Income and alcohol consumption: Investigating the links between lifecourse income trajectories and adult drinking patterns

Short title: Income trajectories and alcohol use

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ABSTRACT

Little research exists on the ways that lifecourse income trajectories influence alcohol consumption. Aims: We evaluated the relationship between lifetime income trajectories and adult alcohol use. Design: We used a population-based cohort who had been followed from 1968-2003. Setting: The sample was nationally representative at the start of the study. Participants: We examined 6729 respondents to the Panel Study of Income Dynamics, aged 18-59 in 1996 and stratified by age. Measurements: Latent class growth mixture models with a censored normal distribution were used to estimate income trajectories respondents followed from 1968-1996, while repeated measures cumulative logit models estimated the number of drinks consumed per day in 1999-2003. Findings: Lower lifetime income trajectories were associated with higher odds of reporting lower drinking levels: for example, among 18-29 year-olds, belonging to the very low income group (rather than the high curvilinear income group) was associated with 2.83 times higher odds of consuming fewer drinks (95% CI: 1.66, 4.80), while belonging to the medium curvilinear group was associated with 1.49 (95% CI: 1.14, 1.95) higher odds of reporting lower drinking levels. Income at the past interview was not associated with alcohol use. Conclusions: Health risk behaviors such as alcohol use may depend not only on recent socioeconomic conditions, but also on the shape of lifetime socioeconomic patterns.

INTRODUCTION

In 2001-2, 8.9% of White adults and 6.86% of Black adults exhibited an alcohol use disorder (1). Alcohol abuse accounts for approximately 105,000 deaths each year in the United States, associated with intentional and unintentional injury, cirrhosis, stroke, pneumonia, and cancers of the digestive system (2). Almost two-fifths of traffic fatalities are the result of alcohol abuse. For each death, alcohol is associated with many more cases of nonfatal illness due to cirrhosis, cancer, fetal alcohol syndrome and violence (2).

The relationship between income and alcohol use is equivocal. While some studies have documented a positive relationship between income and alcohol use (3-5), others have found that individuals at lower levels of socioeconomic status consume higher levels of alcohol (6-10). The positive relationship between income and alcohol use has been explained by the availability of different levels of disposable income to purchase alcohol across income groups (11). An alternate explanation for this finding is that among higher income individuals, job- and socially-related networking may be more likely to involve social drinking (12). The negative relationship between income and alcohol use, in contrast, may be explained by the notion of "self-medication", whereby respondents exposed to higher levels of stressors (as would be expected at lower levels of income) use alcohol as a way to relieve stressful life experiences or to alleviate strain (13).

Past research suggests that long-term measures of financial conditions are better predictors of health than single-year measures (14). The importance of accounting for the temporal dimension of income is particularly pertinent if one considers the dynamic nature of financial resources: income fluctuates due to factors such as job loss or exit from the workforce, while spikes in income may result from a transition into a different field or job re-entry after

unemployment (15). Different aspects of income, such as the duration of time exposed to particular levels of income, the magnitude of change over time, such as abrupt declines in income, as well as instability in income, have been linked to health status (16). Short-term income measures fail to capture such fluctuations or reflect access to resources over the lifecourse. Moreover, persons who may appear comparable in income at a given point in time may in fact have quite distinct income histories over their lifetime (15).

Despite evidence in other areas of health that points to the importance of considering how the dynamics of socioeconomic stratification over time shape health status (17, 18), few studies have examined the relationship between the evolution of income over the lifecourse and alcohol use (6, 7, 19, 20). The studies that have examined the contribution of socioeconomic adversity in childhood and adulthood to drinking levels have concluded that persistent disadvantage in childhood and adulthood was associated with a higher risk of heavy drinking than disadvantage at one particular point in time (6, 7, 19, 20). Further research is needed to understand how different aspects of lifecourse income trajectories, including level, change and instability in income shape patterns of alcohol use. Such information will help us to better understand the timing and the mechanisms through which income may influence risk behaviors such as alcohol consumption.

In this study, we investigated the relationship between income dynamics over the lifecourse and alcohol use by first classifying respondents according to the income trajectory they followed from 1968 to 1999, and then estimating the relationship between particular income trajectories and alcohol use patterns between 1999 and 2003. Growth mixture models are able to empirically determine the different types of lifecourse income trajectories persons follow, and

thus simultaneously examine how duration of exposure to different income levels, magnitude of change in income, and variability in income over the lifecourse, shape alcohol use patterns.

METHODS

The PSID consists of two sub-samples: a sample of 3000 families taken from all areas of the country, and a sample of 2000 families living in low-income counties. Taken together, the two original samples, with appropriate weights, constituted a national sample of the US population with an oversample of poor families. Interviews were conducted annually from 1968-1997 and biannually since 1997. Socioeconomic and health information was collected for the head of the household and the wife or long-term cohabitating partner at each interview. The original sample consisted of 9053 respondents who were household heads or "wives" in 1999, 2001 or 2003. From this sample, we restricted the analytic sample to those that were: 1) heads or wives who responded to the alcohol questions for at least two years of 1999, 2001, and 2003; 2) had three years of income data for their family in 1968-1996; and 3) were adults (18-59 years old) by 1996. We divided the sample into three groups that represented relatively distinct developmental and financial stages of life: 1) 18-29 years old (young adulthood); 2) 30-44 years of age (middle adulthood); and 3) 45-59 years old (late adulthood).

