

My research has three foci. One line of work considers the behavior and outcomes of youth and young adults, with emphases on family background and social networks. A second area of interest is the effect of technological change and industrial shifts on the wage structure. The third focus of my work is on changes in creativity and productivity over the lifecycle. As will be seen, some of my work falls within one of these areas of interest, while other works span these interests. This overview discusses the three areas of interest separately, but indicates where works combine the three foci. (Table 1 illustrates where individual papers lie and these interconnections.)

Before proceeding, a few general observations are in order. My work combines theoretical and empirical interests. Thus, most of my papers develop theoretical models and illustrate their importance empirically. My research also tends to be question-driven rather than technique-driven. I try to use whatever techniques (both theoretical and empirical) are most appropriate for addressing a particular question convincingly, and as a consequence have employed a broad range of techniques. Lastly, much of my research, across the various areas of interest, draws on work in sociology and psychology, incorporating results from these literatures into economic models.

Behavior and Outcomes of Youth and Young Adults

One line of work studies the factors that affect the behavior and outcomes of youth and young adults, emphasizing the roles of family background and geography. Economists, psychologists, and sociologists have all noted that family background, including parental income and family structure, affect children's outcomes. Following the work of Becker and Tomes, economists have focused on the effect of parental income on parental investments in their

children's human capital, but have ignored decisions made by children. Much of my work in this area focuses on the role of children's own decisions on their outcomes, and the mechanisms parents use to affect those decisions. One way that parents can affect their children's outcomes is through rewarding or punishing behaviors. "An Incentive Model of the Effect of Parental Income on Children" develops a model to show that at low incomes parents' ability to influence their children's actions through pecuniary incentives is limited causing them to rely on non-pecuniary incentives, such as corporal punishment. Thus, the paper generates a relationship between parental income and children's behavior operating through parent's optimal choice of incentive mechanisms, which is shown to be consistent with the data.

"Parental Investment in Children's Patience and Socialization," which is in progress, continues to develop this line of research. Here the focus is on parental efforts to mold their children's actions through their preferences toward the future (patience) and others (socialization). Investing in a child's preferences, by opening a small bank account for a child or teaching her to share with others, is time consuming compared to authoritarian methods of influencing behavior, but such efforts can influence the child's preferences and have long lasting benefits. Preliminary empirical results indicate that households where time is less available – single-parent households and two-parent households in which both parents work – rely more on authoritarian parenting methods, which are found to lead to worse behavioral outcomes in the long run.

Another set of papers in this area focus on estimating the effect of neighborhoods on behavior and outcomes controlling for the bias introduced when individuals choose their neighborhoods. While economists and sociologists have cited large variations in behaviors such

as employment or children's performance across neighborhoods as evidence that neighborhoods affect behavior, the observed variation may be caused by people with different behaviors choosing to live in different neighborhoods. Thus, individuals with stable employment can afford to live away from neighborhoods with high poverty rates. "Black Residential Centralization," "Testing the Spatial Mismatch Hypothesis," and "Do Neighborhoods Affect Work Behavior?" focus on two geographic theories of unemployment – neighborhood social influences and the spatial mismatch hypothesis. While employing markedly different data and methods, to control for the biases due to neighborhood choice, these papers provide evidence that job access and neighborhood social conditions are important determinants of employment. Two recent papers, "The Impact of Neighborhood Homeownership Rates" and "The Effect of Neighborhood Homeownership on Children's Outcomes," focus on the effect of neighborhood homeownership, as a measure of social capital, on children's outcomes. Again the interest is in controlling for unobserved factors that affect both the decision to live in a high homeownership neighborhood and affect children's outcomes.

Technological Change, Industrial Shifts, and the Wage Structure

A second area of interest is the effect of technological change and industrial shifts on the wage structure. "Long-Term Wage Fluctuations," which was drawn from my dissertation, falls in this area, but also relates to my work on productivity over the lifecycle. It studies the large industrial shifts that occurred in the United States during the 1970's and 1980's, showing that experienced workers who lost jobs in shrinking industries suffered substantial wage declines, but that experienced workers who remained employed in these industries have not fared poorly. These results shed light on models of the wage setting mechanism, which relate to

macroeconomic models of business cycles. The results indicate that experienced workers possess specialized human capital investments, whose spot-market value depends on the state of their industries, but that firms insure workers who remain in their jobs against these fluctuations in market conditions.

“Computer Use and the Demand for Female Workers” lies in the large literature on the effects of technological change and computerization on the wage structure. Whereas most research in this area focuses on the effects of technological change on the returns to education (or ability), this paper considers the effects of computers on the demand for women relative to men. The paper develops a model to illustrate how computers affect women’s wages through their effect on women’s ability to perform jobs (e.g. the importance of physical strength) or through their effect on working conditions (compensating differentials). Empirically, the paper shows that the increase in computer use can explain roughly half the increase in women’s wages relative to men’s wages. The effect of computers on the demand for women relative to men is greatest in skilled blue collar jobs, where we expect computers to have had the largest effect on the nature of work.

“The Precautionary Demand for Education” considers the effects of technological change on inequality. Economists have found that technological change has increased the returns to education (“between” inequality) as well as inequality among education groups (“within inequality”). At the same time, educational attainment has increased. This paper shows that the source of the increase in inequality among education groups varies across education groups – inequality among less educated workers, is primarily due to greater randomness (transitory variation), while increased inequality among educated workers is primarily due to an increased

variance of ability and increased returns to ability (permanent variation). The model reproduces these patterns by assuming that the skills of less educated workers are primarily technology specific, while those of more educated workers are general. The introduction of new technologies therefore creates randomness for less educated workers causing more workers to go to school, and increasing the variance of ability among educated workers.

