assets by \$7,100—and are more likely to remain self-employed in future years (Holtz-Eakin 1994a and 1994b). Similarly, both Evans and Jovanovic (1989) and Holtz-Eakin et al. (1994b) find higher self-employment earnings among entrepreneurs who either have substantial family assets or have received an inheritance—the latter estimate suggesting that receipt of an average bequest results in a 20 percent increase in earnings. All of these findings are consistent with models in which entrepreneurs are limited by access to credit.

⁴ In a French study, Lafrerrere (2001) similarly finds that the probability of self-employment increases by 50 percent when parents provide help in purchasing a home—another example of benefits flowing from homeownership.

Because a correlation between wealth and self-employment may be caused by the **intergenerational transmission of personality traits** like risk tolerance, prudence, and the like, researchers have performed follow-up tests which suggest the connection to wealth is causal. For instance, Lindh and Ohlsson (1996) and Blanchflower and Oswald (1998) use early death of a parent to differentiate between a parent's desire or ability to leave a bequest and the likelihood that a particular child has benefited from inheritance. Lindh and Ohlsson also find positive effects on self-employment following lottery winnings, an event presumably uncorrelated with attitudes or tastes. And Evans and Jovanovic (1989) find that family assets positively affect the probability of self-employment when assets are measured at the time of occupational choice, but not when measured later in life. If the correlation were caused by personality traits alone, we would expect family assets at all times to be equally correlated with the likelihood of self-employment.

The connection between wealth, inheritance, and self-employment can have important mobility effects. If parents' wealth opens up occupational opportunities for their children that are not accessible to others, wealth may reduce relative intergenerational earnings mobility. What is more, Lindh and Ohlsson (1996) find that children are more likely to become entrepreneurs if their father is an entrepreneur. This suggests current wealth may affect outcomes three generations hence.

Quadrini (1999) also finds that entrepreneurship enhances intragenerational wealth mobility. For instance, between 1984 and 1989 two percent of wage-earners moved from the lowest third of the wealth distribution to the top third. Among entrepreneurs, 26 percent made a similar leap. Quadrini's data seem to indicate that such mobility does not require long tenure as a business owner: among those who switch from wage-earner to entrepreneur between 1984 and 1989, 17 percent rose from the bottom third to the top third of the wealth distribution. If our interest is earnings rather than wealth, the mobility impacts are apparently more muted as Quadrini finds greater wealth-earnings ratios among entrepreneurs than among wage-earners. But clearly, upward mobility is substantially enhanced by entrepreneurial activity.

CHILD ACHIEVEMENT AND HOMEOWNERSHIP

Homeownership is one particularly important channel by which family wealth may affect economic outcomes of adults and their children. In addition to providing collateral for credit, homeownership offers stability which has been shown to support child educational performance (Hanushek et al. 2004). These effects are especially strong among disadvantaged families. Because homeownership is strongly correlated with income, relative mobility may be reduced by the role of intergenerational wealth transfers in determining homeownership.

In recent years, several studies have found a connection between homeownership and child outcomes. Green and White (1997) report lower high school drop out rates (7 to 9 percentage points) and teen pregnancy rates (2 to 4 percentage points) among children of homeowners as compared with children of renters. Boehm and Schlottmann (1999) confirm the education results in Green and White and further show a positive effect on college enrollment. That said, Boehm and Schlottmann find no impact on the adult earnings of these children.

The impacts of homeownership may affect relative intergenerational mobility in two ways. First, Green and White (1997) find the positive effects of homeownership are more evident in low-income families than in high-income families. Thus, if ownership rates increased uniformly across the income distribution, the positive effect on child outcomes would be felt most acutely at the bottom end of the distribution and mobility would be enhanced.

However, homeownership is not equally distributed across the income distribution. And the role of intergenerational transfers in acquiring a home suggests that the net effect of homeownership in the US is to reduce mobility. Engelhardt and Mayer (1994) find that 20 percent of first-time home buyers receive a financial transfer to assist with the down payment. Di and Yang (2002) find that those who receive a wealth transfer are much more likely to own a home (83.2 percent probability versus 62.2 percent). Because whites are twice as likely as blacks to receive wealth transfers, Di and Yang conclude wealth transfers explain a substantial portion of the racial ownership gap found, for example, in Boehm and Schlottmann (2004). Low-income families are similarly less likely to receive a transfer. Consistent with the hypothesis that low-income families struggle to obtain credit, Withers and Reid (2005) report that receipt of a transfer has a greater impact on the probability of ownership among low-income households than among high-income households.