Measures

Daily alcohol consumption

Alcohol use was measured in 1999, 2001 and 2003, using categories based on the self-reported average daily number of drinks: 0=non-drinker, 1= <1 drink per day, 2=1-2 drinks per day, 3=3+ drinks per day.

Income

Taxable and transfer household income, adjusted for inflation using the Consumer Price Index, was assessed from 1968 to 2001. Income was treated in two different ways in the analyses: 1) a long-term household income trajectory in 1968-1996 during the respondent lifetime; and 2) short-term income, as reported in the interview prior to the assessment of the alcohol outcome—that is, measured in 1997, 1999 and 2001.

Confounders

Lifetime confounders, measured in the years 1968-1996 during which the respondent was alive, were: 1) proportion of years the family owned their home; 2) proportion of years the head of the household worked in a blue collar position, compared to a non-blue collar position; 3) proportion of years the head of household was married; 4) average household size from 1968-1996; and 5) wealth history patterns. Historical wealth data was only available in 1984, 1989, and 1994, and was measured as the numeric value of the family's wealth at that year, which ranged from negative values (indicating more debt than wealth) to positive values (indicating more wealth than debt). Respondent wealth history was classified as one of the following patterns of wealth accumulation from 1984-1994: 1) continuously positive wealth; 2) increasing wealth (negative or zero wealth to positive wealth); and 3) decreasing, continuously negative or continuously zero wealth.

Short-term confounder information, assessed at the interview prior to the one when alcohol was measured (i.e. in 1997, 1999, and 2001) included: 1) wealth; 2) log-adjusted household income; 3) household size; 4) home ownership status; 5) marital status; 6) total years of education up to that interview; 7) age; and 8) occupation. Wealth was classified as negative (more debt than wealth), zero wealth, and positive wealth, with the latter divided into quartiles of positive wealth. Marital status was classified as: 1) widowed, divorced, or separated; 2) single;

and 3) married. Occupation was categorized as blue collar or non-blue collar.

Constant demographic variables were gender and race/ethnicity (white, black, and other).

Analysis

We conducted two types of analyses: 1) to estimate the types of income trajectories respondents followed from 1968-1996; and 2) to estimate the relationship between short- and long-term income and alcohol consumption, controlling for a series of short- and long-term socio-demographic characteristics.

Income trajectories

We used semi-parametric group-based modeling(21) to identify the number of lifetime household income patterns respondents followed, stratified by age group. These models were determined based on income data that was available in 1968-1996 for the respondents' household during the time the respondent was alive.

Rather than capturing variability in trajectories through a random coefficient like traditional growth curve models do, group-based models assume that the sample is composed of a mixture of underlying trajectory groups, each defined by an average growth curve (22). Using PROC TRAJ, we estimated cubic polynomial censored normal models of log adjusted household income. We fit separate models with two to five trajectory groups, due to sample size restrictions, and used the Bayesian Information Criterion (BIC) to select the best-fitting model. Once we had selected the optimal number of groups for each outcome, we determined the optimal number of parameters to define the shape of each trajectory group (i.e. linear, quadratic, cubic) by their significance at the $p<0.05$ significance level.

Alcohol trajectories

Once we had identified the optimal number of income trajectories followed for each age group, we used repeated measures cumulative logit models to estimate the odds of reporting a lower level of drinking in 1999, 2001 or 2003. We accounted for clustering within individuals and within households over time, since we predicted that household heads and wives from the same household could exhibit similar patterns of alcohol use based on cohabitation. For each age group, we first estimated a model with demographic characteristics, lifetime and lagged income as predictors, then incorporated lifetime and lagged wealth as predictors to test whether they explained the association between income and alcohol, and finally incorporated time-varying socio-demographic and socio-economic characteristics that could mediate the association between income and alcohol, independent of wealth.

RESULTS

As shown in Table 1, the analytic sample included 1953 respondents aged 18-29 in 1996 (average age: 24.5 years), 2994 respondents aged 30-44 in 1996 (average age: 36.9), and 1332 respondents aged 45-59 in 1996 (average age: 50.3). Approximately half of the sample that drank in each age group consumed less than one drink per day in 1999 (45.5% of 18-29 year-olds, 44.8% of 30-44 year-olds, and 43.5% of 45-59 year-olds), 6.5-9.9% of each sample consumed 1-2 drinks per day, and 2.3-3.6% consumed 3 or more drinks per day. 59.1-72.5% of the respondents were of White race/ethnicity, depending on the age group, and 25.4-38.8% was Black. In 1997, the average income was also higher for the older age groups: 18-29 year-olds reported an average household income of $31,571.2, while 30-44 year-olds had an average income of $39,735.5 and 45-59 year-olds had an average income of $48,533. A comparable proportion of respondents in different age groups had positive family wealth in 1984-1994 (64.9% of 18-29 year-olds, 64.2% of 30-44 year-olds and 76.1% of 45-59 year-olds). In 1997,

the proportion of respondents with positive wealth increased with age: while 72.6% of 18-29 year-olds had positive wealth, 4.9% of 30-44 year-olds and 96.5% of 45-59 year-olds had positive wealth. Respondents had spent, on average, 28-37% of the years from 1968-1996 living in a household where the head held a blue-collar job, and in 1997, 39.9-48.4% of respondents lived in a household where the head of the household had a blue-collar type of employment.

