

Precursors and Outcomes of School-to-Work Pathways: A Latent Life Path Approach

Jeremy Staff
Pennsylvania State University

Mike Vuolo
Jeylan T. Mortimer
University of Minnesota

September 22, 2008

*Paper submitted for presentation at the 2009 Annual Meeting of the Population Association of America. The Youth Development Study is supported by a grant, “Work Experience and Mental Health: A Panel Study of Youth,” from the National Institute of Child Health and Human Development (HD44138). It was previously supported by the National Institute of Mental Health (MH42843). The first author gratefully acknowledges support from a Mentored Research Scientist Development Award in Population Research from the National Institute of Child Health and Human Development (K01 HD054467). The authors would like to thank Scott Eliason for his valuable consultation on the latent path analytic procedure.

Abstract

Whereas the phrase, “school-to-work transition” (STW) implies a clear, discrete event, this once predictable and normative transition has become increasingly delayed and “disorderly” among recent cohorts of youth in the United States. Instead of immersion in school, followed by similar involvement in work, the lengthy period of transition is not always unidirectional and typically includes long-term involvements in both work and school. The destandardization of the STW transition complicates assessment of the precursors and impacts of post-secondary education. Using 17 years of longitudinal data from the Youth Development Study, and innovative latent life path modeling, this paper shows four distinct STW pathways: (1) “Baccalaureate into career;” (2) “Associate/voc-tech into career;” (3) “High school dropouts/graduates who flounder;” and (4) “College dropouts who flounder.” We also show the distinct precursors and long-term outcomes (e.g., earnings, savings, financial stressors) experienced by those in each pathway.

Precursors and Outcomes of School-to-Work Pathways: A Latent Life Path Approach

The school-to-work transition (STW) is a critically important juncture in the life course. Socioeconomic attainment is a long-term process, starting in adolescence; it encompasses achievement in school, the acquisition of educational degrees and other qualifications, and movement through the occupational career. The individual's completed level of schooling and the point of entry to the labor force are major determinants of more or less rewarding occupational careers. Psychologically, the STW transition has significant implications for the development of an identity as an adult. Finishing school and starting a career are key markers of the transition to adulthood, signifying adult status, settling down, and maturity. Young people who have made the transition from survival to career jobs are more likely to consider themselves adults, and to be viewed as such by others.

The phrase, "school-to-work transition" implies an orderly sequence by which the individual completes school and enters a full-time work role. However, as a result of changes in both education and work, as well as cultural shifts in the relative prominence and desirability of the "youth" and "adult" phases of the life course, this once clear, predictable, and normative transition has become increasingly delayed and destandardized among recent cohorts of youth in the United States. Instead of full-time immersion in school, followed by similar full-time involvement in work, the lengthy period of transition typically includes long-term simultaneous involvements in both work and school. Ever more young people are extending their formal educations through adolescence and into young adulthood. As a result, postsecondary students are becoming older. Shared school and work roles begin in early adolescence—for most U.S. youth, at about age 12. Combining school and work is highly normative throughout the periods of secondary and postsecondary education; most students are employed during the high school years and during college (Staff and Mortimer, 2007). Moreover, the transition from school to work is not unidirectional; many young people return to school after leaving and engaging in work full-time

(Shanahan, 2000). By age 26, twenty percent of youths undergo a transition from school to full-time work at least twice (Arum and Hout, 1998).

In view of the prolonged character of the transition from school to work, what one does well after leaving high school has growing significance for long-term occupational prospects. Just as the relative investment in school and work during high school is likely to have consequences for educational attainment and “career” acquisition, the interplay between the two after high school deserves systematic scrutiny. Some youth invest heavily in post-secondary education, delaying careers but heightening prospects for eventual economic return and other elements of occupational success. Moreover, little is known about the character of the school-to-work transition for the large number of youth who attend college but do not earn a degree (42% of youth who initially enter four-year colleges). Youth comprising this growing “subbaccalaureate” labor market (Kerchoff, 2002), lacking the career placement services provided by most colleges, tend to move from job to job in the secondary labor market, obtaining jobs that are part-time and contingent. Furthermore, researchers do not typically examine the backgrounds and attitudes that distinguish those who succeed in establishing themselves in career-like work without attaining higher educational degrees, and those who “flounder” during this transitional period, without making such progress.