Recent research suggests that the connection between wealth and homeownership may be self-perpetuating: after wealth begets ownership, ownership produces another generation of wealth. Boehm and Schlottmann (1999, 2001) find that children of homeowners are more likely to own homes themselves and that this in turn leads to greater wealth. The importance of homeownership in wealth accumulation is consistent with Boehm et al. (2004) who find that appreciation in home prices outpaced growth in non-housing wealth for the average black and white families between 1984 and 1994. Across income levels, housing wealth is a much larger fraction of total wealth among low-income families, but both Boehm et al. (2004) and Boehm and Schlottmann (2001) conclude that the rate of wealth accumulation is greater among high-income families.

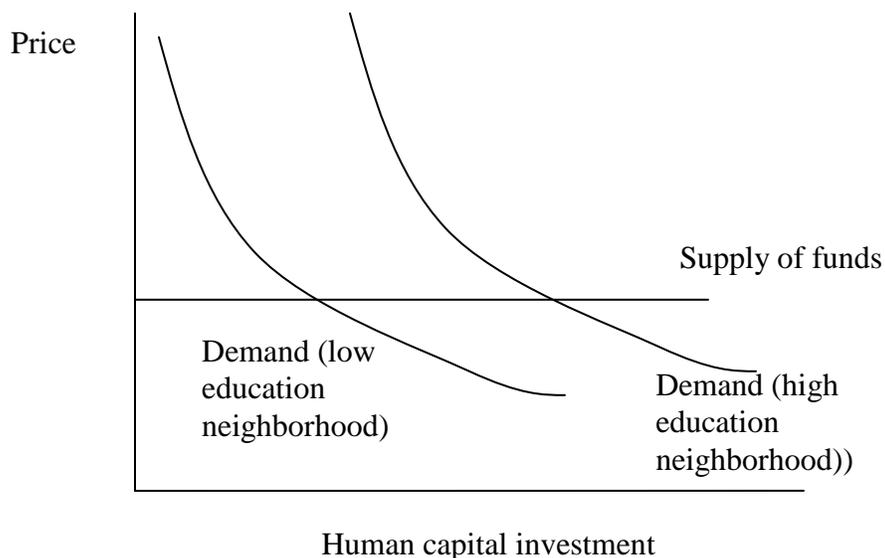
In total, economists have found intergenerational wealth transfers important to homeownership. Moreover, homeownership leads to greater wealth for the parents and better educational outcomes for children. The effect of homeownership on relative mobility is unclear as the positive effects on children are stronger among disadvantaged families, but the positive effect on wealth is greater among high-income families.

ECONOMIC AND SOCIOLOGICAL THEORIES OF NEIGHBORHOOD EFFECTS

Economists and sociologists have modeled the potential benefits of neighborhoods as an externality in which the positive attributes of a neighbor “spillover” to the entire community (Wilson 1987, Jencks and Mayer 1990, Crane 1991, Banabou 1993 and 1996). While specifics vary across these models, all suggest that the decisions of those living nearby may have positive or negative effects on surrounding adults and children. These effects may be direct in the sense that neighborhood quality may immediately alter the child’s experience (as is the case when a child is freed from crimes such as physical assault). Or, as is more often the case, neighborhood effects may operate indirectly by raising the returns to or lowering costs of child investments (as is the case when a child’s ability to learn is improved by the education possessed by adults in the surrounding community). Channels by which neighborhood effects may benefit children include education spillovers, role modeling, social norms (such as attitudes toward teen pregnancy or drug use), professional networks, and unemployment and crime rates.

The basic idea can be understood with the supply and demand graph below. Following the model of Becker and Tomes (1986), suppose parents choose to invest in the education of their child so long as the costs exceed the benefits. The cost of funds is reflected in the horizontal supply of funds curve while the benefit is seen in the downward-sloping demand curve. (The negative slope reflects diminishing returns to educational investments.) The optimal choice is found at the intersection of the two curves. Spillover effects can be seen in the higher demand found among children in high-education neighborhoods: the educational advancement of neighbors raises the returns to human capital investments and so leads to higher levels of child achievement.