Identification of income trajectories

The five-group trajectory model provided the best fit for the household income data for the 18-29 year-olds (Figure 1). Average posterior group membership probabilities for the five-group model ranged between 0.89 and 0.93 (Appendix Table 1). The largest group (47.2% of sample) consisted of respondents whose income increased from an average of $38,620 in 1968, to $55,897 in 1987, and decreased again to $38,208 by 1996 ("medium-curvilinear income" group). The second-largest group (25.2% of sample) exhibited consistently low levels of income, ranging from $23,000 in 1968 to $24,210 in 1996 ("low-stable income" group). One of the groups (16.1% of sample) exhibited a high level of income that peaked in 1987-1989 at approximately $108,133, and decreased to $79,620 by 1996 ("high-curvilinear income" group), while another group (7.3% of sample) showed a decreasing pattern of low income, with a decrease from $32,955 in 1968 to $2619 in 1996 (“very-low income” group). Finally, the smallest group (4.2% of the sample) showed a fluctuating low income, which dropped from $18,171 in 1968 to $3626 in 1988, and then increased again to $14,905 in 1996 (“low-decreasing income” group).

The 30-44 year-old cohort also presented a five-group trajectory model for household income (Figure 2). Average posterior group membership probabilities for the five-group model ranged between 0.90 and 0.98 (Appendix Table 2). The second-largest group (29.1%) lived in a

high-income household, ranging from a low of $61,897 in 1968 to a high of $83,948 in 1996 ("high-income" group), while the largest group (29.3%) had an income that decreased from $53,663 in 1973 to $39,307 in 1996 ("decreasing-medium income" group). The third-largest group (21.0%) had a household income that increased from $19,233 in 1968 to $42,562 in 1996 ("increasing-low-to-medium income" group). Two small groups of respondents exhibited consistently low income: the "stable-low income" group (13.8%) had an average income which ranged from $20,354 in 1968 to $11,260 in 1996, while the "decreasing-low income" (2.4%) experienced a gradual decrease from $22,107 in 1968 to $1,862 in 1996.

The 45-59 year-old cohort respondents were classified into five household income patterns from 1968-1996 (Figure 3). Average posterior group membership probabilities for the five-group model ranged between 0.89 and 0.98 (Appendix Table 3). The majority of respondents lived in a household with a relatively stable level of income throughout the study period: 47.4% of respondents had a medium level of income which ranged from $42,776 in 1968 to $73,453 in 1996 ("increasing-medium income" group), 29.5% lived in a household with a medium-low income ranging from $31,423 in 1968 to $29,483 in 1996 ("stable-medium-low income" group), 9.7% had a stable-low income, ranging from $16,587 in 1968 to $9,733 in 1996. The "increasing-high income" group (11.1%) experienced an increase from $60,598 in 1968 to $157,972 in 1996. Finally, 2.2% of respondents experienced a drop in income from low to very low levels, starting at $28,847 in 1968 to $21206 in 1996 ("decreasing-low income" group).

Level of alcohol consumption

For the 18-29 year-old cohort, controlling for sex, age, and race/ethnicity (Table 2, Model 1), lower lifetime income trajectories were associated with higher odds of reporting lower levels of drinking: relative to the high-curvilinear income trajectory, following a very-low income

trajectory was associated with 2.4 times higher odds of reporting less drinking (95% CI: 1.7, 3.4), while following a low-decreasing income was marginally associated with 1.5 times higher odds of reporting less drinking (95% CI: 1.0, 2.3), following a low-stable income was associated with a 2.0 times higher odds of reporting fewer drinks per day (95% CI: 1.6, 2.6), and living in a household with a medium-curvilinear income was associated with a 1.6 times higher odds of drinking less (95% CI: 1.3, 2.0). Income at the past interview was not associated with alcohol use (OR: 1.0; 95% CI: 0.9, 1.1). The associations between lifetime income and alcohol remained robust to adjustment for time-varying covariates such as wealth, (Table 2, Model 2), marital status, employment and home ownership (Table 2, Model 3). Living in a household where the head was in a blue-collar profession for more years was associated with higher odds of drinking at lower levels, independent of other socio-demographic covariates (OR: 2.0; 95% CI: 1.4, 2.9). Marital status was also associated with alcohol use: the proportion of years married was associated with higher odds of drinking at lower levels (OR: 2.1; 95% CI: 1.3, 3.4), while being separated/widowed or divorced (OR: 0.5; 95% CI: 0.4, 0.7) or never having married (OR: 0.5; 95% CI: 0.4, 0.6), was associated with a lower odds of drinking at lower levels than being married.

Lifetime income trajectories were also associated with drinking among 30-44 year-olds. Respondents who had a consistently lower income throughout the study period also had higher odds of reporting less drinking relative to those in the high-income trajectory (Table 3, Model 1): living in a household with a decreasing-low income or with a stable-low income were associated with 1.96 (95% CI: 1.3, 3.1) and 1.6 (95% CI: 1.3, 2.0) times higher odds of reporting a lower frequency of drinking respectively. An increasing low-to-medium income (OR: 1.9; 95% CI: 1.6, 2.4) or a decreasing-medium income (OR: 1.5; 95% CI: 1.2, 1.7) were also associated with

higher odds of reporting less drinking than having a high income. In contrast, income at the past interview was not associated with alcohol use (OR: 1.0; 95% CI: 1.0, 1.1). Controlling for wealth (Table 3, Model 2) or for other time-varying covariates (Table 3, Model 3) did not reduce the magnitude of the association between income trajectories and alcohol. In Model 3, respondents with negative wealth (OR: 1.4; 95% CI: 1.0, 1.9) and those in the first (OR: 1.6; 95% CI: 1.3, 2.1) and second wealth quartiles (OR: 1.5; 95% CI: 1.2, 1.8) had higher odds of reporting less drinking than those in the highest wealth quartile. Living with a family where the head of the household had occupied a blue-collar occupation for more years was associated with higher odds of drinking in lower quantities (OR: 1.4; 95% CI: 1.0, 1.9). Owning a home in the past interview was also associated with higher odds of drinking less (OR: 1.3; 95% CI: 1.1, 1.5), as was the proportion of years the respondent had been married (OR: 2.7; 95% CI: 1.9, 3.9).