In this paper, we use longitudinal data from the Youth Development Study, and innovative latent life path modeling to examine pathways of educational and career attainment from age 18 to 30. We focus on educational attainment and progress in becoming established in a career. Though researchers often examine precursors to educational attainment, and how such attainment affects occupational outcomes, we rarely look in depth at the interplay between educational attainments and career development over time. By identifying distinct trajectories reflecting the configuration of educational and career attainments, we can understand more clearly the experiences youth have in negotiating these two realms, as well as the nature of the “floundering” experience. How do young people move into, and out of, lines of work with self-

identified “career” potential and how are these patterns linked to their educational attainment? Though youth often move from job to job, and in and out of employment, before “settling down,” rarely is the reversible nature of labor market status examined. Furthermore, how do social backgrounds, occupational orientations, and prior experiences in school and work distinguish those who establish themselves in self-reported careers and those who continue to flounder through their twenties? How do these pathways affect longer-term earnings and financial success?

DATA, MEASURES, AND METHODS

The Youth Development Study

The Youth Development Study (YDS) is a continuing prospective longitudinal study of 1,010 teenagers drawn from a greater metropolitan area of approximately 3 million residents. The YDS began in 1988 with a randomly selected sample of all ninth graders enrolled in the St. Paul Public School District in Minnesota. U.S. Census data indicate that this site was comparable to the nation as a whole with respect to several economic and social indicators (Mortimer 2003). The YDS panel was surveyed annually from the ninth to twelfth grades in high school. Yearly questionnaires, administered in school, included a large battery of items tapping early experiences in work, achievement-relevant attitudes, school performance, and educational and occupational plans for the future. If the teenagers were not attending school during the days of survey administration (due to illness or dropout), questionnaires were mailed to them at their homes. Extensive tracking and the provision of small monetary incentives to participate in the research yielded excellent panel retention (93%) through the high school period. For the 13 years immediately following high school (1992-2004), respondents provided monthly records of educational attendance, unemployment, and both part- and full-time labor force participation via life history calendars. These were completed annually, except in 1996 and 2001 (in 1997 and 2002 the calendars covered a two-year period, so as to obtain continuous records).

MEASURING THE STW TRANSITION

The object of our analysis is to understand educational and career progress during the STW transition. The YDS is unique in its inclusion of a subjective measure of career acquisition covering the period from adolescence through the transition to adulthood. This measure references the respondent's view that the current job will continue as a career. In each survey year after high school (wave 5 in 1992 through wave 15 in 2004), respondents were asked, "how is your present job related to your long-term career goals?" The responses for this question were: (1) "It is not linked to my long-term career objectives;" (2) "it provides skills or knowledge that will prepare me for my future work;" (3) "it will probably continue as a long-term career;" and (4) "I don't know." Those who did not have a current job were recorded as not employed. Educational attainment for each wave indicates whether the respondent had completed: (1) high school degree or less; (2) some college; (3) an associate/vocational degree; or (4) bachelor's degree or higher.

How do these educational and career outcomes come together in distinct configurations as youth make the increasingly prolonged transition from school to work? Considered over time, how do the successive combinations of educational and career states constitute varying pathways of transition? Latent life pathways of career and educational attainments are identified using the methods described by Eliason and colleagues (2007; see also Macmillan and Eliason 2003a, 2003b). The latent life path model, as developed by Macmillan and Eliason (2003a, 2003b), is a second-order hierarchical latent class model with a set of latent variables capturing the within-age configuration schema (that is, the combinations of occupational and educational attainments at each age) and a latent variable capturing the across-age life path schema (that is, the patterns of movement between such configurations over time). Here, we briefly summarize this model, referring the interested reader to Eliason et al. (2007) for further details about the model, estimation procedures, and model selection.