Neighborhood Spillover Effects on Education Investment



Education spillovers are especially important to economists due to their implications for endogenous growth theory. (For example, see Romer 1986 and Lucas 2002.) While traditional growth models struggle to explain persistent growth (diminishing returns inevitably set in, leading to economic stagnation), endogenous growth models show that human capital spillovers make it possible for economies to grow indefinitely. What is more, these theories can explain

otherwise challenging paradoxes: Why is it that the US economy is so much more productive than those of developing nations despite relatively modest differences in physical capital? Why do doctors who come to the United States from India immediately experience dramatic increases in earnings? Of course, higher growth in the economy as a whole drives greater absolute mobility.

While most treatments of neighborhood effects follow the basic model above, several authors have slightly modified the framework. Townsend (1987) interprets deprivation in a relative sense: what matters is not the level of education of the community at large so much as the individual's rank within the group. And Wilson (1987) and Crane (1991) present an "epidemic" version of the model in which community dysfunctions have limited effects until some critical threshold is crossed.

CHILD ACHIEVEMENT AND NEIGHBORHOOD ATTRIBUTES

Economic studies over the past 15 years have reached inconclusive results concerning the existence of neighborhood effects. Some macroeconomists point to immediate earnings gains experienced by high-skilled immigrants as they enter the United States or the high price of land in urban centers as *a priori* evidence of spillovers. For example, Lucas 2002 asks, “What can people be paying Manhattan or downtown Chicago rents *for*, if not for being near other people?” (p. 60, emphasis in original). Microeconomists, however, have found inconsistent evidence in the data.

Rauch (1993) is often cited as the first economic study of neighborhood effects. Using 1980 Census data, he finds that when a city’s average level of education increases by 1 year, individual earnings rise by 3 to 5 percent—even after controlling for an individual’s years of education. He similarly finds property values rise with the average level of education in the city. Rauch interprets these results as evidence of neighborhood effects: as neighborhood quality increases, economic outcomes improve for all. Consistent with Rauch, a large number of studies now document a correlation between neighborhood characteristics and diverse child outcomes like birth weight, health, mortality, dangerous sexual activity, and physical inactivity. (For examples, see Buka et al. 2003, Browning and Cagney 2003, Browning and Olinger-Wilbon 2003, Crane 1991, Leventhal and Brooks-Gunn 2000, Lochner et al. 2003, and Molnar et al. 2004.)

While the correlation between neighborhood quality and child outcomes is well-established, economists recognize that these studies are tainted by two important biases. First, neighborhoods are not exogenously assigned. Families who choose to live in high-education cities share other, unobserved attributes which are related to educational and economic outcomes. In the correlational studies cited above, these family effects are improperly assigned to the neighborhood effect.

This “endogeneity bias” can be addressed in one of two ways. The most direct way is to control for family characteristics. Due to the limited scope of the census data, Rauch was not able to do this. Using the more robust Panel Study of Income Dynamics dataset, Solon et al. (2000) control for a short list of family background characteristics and find very little remaining effect of neighborhood quality on educational attainment. Harding (2003), however, finds that a higher neighborhood poverty rate increases the likelihood of dropping out of high school and raises teen pregnancy even after including many controls for family characteristics.

The problem with this “adding controls” approach is that we can never know if we have controlled for all of the relevant family characteristics and so we are never sure if we have arrived at an unbiased estimate of neighborhood effects. (In fact, Solon et al. stress that their approach estimates an upper bound on these effects.) One way to address this concern is to look at the outcomes of siblings in families which have moved from one neighborhood to another. Because the children belong to the same family, this comparison eliminates much of the concern over family effects masquerading as a neighborhood effect. (Of course, this assumes family characteristics are constant across time. If they in fact vary across time, these variable family effects will be improperly attributed to neighborhood effects.) Aaronson (1998) uses this approach and finds that a 10 percent increase in the neighborhood poverty rate predicts a 2.1 percent decrease in the probability of high school graduation. These effects are felt equally by children in high- and low-quality neighborhoods indicating that the impacts of neighborhood may be seen in absolute but not relative mobility.

Of course, the methodological touchstone is to find a sample in which people are randomly assigned to their neighborhood. Oreopoulos (2003) studies such a case in Toronto’s public

housing. Families are more or less randomly assigned to one of several housing units. The public housing neighborhoods vary from low-income, high-density inner-city communities with low average education levels and high crime rates to middle-income, low-density suburbs with high average education levels and low crime rates. Oreopoulos finds no evidence of neighborhood effects on educational achievement, mean earnings, or welfare participation.