The 45-59 year-old cohort exhibited comparable relationships between income and alcohol as the other younger cohorts. Following a lower income trajectory was associated with a higher likelihood of reporting fewer drinks per day (Table 4, Model 1): respondents in the stable-low income group had 3.0 times higher odds of reporting fewer drinks per day than those in the high-income group (95% CI: 1.8, 5.0), while following a stable-medium-low income trajectory was associated with 2.7 times higher odds of reporting less drinking (95% CI: 1.9, 3.9) and having an increasing-medium income was associated with 2.0 times higher odds of reporting less drinking (95% CI: 1.5, 2.7). Income at the past interview was also associated with drinking: a unit increase in the log of income predicted 0.88 times lower odds of reporting a lower level drinking (95% CI: 0.8, 1.0). Controlling for time-varying socio-economic and socio-demographic covariates, the difference in alcohol use between respondents in the decreasing-low income and the increasing high-income categories became non-significant; the difference

between the increasing-high income group with the other categories remained the same (Table 4, Model 3). The wealth history experienced by respondents also predicted alcohol consumption (Table 4, Model 3): having a history of negative, decreasing or zero wealth was associated with 1.7 (95% CI: 1.1, 2.7) times higher odds of reporting fewer drinks per day than having had a history of positive wealth. Finally, the proportion of years the respondent was married (OR: 2.9; 95% CI: 1.6, 5.1) and not working (OR: 1.6; 95% CI: 1.2, 2.2) were associated with higher odds of reporting a lower level of drinking.

DISCUSSION

This is one of the first studies to examine the relationship between lifetime income trajectories and alcohol consumption. Five trajectories optimally represented the groups of income over time in each of the three age cohorts studied. The trajectory groups included groups with stable income at low-, middle-, and high-income levels, as well as groups that experienced cumulative or temporary shifts in income over twenty-seven years. Across all age cohorts, level of income was the most important predictor of alcohol use: following a lower-income trajectory was consistently associated with higher odds of reporting lower levels of alcohol use. Timing of exposure also seemed to make a difference: we found a smaller difference in alcohol use between respondents in high-income groups and those who had a mid-level income earlier in life and then experienced a shift to low income, than between members of the high-income group and those who had a low income earlier on in life (irrespective of whether the income level increased to a mid-level income later on in life). Finally, income at the past interview was not associated with alcohol use, except among the 45-59 year-olds, where recent income was positively associated with alcohol use.

Lifetime income measures were better predictors of alcohol use than short-term measures, except in the oldest cohort. This is particularly noteworthy given that alcohol use may be hypothesized, at first glance, to be more sensitive to short-term changes in the social environment, in contrast to health indicators that are more likely to reflect biological factors or cumulative stressors over the long term, such as cardiovascular disease or cancer.(23) In the two younger cohorts, recent measures of income may less accurately reflect potential access to material resources and social networks than lifetime measures of income, since individuals may still be in school or in the process of developing their careers. Further, single-point measures of income may be noisy proxies for the long-term income trajectory. Previous studies that have incorporated a temporal element to other measures of socioeconomic status have reached similar conclusions: Caldwell et al., for example, found that multiple and persistent disadvantage posed the highest risk for heavy drinking(7), and Mossakowski reported that duration of poverty was a more important predictor of heavy drinking than present poverty.(9) Prior studies examining the relationship between income and other health outcomes have also found that long-term income may be a more significant predictor of health status than short-term income.(14)

The association between long-term income trajectory group membership and alcohol use was robust to the inclusion of other short- and long-term measures of socioeconomic position, including education, employment, and wealth. Rather, income, employment and wealth were independent predictors of alcohol use, and all three had a positive relationship with alcohol, so that respondents who followed lower income trajectories, had worked in blue-collar occupations for more years, and had lower levels of wealth at the past interview were more likely to drink less alcohol than respondents at higher income, occupation and wealth categories. Prior evidence on the relationship between different SES indicators and alcohol consumption is

inconsistent(24): while some studies found a positive relationship between indicators of lower levels of SES, such as holding a blue-collar occupation, persistent disadvantage, less than high school education, and low income, and alcohol use and abuse(6-10, 25-27), other studies found a positive relationship between occupying a higher level in the socioeconomic gradient, measured as income level, level of education, occupational activity, and employment, and alcohol use.(28-31) Contradictory findings may be due to differences in the choice of socioeconomic indicator, in the timing of measurement of SES and alcohol use, and in the type of alcohol outcome examined. Several processes may explain the positive association between income, wealth, occupation and average quantity of alcohol use observed in our study, including the availability of disposable income to spend on alcohol, participation in social networks that uphold social norms supportive of drinking, and opportunities for alcohol consumption associated with professional or managerial occupations (11, 12).