Let X_{it} be the set of $t = 1, \dots, T$ unobserved attainment configuration schema, and Y_i be the unobserved life path schema. Macmillan and Eliason's (2003a, 2003b; Eliason 2007) latent life path model can then be written as

$$\Pr R_{i11}, \dots, R_{ij1}, X_{i1}, \dots, R_{i1T}, \dots, R_{ijT}, X_{iT}, Y_i = \\ \left[\Pr R_{i11} | X_{i1} \dots \Pr R_{ij1} | X_{i1} \right] \dots \left[\Pr R_{i1T} | X_{iT} \dots \Pr R_{ijT} | X_{iT} \right] \left[\Pr X_{i1} | Y \dots \Pr X_{iT} | Y \right] \Pr Y$$

where the probability on the left-hand-side of the equal sign is the joint probability over the set of observed and latent variables and where the conditional probabilities on the right-hand-side consist of (1) the product of the set of conditional probabilities for the observed attainments R_{ijt} given the latent attainment configuration schema X_{it} at times $t = 1, \dots, T$ (given in the first two sets of brackets), (2) the product of the conditional probabilities of the latent attainment configuration schema X_{it} given the latent life path schema Y (given in the third set of brackets), and (3) the unconditional probability of the latent life path variable Y (given outside the last set of brackets).

Estimates of the conditional probabilities $\Pr R_{ijt} | X_{it}$ give the degree to which the j 'th observed attainment at age t , R_{ijt} , is embedded in, or constituent of, the age-graded latent attainment configuration schema X_{it} . Similarly, estimates of the conditional probabilities $\Pr X_{it} | Y$ give the degree to which the latent attainment configuration schema X_{it} is embedded in latent life path schema Y . By exploiting the person-period nature of the data, we estimate the model in a single stage using a nonparametric multilevel latent class specification in Latent Gold (Vermunt and Magidson 2005; Vermunt 2003). The BIC statistic is used in our analyses to guide model selection.

RESULTS

Latent Life Paths: Career-Education Trajectories

Using the BIC statistic, we found that the best fit for the YDS cohort trajectories of career and educational attainment is a model with six latent attainment configurations and six latent life paths (fit statistics not shown). Given their greater interest and space limitations, we concentrate on the results for the latent life paths, and how attainments are embedded therein, rather than on the attainment configurations. Figure 1 shows how individual attainments are embedded in each of the estimated life path schema in the YDS cohort from ages 18 to 32. For each graph in Figure 1, we show the probabilities of having a self-identified career, a job that provides skills leading toward a career, a job that is not a career, not being employed, and don't know. We also show the probabilities of attainment of a high school degree or less, some college, associates or vocational-technical degree, and Bachelor's degree or higher. These probabilities are calculated, and the graphs in Figure 1 constructed, as described in Macmillan and Eliason (2003b). Missing data are incorporated in the estimation procedure by including such cases as another discrete category.

[Figure 1 about here]

The four latent life paths represent varying probabilities, over time, of being in the five categories indicating subjective assessment of the current job as a career (that is, the job is a career, it provides skills for a career, it has no career potential, and not employed) and the categories indicating completion of postsecondary degrees (yes=1, no=0). Latent life path 1 represents the ideal toward which most teenagers and their parents aspire. It is a group that moves relatively smoothly toward careers via strong educational investment. We call it the "Bachelor's to Career" pathway since there is an extremely high probability of acquiring a Bachelor's degree. Persons following this pathway also exhibit a high probability of moving into a career, or a job that provides the skills for a career, shortly thereafter. While being much less prevalent previously, these two beneficial occupational states together have a probability of about 60 to 70 percent starting in 1997, when this cohort is likely to be out of college. Thus, there is some evidence for a

boost in the probability of a career or career-like job right after the attainment of a Bachelor's degree. Note that the probabilities of being in a job unrelated to a career or not employed decrease as this group acquires the Bachelor's degree.

Latent life path 2 represents a group with a fairly rapid school-to-work transition despite the absence of BA receipt. It manifests a high probability of calling the current job a career shortly after high school, and increasingly thereafter. We therefore call this pattern the "Associates/Vo-tech to Career" pathway. Many of the youth in this category consider themselves as occupying "career jobs;" they also have a high probability of an associates/vocational technical degree and near zero probability of receiving a Bachelor's degree throughout the observation period. They also have diminishing probability over time of being in "floundering-like" positions: not employed or occupying a job they consider as lacking career potential. Their probability of having a "stepping-stone-type" job that provides skills for a career remains relatively stable at about 20 percent. Thus, youth following this pathway have a high probability of being in either a career or a job that provides skills for a career, with about a 60 percent chance of being in one of those categories seven years after high school (1998).