Such random assignment is hard to find, but sometimes researchers find “natural experiments” that approximate random assignment. Moretti (2004a), for example, uses the presence of a land grant college within a city to predict differences in average city-wide educational attainments. Because the land grant colleges were established in the nineteenth century, it seems reasonable to assume that their presence is exogenous today. Moretti finds that a one-year educational attainment difference associated with land grant colleges raises average earnings by 0.6 percent-1.2 percent above the level expected given individual levels of education. Acemoglu and Angrist (2000) take a similar approach, using differences in child labor and compulsory schooling laws to predict average educational differences. They, however, find no evidence of education spillovers.

Moretti (2004b) suggests one way to reconcile the results of these studies. If the effects of changing neighborhood quality are felt only when the level of education is quite high, then it may be possible that the quality changes studied by Oreopoulos (2003) and Acemoglu and Angrist (2000) produce no effect while the effects of the increase in college graduates studied by Moretti (2004a) may produce significant effects.

The endogeneity bias may be partially or wholly offset by a second “imperfect substitution” bias raised by Ciccone and Peri (2006). They point out that low-skill workers may complement high-skill workers in production. If this is so, then a simple supply-demand model would predict that as the number of higher-skill workers increases (a) the wage paid to high-skill workers will fall and (b) the wage paid to low-skill workers will rise. These dynamics may taint estimates of neighborhood effects.

Ciccone and Peri address this problem by adjusting their estimates for the change in demographic composition. Without this adjustment, they find evidence of a neighborhood effect, but after adjustment the effect disappears. Moretti (2004a) takes a slightly different approach, estimating spillovers separately for low- and high-skill workers. Consistent with the imperfect substitution bias, he estimates a larger neighborhood effect among low-skill workers than among high-skill workers. Yet, the estimated neighborhood effect remains positive among those with high skill (0.4 percent), consistent with the existence of a real neighborhood effect.

Moving to Opportunity (MTO) represents one possible policy option to provide low-income families with access to better neighborhoods. Between 1994 and 1998, the program randomly assigned 4,600 public housing residents in five cities to one of three groups. The first was given a voucher that could be used on any property so long as the neighborhood had a poverty rate lower than 10 percent. The second was given a voucher to be used at any Section 8 housing-eligible property. The final group was a control. The interim program evaluation (Orr et al. 2003) finds that the vouchers did lead families in the treatment groups to move to better neighborhoods as measured by poverty rates, employment rates (7.5 percentage points higher), intact family rates (14.2 percentage points higher), and share of persons with education beyond a high school degree (12.8 percentage points higher). Indeed, the rate of homeownership in the new neighborhoods was double that of the old. Moreover, the program allowed families to create friendships with people possessing greater market skill: the percentage reporting friendship with a college graduate or someone making \$30,000 or more per year increased 14.0 and 11.2 percentage points respectively.

Orr et al. (2003) find that these neighborhood quality improvements translate into better living experiences. For example, among those using vouchers and Section 8 housing, the fraction who rated their housing as excellent increased by 21.0 and 11.9 percentage points respectively, the fraction who felt safe at night increased by 30.3 and 15.6 percentage points, the fraction who saw drugs in the last 30 days fell by 24.8 and 17.1 percentage points, and the fraction who reported a household member as a crime victim during the past 6 months fell 8.5 and 8.9 percentage points. In summary, there is little doubt that MOT led families to move to better neighborhoods.

Despite these improvements, the MOT program had a limited impact on adult outcomes. While the vouchers produced reduced psychological distress and lowered the rate of obesity, no significant effects were found in general health, asthma, blood pressure, unhealthy behaviors (smoking and drinking), depression, or anxiety. Section 8 housing access showed no effects on any health outcomes. The improved neighborhood also had no positive effect on employment, earnings, or welfare use. In fact, program involvement actually increased the use of AFDC/TANF and food stamps.