This study has several advantages over previous research on lifetime income and risk behaviors. First, we take advantage of the longitudinal, multi-generational study design, to measure respondents' annual or biannual household income from 1968 to 1996 without having to rely on retrospective reports. Lifetime income trajectories reflect childhood as well as adult household income. Second, we use empirical methods to identify the lifetime patterns of household income; hence, we can account for the heterogeneity of income patterns across the study sample, and we can simultaneously characterize how level and change in income over twenty-seven years influence alcohol use. The few existing studies on socioeconomic status and alcohol use that have integrated a temporal component into their measure of socioeconomic status have used repeated measures of socioeconomic status and alcohol(28, 29), measures of social class and education in childhood and adulthood(7, 25), change in employment status(31),

and duration of poverty.(9) Research focusing specifically on lifetime income and other health outcomes have examined the relationship between mean income over time, change in income, and income at specific periods(32), income loss over time(33), the average family-poverty income ratio over time(15), and stability in income.(34) No studies, to our knowledge, have used a person-centered empirical approach to characterize the different types of income trajectories individuals follow over time.

This study also has several limitations. First, the age range of study respondents made it necessary to stratify the sample by broad age categories: 18-29, 30-44, and 40-59. Within-cohort developmental heterogeneity in the implications of income and in the associations of interest may have affected results. However, we adjusted for age within each cohort, reducing such a limitation. Second, health selection, or reverse causation of health status on income, is always a concern in observational studies. The longitudinal study design, and the use of income measures prior to the measurement of alcohol, was used to account for temporality concerns. Third, adjusting for short-term measures of income and other social and economic characteristics in the presence of long-term (1968-1996) measures, may have led us to overcontrol for covariates in the causal pathway between long-term characteristics and alcohol. The robustness of the association of the long-term measures of interest and alcohol after controlling for their short-term counterparts, however, allayed this concern.

In conclusion, we found a robust, positive association between different indicators of short- and long-term SES and level of alcohol use. A comparative analysis of the influence of long- vs. short-term exposure to socioeconomic conditions on alcohol use allows us to better understand how timing, level, and fluctuations in socioeconomic conditions exert an influence on health. Models that capture the heterogeneity of socioeconomic trajectories over the lifecourse

offer a promising tool to identify the types of changing patterns of socioeconomic conditions that pose the highest risk for health. Future research needs to uncover the pathways through which lifetime income trajectories may influence risk behaviors such as alcohol use.

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Table 1. Respondent characteristics by age reported in 1996, PSID 1968-2003

	Age groups					
	18-29 year-olds (n=1953)		30-44 year-olds (n=2994)		45-59 year-olds (n=1332)	
	Mean or %	(SD or N)	Mean or %	(SD or N)	Mean or %	(SD or N)
Number of drinks per day, 1999						
0	30.4	594	38.8	1162	41.0	546
<1	45.5	888	44.8	1341	43.5	579
1-2	6.5	127	9.0	270	9.9	132
3+	2.3	44	3.6	108	2.9	39
Demographic characteristics, 1968-2001						
Sex						
Female	62.0	1201	61.6	1845	53.8	717
Male	38.0	752	38.4	1149	46.2	615
Race/ethnicity						
White	65.4	1278	59.1	1769	72.5	965
Black	32.5	634	38.8	1163	25.4	338
Other	2.0	39	2.0	59	2.2	29
Age (years), 1996	24.5	3.4	36.9	4.2	50.3	4.2
Marital status						
Proportion of years married, 1968-1996	0.7	0.3	0.7	0.3	0.7	0.3
Marital status, 1997						
Married	35.7	697	61.4	1838	65.8	876
Single	27.1	529	14.5	433	5.3	71
Widowed, divorced, separated	6.3	123	19.7	590	25.3	337
Home ownership						
Proportion of years owned home, 1968-1996	0.5	0.3	0.6	0.3	0.7	0.3

Home not owned, 1997	55.3	1079	38.0	1138	20.6	274
Household size						
Average household size, 1968-1996	4.2	1.2	4.2	1.3	3.6	1.3
Household size, 1997	2.9	1.4	3.4	1.5	2.8	1.4
Socioeconomic characteristics, 1968-2001						
Income						
Average income, 1997	31571.2	2.9	39735.5	3.6	48533.0	3.7
Wealth						
Wealth history, 1984-1994						
Increasing wealth	7.0	136	11.5	344	5.0	67
Negative, decreasing or zero wealth	17.7	345	15.2	1071	7.9	105
Positive wealth	64.9	1268	64.2	2994	76.1	1014
Wealth in 1997						
Negative wealth	22.2	434	19.3	397	6.5	86
Zero wealth	5.2	102	5.9	175	2.9	39
Wealth Quartile 1	18.2	355	21.0	628	22.8	303
Wealth Quartile 2	18.1	354	21.0	630	22.6	301
Wealth Quartile 3	18.1	354	20.9	626	22.7	302
Wealth Quartile 4	18.1	354	21.0	628	22.6	301
Employment						
Proportion of years in blue-collar employment, 1968-1996	0.4	0.3	0.4	0.3	0.3	0.3
Employment in 1997						
Blue-collar employment	44.1	862	44.5	1333	32.3	430
Professional/managerial employment	39.9	780	41.3	1236	48.4	645
Education						
Total years of education, 1997	12.9	1.9	13.2	2.04	13.5	2.6

Table 2. Cumulative logit models estimating the odds of reporting a lower level of drinking, for respondents aged 18-29 years old in 1996, PSID, 1999-2003

