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The Role of Housing Wealth in College Enrollment

By Michael Lovenheim

The returns to investing in a college education have increased dramatically since the 1980s in the United States. Due to these high returns, college enrollment increased substantially throughout the 1980s. By 1990, however, enrollment rates of high school graduates had leveled off to just below 70 percent and have remained stable ever since. Furthermore, the growth in college enrollment was followed by an increase in college dropout rates so that the percentage of students receiving college degrees in the United States has changed little since the 1970s (Bound, Lovenheim and Turner, 2007).

The stagnation in the growth rate of the college-educated share of the labor force is due to both the leveling-off of college enrollment rates and

the increase in college dropout rates. These trends represent a significant puzzle for education policymakers, particularly because the wage gains from completing a college education are so high. Previous work has focused on explaining the increase in college dropouts (Bound, Lovenheim and Turner, 2007). In this policy brief, I focus on the importance of college costs and student access to credit in the college enrollment decision, paying particular attention to the role of housing wealth. Because long-run economic growth in the United States is tied to the supply of high-skilled workers, determining why college enrollment rates have stagnated is an important policy question.

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About The Author

Michael Lovenheim is the Searle Freedom Trust Post-doctoral Fellow at SIEPR. He is also a visiting lecturer in Economics at Stanford University. Lovenheim's research is in public finance and labor economics, particularly focusing on the economics of education and issues in local taxation. His recent papers consider the lengthening of the time it takes students to obtain an undergraduate degree, the role of housing wealth in the college enrollment decision, and the effect of teachers' unions on K-12 educational resources. He received his PhD in Economics from the University of Michigan in 2007 and has since been a post-doctoral fellow at SIEPR.



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Many people claim the apparent under-investment in higher education is due to the rising cost of college attendance. The classical models of education investment assume students have access to perfect capital markets to finance their education. However, with rising college costs relative to real income and the inability to collateralize an education loan with future labor, the assumption of perfect capital markets is increasingly problematic.

Figure 1 shows average tuition and fees across all U.S. undergraduate institutions as a percent of average per-

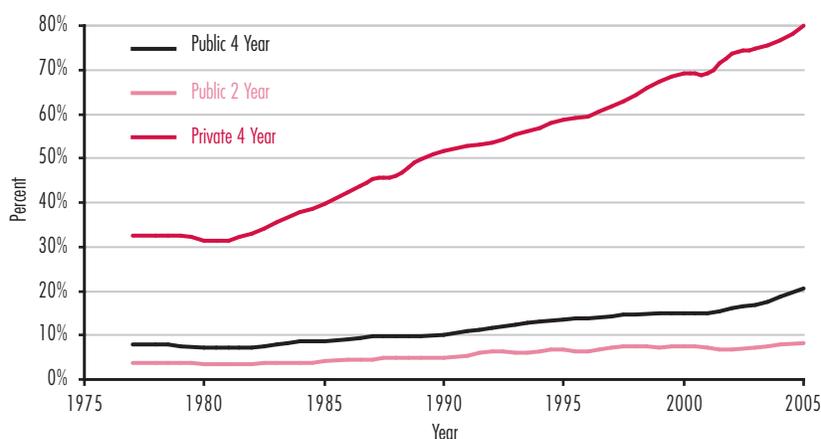
capita income. The figure makes clear the skyrocketing cost of college relative to income. For example, in 1980, average tuition at four-year public schools was 7 percent of per-capita income and was 31 percent of per-capita income at four-year private schools. By 2005, tuition and fees alone were more than 20 percent of average per-capita income at four-year public schools and rose to almost 80 percent at four-year private schools. Even at two-year colleges, tuition costs as a percentage of annual income more than doubled over this

time period, from 3.6 to 8.6 percent. Despite government subsidies designed to aid students in paying for college, such as the Pell Grant and Stafford Loans, a student planning to attend a residential college full time would still face substantial unmet need.