The effects on children mirror those found among adults. Better neighborhoods or housing led to no physical health improvements, though girls ages 12 to 19 showed some mental health improvements. Girls were much less likely to smoke marijuana, but showed no change in drinking, smoking or sexual activity. Boys showed no change in these risky behaviors except in propensity to smoke: paradoxically, the rate of cigarette smoking among participating boys was nearly twice that of the control group. Voucher receipt lowered violent crime arrests among youth, but increased the rate of property crime arrests among boys. Section 8 housing access had no effect on crime. The MOT program led students to enroll in slightly better schools (as measured by state exam rankings), but had no impact on student performance.

In total, the literature on neighborhood effects reaches a limited consensus. Among economists, all agree that endogeneity bias is substantial: families who choose a particular neighborhood likely share many unobserved characteristics which affect their economic and educational outcomes. Early estimates of neighborhood effects which fail to account for this bias are probably 5 to 7 times too large. Unfortunately, econometric techniques designed to address endogeneity bias typically produce imprecise estimates and so may not be able to “see” the relatively modest neighborhood effects (assuming they do exist). These technical issues are compounded by the fact that better neighborhoods (like those induced by the MOT program) may only have effects over a long timeframe. Thus some of the above-cited studies may require more time to find results. Summarizing this young literature, Moretti (2004b) concludes the evidence of spillovers is “mixed” and requires further study.

REFERENCES

- Aaronson, Daniel. 1998. "Using Sibling Data to Estimate the Impact of Neighborhoods on Children's Educational Outcomes." *Journal of Human Resources*. 33(4): 915-946.
- Acemoglu, Daron and Joshua Angrist. 2000. "How Large are Human Capital Externalities? Evidence from Compulsory Schooling Laws." *NBER Macroeconomic Annual*, 15.
- Becker, Gary and Nigel Tomes. 1986. "Human Capital and the Rise and Fall of Families." *Journal of Labor Economics*. July, 4(3 part 2): S1-S39.
- Banabou, Roland. 1993. "Workings of a City: Location, Education, and Production." *Quarterly Journal of Economics*. 108(3): 619-652.
- Banabou, Roland. 1996. "Equity and Efficiency in Human Capital Investment: The Local Connection." *Review of Economic Studies*. 63(2): 237-264.
- Blanchflower, David G. and Andrew J. Oswald. 1998. "What Makes an Entrepreneur?" *Journal of Labor Economics*. 16(1): 26-60.
- Boehm, Thomas P. and Alan M. Schlottmann. 1999. "Does Home Ownership by Parents Have an Economic Impact on Their Children?" *Journal of Housing Economics*. 8(3): 217-232.
- Boehm, Thomas P. and Alan M. Schlottmann. 2001. "Housing Wealth Accumulation: Intergenerational Impacts." Harvard Joint Center for Housing Studies Working Paper LIHO-01.15.
- Boehm, Thomas P. and Alan M. Schlottmann. 2004. "The Dynamics of Race, Income, and Homeownership." *Journal of Urban Economics*. 55(1): 113-130.
- Bowles, Samuel and Herbert Gintis. 2002. "The Inheritance of Inequality." *Journal of Economic Perspectives*. 16(3): 3-30.
- Browning, Christopher R. and Matisa Olinger-Wilbon. 2003. "Neighborhood Structural Disadvantage, Social Organization, and Number of Short-Term Sexual Partnerships." *Journal of Marriage and the Family*. 65(3): 730-745.
- Buka, Stephen L.; Robert T. Brennan; Janet W. Rish-Edwards; Stephen W. Raudenbush; and Felton Earls. 2003. "Neighborhood Support and the Birth Weight of Urban Infants." *American Journal of Epidemiology*. 157(1): 1-8.
- Ciccone, Antonio and Giovanni Peri. 2006. "Identifying Human Capital Externalities: Theory with Applications." *Review of Economic Studies*. 73(2): 381-412.
- Crane, Jonathan. 1991. "The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing." *American Journal of Sociology*. 96(5): 1226-1259.
- Di, Zhu Xiao and Yi Yang. 2002. "Intergenerational Wealth Transfer and Its Impact on Housing." Harvard Joint Center for Housing Studies Working Paper W02-2.