Pathways 3 and 4 show little evidence of successful career establishment; they can best be described as "floundering." These groups have a near zero probability of attainment of a Bachelor's degree until the very end of the observation period, when there is only a slight increase. Further, the probability of having a job they would consider as a career, while increasing over this period, never gets much higher than about 20 percent. The probability of not being employed is also the highest for these groups. These two groups differ, however, in that one pathway does not include higher education, while the other attempts higher education but never has a high probability of attaining a postsecondary degree.

There are two remaining latent life paths. First, pathway 5 (not shown) has a near total probability of being missing on both variables of interest and thus is not discussed further. These constitute the group that attrited from the panel relatively early. Latent life path 6 represents a

group that has a high probability of having missing data, but not completely. That is, these are individuals who intermittently participated in the study. Because of the restricted number of observations, it is difficult to understand exactly what is happening in this group.

Precursors of School to Work Trajectories

Next, we seek to understand the precursors of these trajectories. Using a modal assignment rule for the respondents, we treat the latent life paths as our outcome and use multinomial logistic regression to examine the background factors associated with them. We included a variety of early factors that may affect career acquisition and educational attainment, including composite measures of socioeconomic background (e.g., parent's occupational status, family income, and parent's education level), academic promise (e.g., grade point average, academic self-esteem, educational aspirations, intrinsic motivation toward school, school problem behavior, and parent's educational expectations for their child), economic efficacy and work values, gender, and teenage work investments. Though not shown, we found that youth who avoided the floundering pathways by taking the college route to career were of higher socioeconomic status. They engaged in "steady" work during high school (i.e., limited hours of paid work over the duration of high school), or they avoided employment entirely rather than working "sporadically." They also engaged in more extracurricular activities during high school. Youth were especially likely to take the "Bachelor's to Career", rather than floundering, if they had both high academic promise and economic efficacy. These were youth who were interested in school, achieved high grades, and looked forward to having jobs as adults that would enable them to express their interests and abilities and be of service to others.

Other youth entered self-identified careers, and avoided floundering, in the absence of a college degree (i.e., "Associates/Vo-tech to Career"). Females were less likely to flounder during the transition to adulthood as extracurricular activities increased. The two floundering groups were distinguished by high academic promise. The "Some College Floundering" pathway had

higher school grades, educational aspirations, intrinsic motivation toward school, and academic self-esteem than the “High School Floundering” group.

We also examined some outcomes in adulthood of these career-education trajectories. Occupational income is indicated by Hauser and Warren’s (1997) composite measure of occupational earnings (based upon the average occupational earnings of workers in the Census). We also include measures of how much money the youth have currently saved, the approximate value of their retirement account, and the extent to which they have difficulty paying bills, feel burdened by debt, and feel stress from financial obligations. As shown in Figure 2, persons who followed the “Bachelor’s into career” latent life path are presently doing the best financially whereas the “High School Floundering” group are doing the worst. The findings shown in Figure 2 also suggest that the “Associates/Vo-tech to Career” group is better financially prepared for the future than the “Some College Floundering,” who are also more likely to be stressed about debt.

[Figure 2 here]

DISCUSSION

Our latent life path models allowed a careful examination of the interrelationships of school and career establishment after high school over the period of young adulthood. The latent life path analysis shows four main latent pathways of the school to work transition: those who go quickly into a career after high school and receive an Associates or Vo-tech degree, those who receive a Bachelor’s degree and then enter a career, and two groups of youth who “flounder” without making a successful career transition during their twenties. Even allowing for reversibility, no pathway showed much decrease in the probability of the current job being labeled a career or as a steppingstone to a career. The fact that we could not identify groups characterized by receipt of a bachelor’s degree or Associates/Vo-tech degree and floundering suggests the importance of these educational credentials in contemporary youth labor markets.