Given the upward trends in the cost of attending college, it is reasonable to expect families are having increasing difficulty financing their children's college education. There is a large literature on the existence and extent of credit constraints in economics but, interestingly, no real consensus has been reached. While work by both James Heckman (with various co-authors) and John Shea suggest parental income is relatively unimportant in the college enrollment decision, a recent analysis by Meta Brown, John Scholz and Anath Sashedri finds evidence that the inability to borrow against future earnings negatively affects educational attainment.

The economics and policy literature on college credit constraints has focused largely on the role of family income in the college enrollment decision.

Figure 1: Average Yearly Tuition and Fees at U.S. Undergraduate Colleges and University as a Percent of Real Per-Capita Income



Sources: Yearly tuition and fees are taken from the *College Board's 2004 Trends in Pricing* compilation. Average per-capita income at the state level comes from "personal income" estimates calculated by the U.S. Bureau of Labor Statistics.

In recent research using both institutional enrollment counts and individual-level data on college enrollment and housing wealth, I extend this literature by examining the link between housing values, housing wealth and college attendance. This policy brief describes the main findings of this research and discusses some key policy implications that are suggested by my results.

Home Values and Home Equity

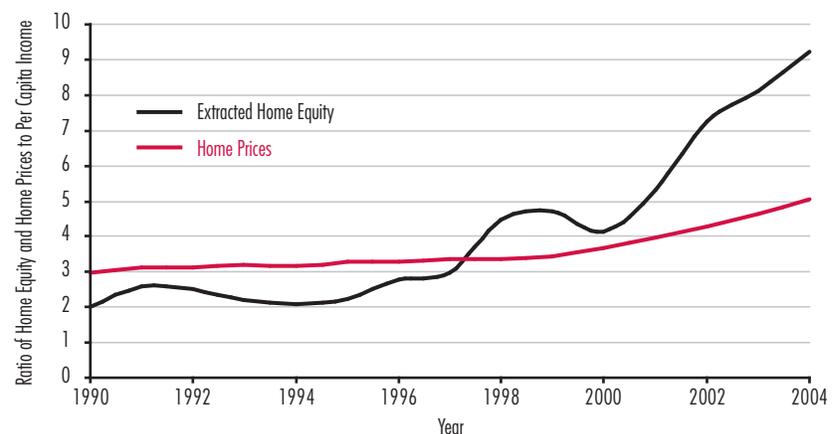
There are a number of reasons to expect housing wealth to be an important factor in the college enrollment decision. First, about three-fourths of U.S. households own a home, and housing equity comprises more than half of total household assets. Thus, ignoring housing wealth will cause one to mismeasure the extent of family resources, which can have significant effects on the estimation of credit constraints. Second, the past 10 years witnessed a significant and well-documented housing boom. Most importantly from the perspective of college financing, the housing boom was characterized by both

large increases in home values and an increasing liquidity of accumulated home equity.

Over the past 20 years, there has been a significant increase in the amount of housing debt incurred by consumers. For example, between 1980 and 2007, the ratio of mortgage debt to income rose by 41 percent nationally. However, the ratio of non-housing consumer debt to income rose by only 14 percent. These numbers imply a shift from consumer debt to housing debt over the last two decades. While some of the mortgage

debt increase was incurred to pay for more expensive houses, a large portion can be explained by the increasing willingness of consumers to tap the equity in their homes. These trends are illustrated most dramatically by Figure 2, which shows the amount of extracted home equity and the median home value in each year, both relative to average per-capita income. As the figure demonstrates, median home values rose relative to income in the mid-1990s, but the dominant trend over this time period is the explosion in equity extraction

Figure 2: Ratio of Extracted Home Equity and Median Home Prices to Average Per-Capita Income



Sources: Estimates of gross equity extraction as a ratio of disposable income are taken from Table 1 in Alan Greenspan and James Kennedy, "Estimates of Home Mortgage Originations, Repayments, and Debt On One-to-Four-Family Residences," 2005 Federal Reserve Board Working Paper. Median home prices come from the Office of Federal Housing Enterprise Oversight, and average per-capita income at the state level comes from "personal income" estimates calculated by the U.S. Bureau of Labor Statistics.

through home equity loans, home equity lines of credit and cash-out refinancing.