	Model 1 (n=1763)			Model 2 (n=1105)			Model 3 (n=939)		
	OR	95% CI		OR	95% CI		OR	95% CI	
Intercept 1	0.11	0.05	0.25	0.08	0.03	0.23	0.05	0.01	0.26
Intercept 2	2.08	0.95	4.58	1.60	0.59	4.29	1.17	0.24	5.70
Intercept 3	8.83	3.96	19.72	7.13	2.61	19.47	5.92	1.18	29.79
Income history 1968-1996									
Very low income	2.36	1.65	3.38	2.55	1.68	3.87	2.83	1.66	4.80
Low decreasing income	1.47	0.95	2.25	1.73	1.08	2.76	1.59	0.91	2.77
Low stable income	2.03	1.57	2.61	2.22	1.66	2.97	1.91	1.32	2.74
Medium curvilinear income	1.62	1.32	2.00	1.62	1.28	2.04	1.49	1.14	1.95
High curvilinear income (reference group)									
Income at the interview, 1997-2001	0.99	0.93	1.05	0.98	0.91	1.06	0.90	0.82	1.00
Constant covariates									
Sex									
Female	2.46	2.10	2.89	2.39	2.00	2.86	2.43	1.99	2.96
Race									
Other	1.20	0.75	1.94	1.34	0.76	2.36	1.32	0.72	2.42

Black	1.62	1.34	1.95	1.63	1.31	2.02	1.77	1.34	2.34
White (reference)									
Time-varying covariates									
Wealth									
Wealth history, 1984-1994									
Increasing				1.13	0.81	1.58	1.10	0.75	1.62
Negative, decreasing, or zero				0.91	0.72	1.15	0.96	0.74	1.24
Positive (reference)									
Wealth at Interview, 1999-2001									
Negative wealth				0.87	0.68	1.10	1.03	0.77	1.38
Zero wealth				0.97	0.63	1.50	1.25	0.76	2.06
Wealth Quartile 1				1.09	0.85	1.40	1.30	0.95	1.77
Wealth Quartile 2				1.06	0.84	1.34	1.08	0.82	1.43
Wealth Quartile 3				1.20	0.95	1.52	1.02	0.78	1.35
Wealth Quartile 4 (reference)									
Age at the interview, 1997-2001	1.02	1.00	1.04	1.02	1.00	1.05	1.02	0.99	1.05
Marital Status									
Proportion of years married, 1968-1996							2.08	1.27	3.42
Marital status at the interview, 1997-2001									
Separated/Widowed/Divorced							0.54	0.40	0.74

Never Married	0.49	0.37	0.64
Married (reference)			
Employment			
Proportion of years in blue-collar employment, 1968-1996	1.99	1.37	2.88
Employment at the interview, 1997-2001			
Blue collar employment	0.95	0.78	1.15
Not working	0.81	0.59	1.11
Professional/managerial employment (reference)			
Education			
Total years of education up to the interview, 1997-2001	1.04	0.98	1.09
Home ownership			
Proportion of years owned home, 1968-1996	0.94	0.61	1.45
Home owned at interview, 1997-2001	1.07	0.86	1.31
Home not owned (reference)			
Household size			
Average household size, 1997-2001	1.04	0.96	1.14
Average household size, 1968-1996	1.07	0.96	1.19

Table 3. Cumulative logit models estimating the odds of reporting a lower level of drinking, for respondents aged 30-44 years old in 1996, PSID, 1999-2003

	Model 1 (n=2820)			Model 2 (n=1719)			Model 3 (n=1608)		
	OR	95% CI		OR	95% CI		OR	95% CI	
Intercept 1	0.12	0.06	0.25	0.09	0.04	0.22	0.02	0.01	0.08
Intercept 2	1.28	0.62	2.65	0.92	0.37	2.27	0.27	0.08	0.93
Intercept 3	5.67	2.72	11.84	4.41	1.76	11.03	1.31	0.38	4.58
Income history 1968-1996									
Decreasing low income	1.96	1.26	3.06	1.99	1.14	3.49	2.67	1.42	5.03
Stable low income	1.59	1.25	2.03	1.64	1.22	2.19	2.12	1.49	3.00
Increasing low-to-medium-income	1.93	1.59	2.35	1.85	1.47	2.32	2.15	1.65	2.78
Decreasing medium income	1.45	1.24	1.69	1.32	1.11	1.58	1.41	1.16	1.72
High-income (reference)									
Income at the interview, 1997-2001	1.02	0.97	1.07	1.02	0.97	1.08	0.97	0.91	1.03
Constant covariates									
Sex									
Female	2.37	2.09	2.69	2.25	1.95	2.59	2.22	1.91	2.57
Race									

Other	1.36	0.90	2.05	1.30	0.84	2.02	1.16	0.74	1.82
Black	1.36	1.17	1.59	1.26	1.06	1.50	1.40	1.14	1.72
White (reference)									
Time-varying covariates									
Wealth									
Wealth history, 1984-1994									
Increasing				1.01	0.82	1.25	1.12	0.89	1.41
Negative, decreasing, or zero				0.87	0.71	1.06	0.93	0.75	1.15
Positive (reference)									
Wealth at Interview, 1999-2001									
Negative wealth				1.07	0.83	1.39	1.38	1.03	1.85
Zero wealth				0.96	0.66	1.38	1.42	0.93	2.15
Wealth Quartile 1				1.28	1.04	1.59	1.62	1.27	2.07
Wealth Quartile 2				1.47	1.20	1.79	1.47	1.19	1.81
Wealth Quartile 3				1.03	0.86	1.23	1.03	0.85	1.24
Wealth Quartile 4 (reference)									
Age at the interview, 1997-2001	1.01	1.00	1.02	1.02	1.00	1.03	1.02	1.00	1.04
Marital Status									
Proportion of years married, 1968-1996							2.72	1.89	3.90
Marital status at the interview, 1997-2001									