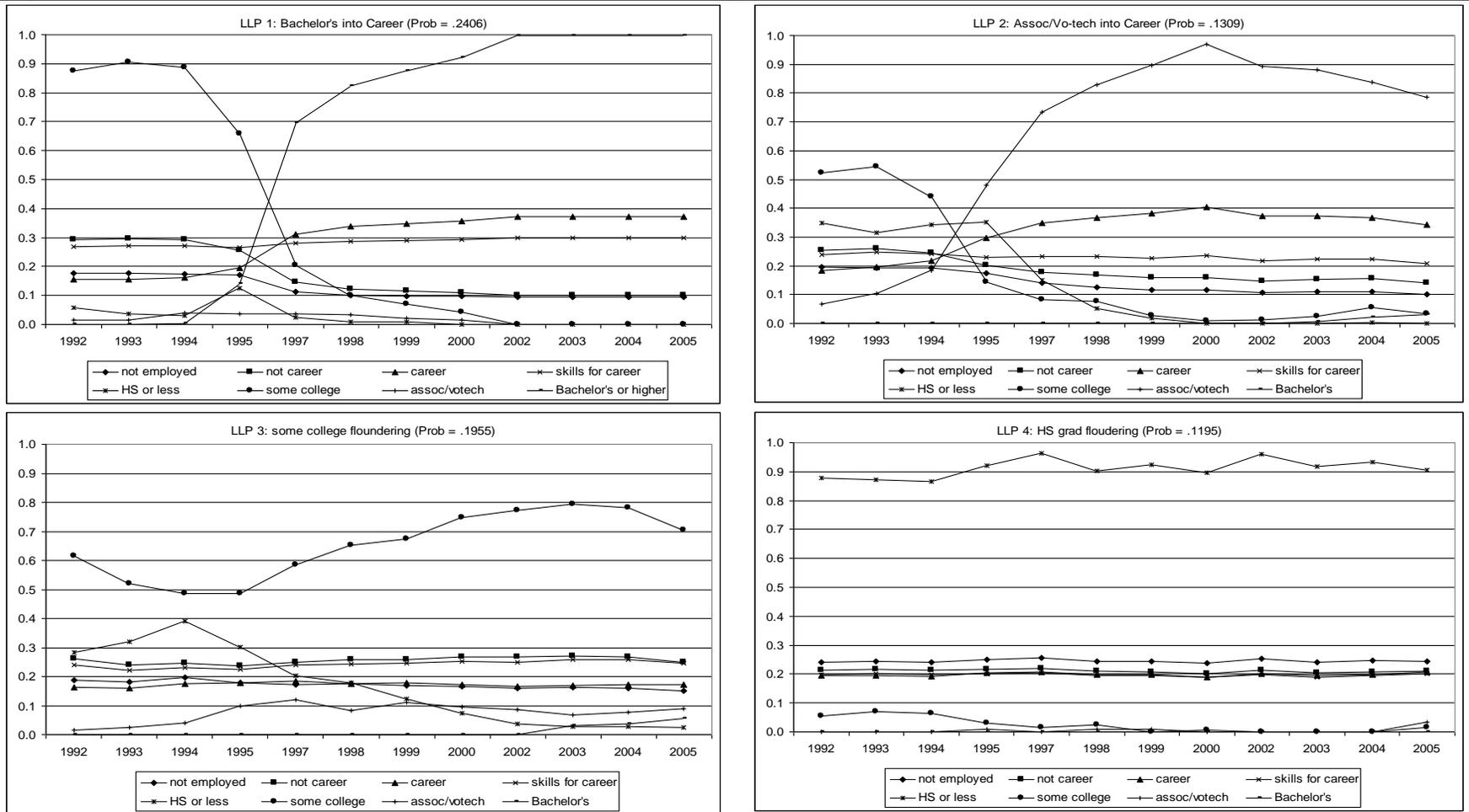
While the two pathways to careers--through Associates/Vo-tech degrees or via higher education --both represent viable school-to-work transitions, they have quite different socioeconomic outcomes. Thus, the question as to whether early or later career acquisition is “good” depends on the resources and constraints young people face as they make the transition from school to work. For youth whose family resources, educational aspirations, and academic capacities make the successful pursuit of higher education less feasible, acquiring a self-identified career early on could constitute a better alternative than drifting and “floundering” between unrelated jobs. This less promising pathway becomes more likely when negative prior experiences, involving lower social class background, sporadic work, and lower academic achievement, provide little preparation for either higher education or early career acquisition. Excessive “floundering” during the transition to adulthood impedes the acquisition of human capital either through school or through work. “Floundering” youth fail to accomplish a successful school-to-work transition.