- Dynan, Karen E.; Jonathan Skinner; and Stephen P. Zeldes. 2002. "The Importance of Bequests and Life-Cycle Saving in Capital Accumulation: A New Answer." *American Economic Review*. 90(2): 274-278.
- Engelhardt, Gary V. and Christopher J. Mayer. 1994. "Gifts for Home Purchase and Housing Market Behavior." *New England Economic Review*. May/June: 47-58.
- Evans, David S. and Boyan Jovanovic. 1989. "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints." *Journal of Political Economy*. 97(4): 808-827.
- Gale, William G. and John Karl Scholz. 1994. "Intergenerational Transfers and the Accumulation of Wealth." *Journal of Economic Perspectives*. 8(4): 145-160.
- Green, Richard K. and Michelle J. White. 1997. "Measuring the Benefits of Homeowning: Effects on Children." *Journal of Urban Economics*. 41(3): 441-461.
- Hanushek, Eric A.; John F. Kain; and Steven G. Rivkin. 2004. "Disruption Versus Tiebout Improvement: The Costs and Benefits of Switching School." *Journal of Public Economics*. 88(9):1721-1746.
- Harding, David J. 2003. "Counterfactual Models of Neighborhood Effects: The Effect of Neighborhood Poverty on Dropping Out and Teenage Pregnancy." *American Journal of Sociology*. 109(3): 676-719.
- Holtz-Eakin, Douglas; David Joulfaian; and Harvey S. Rosen. 1994. "Entrepreneurial Decisions and Liquidity Constraints." *RAND Journal of Economics*. 25(2): 334-347.
- Holtz-Eakin, Douglas; David Joulfaian; and Harvey S. Rosen. 1994. "Sticking it Out: Entrepreneurial Survival and Liquidity Constraints." *Journal of Political Economy*. 102(1): 53-75.
- Jencks, Christopher and Susan E. Mayer. 1990. "The Social Consequences of Growing up in a Poor Neighborhood." in *Inner-City Poverty in the United States*, Laurence E. Lynn and Michael G. H. McGeary eds., Washington DC: National Academy Press.
- Kotlikoff, Laurence J. 1988. "Intergenerational Transfers and Savings." *Journal of Economic Perspectives*. 2(2): 41-58.
- Kotlikoff, Laurence J. and Lawrence H. Summers. 1981. "The Role of Intergenerational Transfers in Aggregate Capital Accumulation." *Journal of Political Economy*. 89(4): 706-732.
- Kotlikoff, Laurence J. and Lawrence H. Summers. 1986. "The Contribution of Intergenerational Transfer to Total Wealth: A Reply." NBER Working Paper no. 1827.
- Laferrere, Anne. 2001. "Self-employment and Intergenerational Transfers: Liquidity Constraints and Family Environment." *International Journal of Sociology*. 31(1): 3-26. (Note that the name Laferrere technically has an accent over the second e – I presume that we can omit?)

- Leventhal, Tama and Jeanne Brooks-Gunn. 2000. "The Neighborhoods They Live In: The Effects of Neighborhood Residence on Child and Adolescent Outcomes." *Psychological Bulletin*. 126(2): 309-337.
- Lindh, Thomas and Henry Ohlsson. 1996. "Self-employment and Windfall Gains: Evidence from the Swedish Lottery." *Economic Journal*. 106(439): 1515-1526.
- Lochner, Kimberly A.; Ichiro Kawachi; Robert T. Brennan; and Stephen L. Burka. 2003. "Social Capital and Neighborhood Mortality Rates in Chicago." *Social Science and Medicine*. 56(8): 1797-1895
- Lucas, Reobert E. 2002. *Lectures on Economic Growth*. Cambridge: Harvard University Press.
- Mazumder, Bhashkar. 2005. "Fortunate Sons: New Estimates of Intergenerational Mobility in the US Using Social Security Earnings Data." *Review of Economics and Statistics*. 87(2): 235-255.
- Menchik, Paul L. 1979. "Inter-generational Transmission of Inequality: An Empirical Study of Wealth Mobility." *Economica*. 46(184): 349-362.
- Modigliani, Franco. 1984. "The Contribution of Intergenerational Transfer to Total Wealth." Paper presented to the Paris Conference on Modeling the Accumulation and Distribution of Wealth.
- Modigliani, Franco. 1988. "The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth." *Journal of Economic Perspectives*. 2(2): 15-40.
- Molnar, Beth E.; Steven L. Gortmaker; Fiona C. Bull; Stephen L. Buka. 2003. "Unsafe to Play? Neighborhood Disorder and Lack of Safety Predict Reduced Physical Activity Among Urban Children and Adolescents." *American Journal of Health Promotion*. 18(5): 38-46.
- Moretti, Enrico. 2004a. "Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data." *Journal of Econometrics*. 121(1): 175-212.
- Moretti, Enrico. 2004b. "Human Capital Externalities in Cities." in *Handbook of Urban and Regional Economics, Vol. 4, Geography and Cities*, J. Vernon Henderson and Jacques-FranHois Thisse eds., Amsterdam: Elsevier Science/North Holland.
- Mulligan, Casey B. 1997. *Parental Priorities and Economic Inequality*. Chicago: University of Chicago Press.
- Oreopoulus, Philip. 2003. "The Long-Run Consequences of Living in a Poor Neighborhood." *Quarterly Journal of Economics*. 118(4): 1533-1575.
- Orr, Larry; Judith D. Feins; Robin Jacob; Erik Beecroft; Abt Associates Inc.; Lisa Sanbonmatsu; Lawrence F. Katz; Jeffrey B. Liebman; and Jeffrey R. Kling. 2003. "Moving to Opportunity Interim Impacts Evaluation." U.S. Department of Housing and Urban Development.