Separated/Widowed/Divorced	0.95	0.78	1.15
Never Married	0.96	0.73	1.27
Married (reference)			
Employment			
Proportion of years in blue-collar employment, 1968-1996	1.42	1.04	1.94
Employment at the interview, 1997-2001			
Blue collar employment	1.06	0.91	1.24
Not working	0.91	0.72	1.15
Professional/managerial employment (reference)			
Education			
Total years of education up to the interview, 1997-2001	1.02	0.98	1.06
Home ownership			
Proportion of years owned home, 1968-1996	1.22	0.89	1.68
Home owned at interview, 1997-2001	1.28	1.06	1.53
Home not owned (reference)			
Household size			
Average household size, 1997-2001	1.08	1.02	1.14
Average household size, 1968-1996	0.97	0.90	1.04

Table 4. Cumulative logit models estimating the odds of reporting a lower level of drinking, for respondents aged 45-59 years old in 1996, PSID, 1999-2003

	Model 1 (n=1284)			Model 2 (n=769)			Model 3 (n=731)		
	OR	95% CI		OR	95% CI		OR	95% CI	
Intercept 1	0.10	0.02	0.55	0.15	0.02	1.18	3.55	0.62	0.10
Intercept 2	1.09	0.20	5.88	1.58	0.19	12.80	3.54	7.62	0.70
Intercept 3	4.67	0.84	25.82	6.44	0.77	53.57	3.57	32.97	2.20
Income history 1968-1996									
Decreasing low income	1.29	0.62	2.70	1.09	0.44	2.65	0.71	0.27	1.85
Stable low income	2.99	1.78	5.01	2.48	1.33	4.61	2.87	1.44	5.70
Stable medium-low income	2.73	1.93	3.86	2.17	1.41	3.31	2.46	1.53	3.96
Increasing medium income	1.97	1.46	2.65	1.82	1.28	2.59	1.91	1.32	2.77
Increasing high-income (reference group)									
Income at the interview, 1997-2001	0.88	0.79	0.97	0.83	0.74	0.93	0.87	0.77	0.98
Constant covariates									
Sex									
Female	2.01	1.66	2.42	1.97	1.60	2.44	1.96	1.56	2.47
Race									
Other	0.86	0.39	1.89	0.63	0.28	1.43	0.52	0.20	1.33
Black	1.48	1.14	1.91	1.61	1.18	2.18	1.50	1.06	2.13

White (reference)									
Time-varying covariates									
Wealth									
Wealth history, 1984-1994									
Increasing				0.75	0.46	1.22	0.84	0.48	1.46
Negative, decreasing, or zero				1.32	0.85	2.07	1.70	1.07	2.71
Positive (reference)									
Wealth at Interview, 1999-2001									
Negative wealth				0.70	0.43	1.14	0.63	0.36	1.10
Zero wealth				0.68	0.29	1.58	0.45	0.17	1.16
Wealth Quartile 1				1.43	1.00	2.03	1.32	0.89	1.96
Wealth Quartile 2				1.33	0.98	1.82	1.26	0.90	1.76
Wealth Quartile 3				1.07	0.82	1.42	1.08	0.81	1.44
Wealth Quartile 4 (reference)									
Age at the interview, 1997-2001	1.04	1.02	1.06	1.05	1.02	1.07	1.04	1.01	1.07
Marital Status									
Proportion of years married, 1968-1996							2.85	1.59	5.11
Marital status at the interview, 1997-2001									
Separated/Widowed/Divorced							0.99	0.72	1.36
Never Married							1.75	0.93	3.30

Married (reference)			
Employment			
Proportion of years in blue-collar employment, 1968-1996	1.50	0.92	2.46
Employment at the interview, 1997-2001			
Blue collar employment	1.15	0.87	1.51
Not working	1.61	1.20	2.16
Professional/managerial employment (reference)			
Education			
Total years of education up to the interview, 1997-2001	0.95	0.89	1.00
Home ownership			
Proportion of years owned home, 1968-1996	1.23	0.74	2.04
Home owned at interview, 1997-2001	0.87	0.60	1.25
Home not owned (reference)			
Household size			
Average household size, 1997-2001	1.09	0.95	1.25
Average household size, 1968-1996	1.10	0.99	1.23