Home Equity and College Attendance

The dramatic increase in both home values and the liquidity of home equity provides a unique opportunity to look at how housing wealth impacts college attendance. I first examine this relationship at the state level using counts of college enrollment for each state and year collected by the National Center for Education Statistics. I examine the relationship between college enrollments and mean housing values in each state. I also control for state economic factors and K-12 educational resources in each state, as the goal is to isolate the effect of housing appreciation on college attendance.

I take advantage of the fact that the housing boom affected certain areas of the country more than others. For example, between 1980 and 2005, San Francisco witnessed a sixfold increase in housing prices, while Oklahoma City prices barely doubled and were lower than San Francisco prices in

absolute terms. By examining the differential growth in college enrollment across areas that experienced differential growth in housing prices, I can isolate the relationship between these two variables.

My results show increases in housing wealth positively affect the college enrollment decision. I find a 1 percent increase in state-level home prices leads to a 0.13 percent increase in total public school enrollment. This increase is concentrated more in the two-year sector: a 1 percent increase in home prices increases four-year public school enrollment by 0.08 percent but increases two-year enrollment by 0.23 percent.

I next analyze the housing wealth-college enrollment relationship using a family-level survey that contains detailed information on the growth in housing wealth of surveyed families between 1980 and 2005. The survey is called the Panel Study of Income Dynamics (PSID), and it allows me to examine the effect of the growth in each family's home equity in the five years before a child is of college age. The main advantage of these data over the enrollment

data previously discussed is the PSID contains detailed information on each family's accumulated home equity, not just their home price. This feature of the data is important because newer homeowners and older homeowners with the same house will have accumulated different levels of equity in the home.

The results from this analysis again show the importance of family housing wealth in the college enrollment decision. I find a \$10,000 increase in home equity is associated with a 0.3 percent increase in college enrollment. However, the average over the sample period masks the large changes in this relationship over time. In the 1980s, there was no association between home equity growth and college attendance, but when home equity became more liquid in the late 1990s and early 2000s, this relationship strengthened. For example, from 2000-2005, I find a \$10,000 increase in home equity is associated with a 0.5 percent increase in college enrollment.

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College Attendance and Home Equity Extraction

A critical assumption in this analysis is that families are willing to tap their home equity in order to pay for their children's college. There is anecdotal evidence supporting this assumption. Next Step Magazine conducted a survey of parents with college-age children and found nearly 25 percent reported they were planning to finance tuition using their home equity. Further, about 3 percent of home equity loans in 2006, which translates into about \$7 billion, were taken out to finance higher education expenditures.

The PSID contains information on whether respondents have taken out a second mortgage, a home equity loan or a home equity line of credit. My results indicate that among families with college-age kids, those with kids enrolled in college are 2.3 percent more likely to have extracted some of their home equity. This finding is consistent with parents

using their housing wealth to finance their children's college attendance as well as the existence of credit constraints in the college enrollment decision.

Policy Implications

Though this analysis focuses on the period of the housing market boom, the relationship between housing wealth and college enrollment has significant implications for current education policy. Between 2005 and 2007, housing price increases have slowed nationally, and in some areas housing prices have actually declined. Furthermore, as credit access has tightened due to the burst of the "housing bubble" and the sub-prime lending "crisis," even accumulated home equity has become increasingly more difficult to extract.

Considering the rising cost of college and the reduction in family resources caused by these problems in the housing market, it is likely many families will face increasing constraints in their

ability to finance college in the near future. To the extent this will further reduce the growth in college-educated workers, the housing bust can have negative longer-run effects on economic growth. This consequence of housing market fluctuations largely has been ignored by policymakers, due primarily to the lack of evidence on the relationship between college attendance and housing wealth. The central implication of this work is that college attendance is sensitive to these fluctuations, and policy should be aimed at insulating the training of high-skilled labor from variation in the housing market.

References

Bound, John, Michael Lovenheim, and Sarah Turner, 2007. "Understanding the Decrease in College Completion Rates and the Increased Time to the Baccalaureate Degree." Stanford Institute for Economic Policy Research Working Paper No. 06-043.

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