Though many have touted the benefits of occupational exploration that may come with an extended transition to adulthood (Arnett 2000; Keith and McWilliams 1999), others point out that problems in becoming established in the labor market can result in lost opportunity for on-the-job training and other work socialization that enhances human capital, employment stability, and occupational attainment (Corcoran and Matsudaira 2005; Hamilton 1990). Our latent life path analysis shows that there exists a fairly sizable group for whom floundering is a continuing concern. While the Associates/Votech and Bachelor’s groups both show increases in the probability of attaining a career, during which time exploration may be possible, the floundering groups experience no such increase in the probability of a subjectively identified career or of a job that provides the skills for a career. Our analyses show that the floundering groups have multiple disadvantages, including deficits in socioeconomic resources and social capital, as well as both family and work motivations, which have longer-term financial impacts in adulthood.

REFERENCES

- Arnett, Jeffrey Jensen. 2000. "Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties." *American Psychologist* 55:469–480.
- Arum, R. and M. Hout. 1998. "The Early Returns: The Transition from School to Work in the United States." In Y. Shavit and W. Müller (eds.) *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*. Oxford, England: Clarendon Press, 1998.
- Corcoran, Mary and Jordan Matsudaira. 2005. "Is It Getting Harder to Get Ahead? Economic Attainment in Early Adulthood for Two Cohorts." Pp. 356-395 in Richard A. Settersten, Jr., Frank F. Furstenberg, Jr., and Ruben G. Rumbaut (eds.), *On the Frontier of Adulthood: Theory, Research, and Public Policy*. Chicago: University of Chicago Press.
- Eliason, Scott R., Jeylan T. Mortimer, Mike Vuolo, and Eric Tranby. 2007. Pathways to Adulthood, Subjective Timing, and Adult Identity: Normative Age Grading Revisited. Paper presented at the 2007 Annual Meeting of the American Sociological Association, New York.
- Hamilton, Stephen F. 1990. *Apprenticeship for Adulthood: Preparing Youth for the Future*. New York: Free Press.
- Hauser, Robert M. and John Robert Warren. 1997. "Socioeconomic Index of Occupational Status: A Review, Update, and Critique." *Sociological Research Methodology* 27:177-298.
- Keith, Kristen, and Abigail McWilliams. 1999. "The Returns to Mobility and Job Search by Gender." *Industrial and Labor Relations Review* 52:460-477.
- Kerckhoff, Alan C. 2002. "The Transition from School to Work." Pp. 52-87 in Jeylan T. Mortimer and Reed Larson (eds.) *The Changing Adolescent Experience: Societal Trends and the Transition to Adulthood*. New York: Cambridge University Press.
- Macmillan, Ross, and Scott R. Eliason. 2003a. "Social Differentiation in the Structure of the Life Course: Latent Life Paths in the Transition to Adulthood in the United States." Unpublished Manuscript.
- Macmillan, Ross, and Scott R. Eliason. 2003b. "Characterizing the Life Course as Role Configurations and Pathways: A Latent Structure Approach." Pp. 529-554 in Jeylan T. Mortimer and Michael J. Shanahan (eds.), *Handbook of the Life Course*. New York: Kluwer Academic/Plenum Publishers.
- Mortimer, Jeylan T. 2003. *Working and Growing Up in America*. Cambridge: Harvard University Press.
- Shanahan, Michael J. 2000. "Pathways to Adulthood in Changing Societies: Variability and mechanisms in life course perspective." *Annual Review of Sociology* 26: 667-692
- Staff, Jeremy, and Jeylan T. Mortimer. 2007. "Educational and work strategies from adolescence to early adulthood: Consequences for educational attainment." *Social Forces* 85:1169-1194.
- Vermunt, Jeroen. K. 2003. "Multilevel Latent Class Models." *Sociological Methodology* 33:213-239.
- Vermunt, Jeroen and Jay Magidson. 2005. *Technical Guide for Latent GOLD 4.0: Basic and Advanced*. Belmont Massachusetts: Statistical Innovations Inc.

Figure 1: Latent Life Paths of Career Status and Bachelor's Degree Attainment for the YDS cohort 1992 to 2005



Note: Two other latent life paths had high probabilities of missing data. LLP5 is more likely to have missing than complete data, with the probability of missing data increasing throughout the observation period. This group has a population probability of .1400. LLP 6 contained those in the population with a near total probability of being completely missing throughout the entire observation period. This group has a population probability of .1309.

Figure 2. Financial Outcomes in Adulthood (2005) by Latent Life Paths