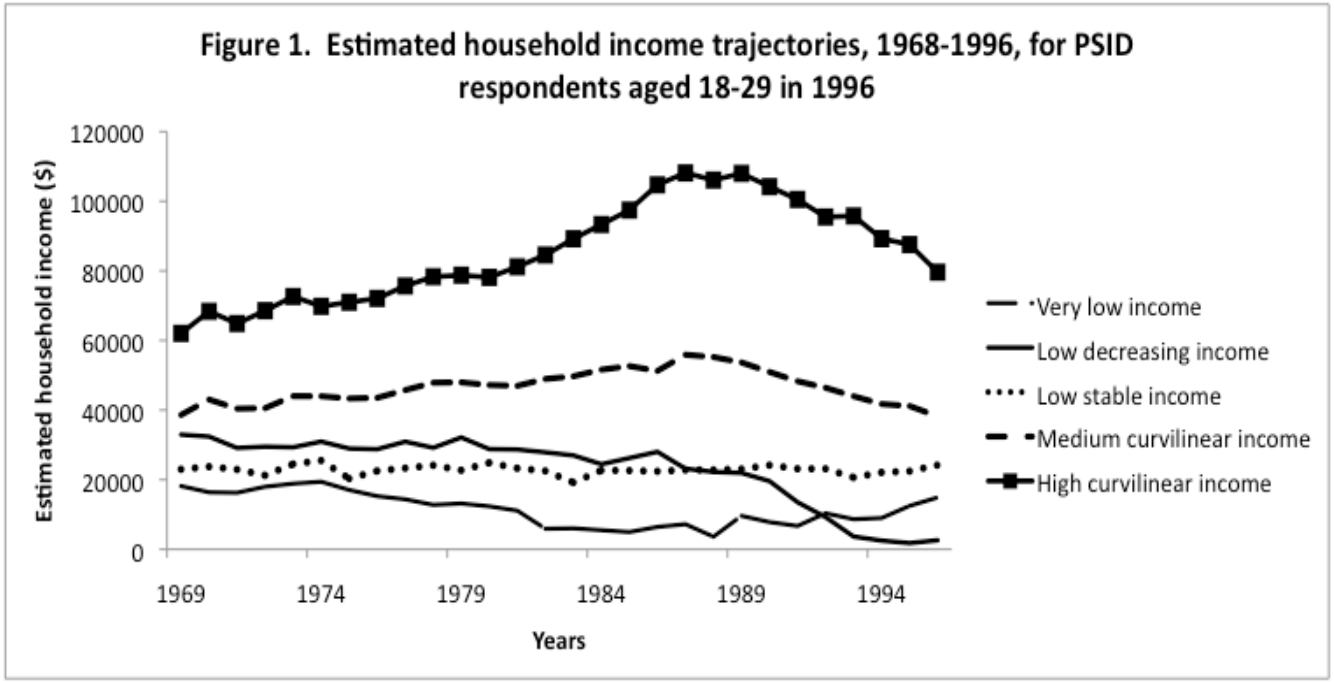
Figure 1. Estimated household income trajectories, 1968-1996, for PSID respondents aged 18-29 in 1996
Estimated household income ($)
120000
100000
80000
60000
40000
20000
0
1969
1974
1979
1984
1989
1994
Years
Very low income
Low decreasing income
Low stable income
Medium curvilinear income
High curvilinear income

Figure 2. Estimated household income trajectories, 1968-1996, for PSID respondents aged 30-44 in 1996

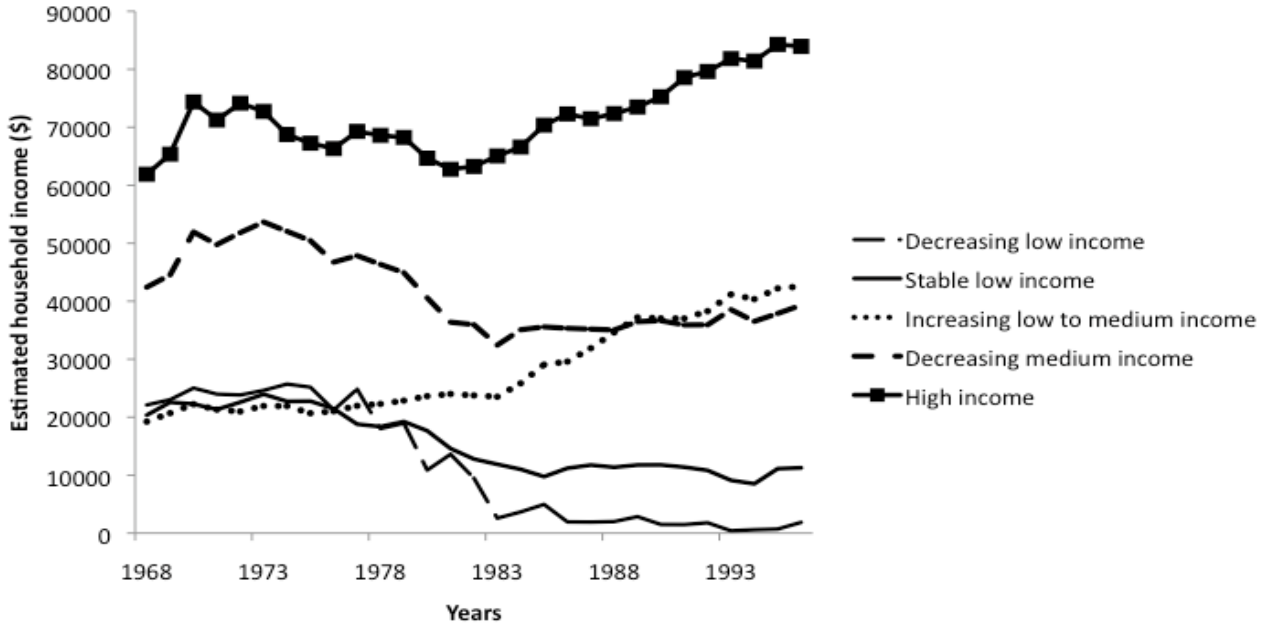

Figure 3. Estimated household income trajectories, 1968-1996, for PSID respondents aged 45-59 in 1996