“Crime Rates and Local Labor Market Opportunities” takes the observed changes in wages as the starting point to study an important youth behavior. While economists have long argued that weak labor markets increase crime, to date the empirical evidence has been weak. This paper uses the technological and industrial shifts in recent years as an “experiment” that has lowered the wages of less educated men to investigate the impact of labor markets on crime. We find that the reduction of wages among less skilled men during the 1980s can explain much of the increase in (demographics-adjusted) crime rates during the 1980s. Similarly, the improvement in the labor markets of less educated men during the 1990s can explain the reductions in crime rates over that period. Although it falls outside the period analyzed, the increase in crime during the current slowdown is consistent with these results. This paper led to a number of interviews and was the subject of a Presidential briefing, the contents of which were published in the *Economic Report of the President, 1999*.

Productivity and Creativity over the Lifecycle

A third line of research proposes and investigates a new economic model of lifecycle productivity. Economists explain the hump-shaped pattern of productivity over the lifecycle using the human capital model, which emphasizes how the approach of retirement reduces the incentive to acquire new skills. Psychologists have attributed the same lifecycle pattern to a

reduction in the ability, as opposed to the incentive, to assimilate and produce new ideas.

According to this view, at first exposure to a field, thought patterns are flexible, but they are reinforced through experience, making it increasingly difficult to think in different ways.

Psychologists have also noted two methods of thought. Experiential, experimental work involves accumulating a body of knowledge, along the lines of human capital accumulation. The work of individuals who work in this way improves over the lifecycle. Conceptual, theoretical work requires re-organizing thought patterns and leads to greatest productivity early in the career because the accumulation of experience limits the ability to reorganize thought patterns later. My work develops a new economic model of lifecycle productivity, which draws on these ideas and applies it to the lifecycle patterns in creativity among innovators and the adoption of new technologies, both of which emphasize the ability to assimilate and produce new ideas.

“Creating Modern Art” and “Age and the Quality of Work” use data on important artists to study age-creativity profiles. Artists are an attractive subject group because their productivity can be estimated from auction prices for their works. These papers investigate two episodes – French art from the impressionists through cubists and American art since the abstract expressionists. In both episodes, an increase in the demand for innovation in art led to a shift from visually-motivated, experimental artists to innovation-driven, conceptual artists. Consistent with a decline over the lifecycle in the ability to produce new conceptual ideas, the shift toward conceptual innovation led to a large decline in the age at which artists executed their best works.

In “The Nobel Years,” I am currently applying this model to explain lifecycle creativity of Nobel laureate economists. This application will highlight the broad applicability of the

model. Unlike my work on artists, this work will present an formal model, which will be estimated structurally. The standard human capital model will be nested in the general model, so it will be possible to test whether the new model improves on the standard one; preliminary results indicate that it does.

“Experience and Technology Adoption,” which also relates to my work on the effects of technological change on the wage structure, studies how the adoption of new technologies varies with experience and how new technologies affect the returns to experience, an understudied aspect of the impact of technological change. Both scholars in economics and popular writers have taken for granted that new technologies are adopted first by young workers and benefit them. This paper shows that while this pattern is true among college graduates, among high school graduates, the opposite is true. High school graduates in their 40s and 50s are significantly more likely to use computers than younger high school graduates, and computers have been associated with an increase in the relative wages of experienced workers.

This paper provides two interpretations for these results. The first focuses on the skill-biased nature of computer technologies, which makes them favor experienced workers, who are more skilled. A second interpretation focuses on my model of lifecycle productivity. The psychology literature argues that less educated workers are more invested in experiential skills and Zuboff’s [1988] case studies show that their knowledge of older technologies can help them use new technologies effectively. Educated workers are more heavily invested in abstract reasoning skills, which decline over the lifecycle, and rely more heavily on these skills than accumulated experience when using new technologies. The paper’s results are shown to provide partial support for a human capital-based creative destruction model of the productivity

slowdown.

“Can the Human Capital Model Explain its Own Adoption?” which is in progress, studies how experience affects participation in scientific revolutions, using data on the human capital revolution in labor economics. Preliminary results indicate that for the first decade of its diffusion, few labor economists participated in this revolution. When the group of people working on human capital began to expand, most contributors were people who had been exposed to it as graduate students. Thus, people who had not been exposed to the new paradigm early in their careers were significantly less likely to participate in the revolution. In addition to providing evidence that adaptability declines over the lifecycle, this work also relates to models of innovation by incumbents in the industrial organization literature.

Table 1 – Research Interests

Behavior / outcomes of youth and young adults	Technological change, industrial shifts, and the wage structure	Lifecycle creativity / productivity
“Long-Term Wage Fluctuations” <i>JOLE</i> 2001		
“Black Residential Centralization” <i>JUE</i> 2000	“Computer Use and the Demand for Female Workers” <i>ILRR</i> 2000	
“Testing the Spatial Mismatch Hypothesis”	“Crime Rates and Local Labor Market Opportunities” <i>RESTAT</i> 2002	
“Do Neighborhoods Affect Work Behavior?”	“Age and the Quality of Work” <i>AER</i> 2000	
“An Incentive Model of the Effect of Parental Income on Children” <i>JPE</i> 2001	“Creating Modern Art” <i>JPE</i> 2001	
“A Model of Overconfidence”	“Precautionary Demand for Education” <i>JEG</i> 2001	
“Impact of Neighborhood Homeownership Rates” <i>JHR</i> , Forthcoming	“Experience and Technology Adoption”	
Work in Progress		
The Effect of Neighborhood Homeownership on Children’s Outcomes	The Nobel Years	
People People		
Parental Investment in Children’s Patience and Socialization	Can the Human Capital Model Explain its Own Adoption?	
Papers listed chronologically (by order of writing).		