- Quadrini, Vincenzo. 1999. "The Importance of Entrepreneurship for Wealth Concentration and Mobility." *Review of Income and Wealth*. 45(1): 1-19.
- Rauch, James E. 1993. "Productivity Gains from Geographic Concentration of Human Capital: Evidence from the Cities." *Journal of Urban Economics*. 34(3): 380-400.
- Romer, Paul M. 1986. "Increasing Returns and Long-Run Growth." *Journal of Political Economy*. 94(5): 1002-1037.
- Solon, Gary; Marianne E. Page; and Greg J. Duncan. 2000. "Correlations between Neighboring Children in Their Subsequent Educational Attainment." *Review of Economics and Statistics*. 82(3): 383-392.
- Townsend, Peter. 1987. "Deprivation." *Journal of Social Policy*. 16(1): 125-146.
- Wen, Ming; Christopher R. Browning; and Kathleen A. Cagney. 2003. "Poverty, Affluence, and Income Inequality: Neighborhood Economic Structure and Its Implications for Health." *Social Science and Medicine*. 57(8): 843-860.
- Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.
- Withers, Suzanne Davies and Carolina Katz Reid. 2005. "Racial Differences in Intergenerational Wealth Transfers and Access to Homeownership." Presented at the Population Association of America annual meeting.
- Wolff, Edward N. 2002. "Inheritances and Wealth Inequality." *American Economic Review*. 90(2): 260-264.



WEALTH

AND ECONOMIC MOBILITY

ACKNOWLEDGEMENTS

All Economic Mobility Project materials are guided by input from the Principals' Group and the project's Advisory Board. However, the views expressed in this report represent those of the author and not necessarily of any affiliated individuals or institutions.

PROJECT PRINCIPALS

Marvin Kosters, Ph.D., The American Enterprise Institute
Isabel Sawhill, Ph.D., *Center on Children and Families*, The Brookings Institution
Ron Haskins, Ph.D., *Center on Children and Families*, The Brookings Institution
Stuart Butler, Ph.D., *Domestic and Economic Policy Studies*, The Heritage Foundation
William Beach, *Center for Data Analysis*, The Heritage Foundation
Eugene Steuerle, Ph.D., *Urban-Brookings Tax Policy Center*, The Urban Institute
Sheila Zedlewski, *Income and Benefits Policy Center*, The Urban Institute

PROJECT ADVISORS

David Ellwood, Ph.D., *John F. Kennedy School of Government*, Harvard University
Christopher Jencks, M. Ed., *John F. Kennedy School of Government*, Harvard University
Sara McLanahan, Ph.D., Princeton University
Bhashkar Mazumder, Ph.D., The Federal Reserve Bank of Chicago
Ronald Mincy, Ph.D., Columbia University School of Social Work
Timothy M. Smeeding, Ph.D., *Maxwell School*, Syracuse University
Gary Solon, Ph.D., Michigan State University
Eric Wanner, Ph.D., The Russell Sage Foundation

The Pew Charitable Trusts (www.pewtrusts.org) is driven by the power of knowledge to solve today's most challenging problems. Pew applies a rigorous, analytical approach to improve public policy, inform the public and stimulate civic life. We partner with a diverse range of donors, public and private organizations and concerned citizens who share our commitment to fact-based solutions and goal-driven investments to improve society.

