Distribution Agreement

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis. I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Signature:

_____	_____
Benedic N. Ippolito	April 14, 2010

Alcohol and Income: Examining the Drinker's Bonus

by

Benedic N. Ippolito

Adviser

Dr. Sara Markowitz

Department of Economics

_____
Dr. Sara Markowitz
Adviser

_____
Dr. Hugo Mialon
Committee Member

_____
Dr. Skip Garibaldi
Committee Member

_____
Dr. Kathleen Adams
Committee Member

_____
April 14, 2010

Alcohol and Income: Examining the Drinker's Bonus

By

Benedic N. Ippolito

Adviser
Dr. Sara Markowitz

An abstract of
A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Department of Economics

2010

Abstract

Alcohol and Income: Examining the Drinker's Bonus
By Benedic N. Ippolito

Using data on males from the National Longitudinal Survey of Youth, this paper examines the relationship between current income and both contemporaneous drinking habits and past drinking habits. We expect both current and past drinking to be significant predictors of current income, and hypothesize this relationship is at least partially based on personality types. The results show a positive relationship between contemporaneous drinking and income, primarily from moderate drinkers. Personality, while related to income, does not affect this relationship. Past drinking is also found to be positively related to current income, and further, lessens the importance of current drinking habits. This may suggest that the relationship is driven by some unobserved characteristic.

Alcohol and Income: Examining the Drinker's Bonus

By

Benedic N. Ippolito

Adviser
Dr. Sara Markowitz

A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Department of Economics

2010

TABLE OF CONTENTS

LIST OF TABLES

ALCOHOL & INCOME: EXAMINING THE DRINKER'S BONUS

BENEDIC N. IPPOLITO
ADVISOR: DR. SARA MARKOWITZ
READER: DR. HUGO MIALON
READER: DR. SKIP GARIBALDI
READER: DR. KATHLEEN ADAMS

INTRODUCTION & PREVIOUS RESEARCH

Alcohol is the most commonly used drug in America, with 66 percent of citizens age 12 and older reporting use during the past 12 months, and 23 percent of drinkers reporting having binged in the past month [SAMHSA (2008)]. Given the prevalence of its use, and abuse, much research has been done to examine the costs associated with it. It is no surprise that alcohol is linked to a number of negative social consequences, like motor vehicle accidents and increased crime [Harwood (2000)]. Furthermore, it is widely accepted that alcohol abuse can have costly effects on one's own health, either through liver disease, high blood pressure, or other diseases. The effect of alcohol use on productivity and earnings, however, is less certain.

In the *Handbook of Health Economics,* Cook and Moore outline the findings of previous research in this area. The most consistent finding on the topic, however perplexing, is that drinkers earn more money than their non-drinking counterparts. This relationship seems to hold even when other individual characteristics, like gender, education, and race are held constant [Berger and Leigh (1988), Bryant et al. (1992), Zarkin et al. (1998)]. In some studies, this "Drinker's Bonus" appears to benefit moderate drinkers most [French and Zarkin (1995), MacDonald and Shields (2001)],

while others support the notion that it holds across all levels of drinking [Cook (1991), Auld (2005)].

The drinking bonus is problematic. Conventional wisdom suggests that alcohol should impair productivity (drinkers might have higher rates of absenteeism, have hangovers during work, etc…), and indeed, some research supports this notion [Harwood, Fountain and Livermore (1998), French and Zarkin (1995), Cruze et al. (1981)]. Because of this, it is probably reasonable to assume that alcohol is not actually *causing* workers to be more efficient or productive, but that begs the question: what does explain it?

Some have hypothesized that the relationship exists simply because ethanol (and in turn, alcohol) is a normal commodity [Cook and Peters (2005)]. In other words, an increase in a person's income actually causes an increase in the amount of alcohol he or she consumes. Others suggest that the drinker bonus is attributable to the positive health effects of moderate drinking. That is, since alcohol consumption (especially wine) exhibits a J-shaped inverse relationship with cardiovascular diseases, cerebrovascular (brain artery) diseases, and morbidity, moderate drinkers should be healthier, and thus, more productive than either abstainers or heavy drinkers [Heien (1996); Hamilton & Hamilton (1997)].

In my research, I explore an alternative hypothesis, namely, that alcohol use is related to networking and general social skills, which in turn affects wages. It has been shown that drinkers, especially moderate ones, are more social than their non-drinking counterparts [Buonanno and Vanin (2007); Peters and Stringham (2006); Leifman et al. (1995)]. Furthermore, drinking is often a social event, which not only brings people together, but helps them to develop their social skills and relationships. These skills and

connections are important in the labor market [Loannide and Loury (2004); Montgomery (1991)], and may help explain why drinkers earn more. For instance, if drinkers have better social skills they may perform more effectively in job interviews, be more comfortable networking, deal better with clients, and so on.

RESEARCH GOALS

In my research I have two main goals. First, I use cross-sectional data to examine the relationship between current alcohol use and current income. In other words, I will attempt to reproduce the calculations that revealed the drinker's bonus.

Second, I use panel data to examine how *past* drinking habits affect current income. In particular, I evaluate the hypothesis that those who drink moderately in their early adulthood (ages 17-25) are more productive later in life (ages 41-49), independent of drinking habits later in life.

I expect that young men and women who drink moderately early in life may spend more time in social settings cultivating friendships and social skills that are helpful in later adulthood (especially in the labor market). I expect abstainers to be more introverted and thus less likely to attend events in which alcohol use is common, and thus, to have fewer opportunities to develop their social skills. Those who are either heavy drinkers or binge drinkers when young may also lag in developing their social skills because their excessive drinking may make them less attractive candidates to invite to social events. Some research has suggested that moderate alcohol consumption could have a positive effect on human capital accumulation (the gathering of skills &

knowledge that are productive in some economic context, mainly in that they are valued in the labor market), which in turn should increase future income [Bray (2005)]. Furthermore, research has shown that heavy drinking early in life may inhibit human capital accumulation (namely educational attainment), which in turn reduces future earnings [Mullahy and Sindelar (1989, 1991)]. For this reason I include education to hold constant eventual human capital accumulation. Of course, to the extent that education does not fully capture this accumulation, there could be some residual effect in the data.

I recognize that I cannot distinguish the social skills theory from a selection hypothesis. That is, relative to those who drink moderately when young, abstainers may be more likely to be introverts; and heavy or binge drinkers when young are more likely to have underlying emotional issues such as depression or anxiety. In this theory, drinking habits when young do not reflect the development of social skills, but are markers for underlying attributes that affect productivity. In either theory, however, drinking habits when young serve as important predictors of productivity later in life.

In using the panel data, I hope to add to the discussion of drinking and productivity by examining the effects of drinking in the formative years on future earnings.

DATA

DATASET

In my research I use data from the National Longitudinal Survey of Youth (1979). The NLSY is run by the Human Resource Research Center at Ohio State University, with

support from the Department of Labor among other federal agencies. This survey is made up of a nationally representative sample of 12,686 young men and women who were 14-22 years old when they were first surveyed in 1979. Respondents were re-interviewed on an annual basis until 1994, after which they were interviewed bi-annually. I use 2006 as the ending year in the panel data. Respondents who were 14-22 in 1979 are aged 41-49 in 2006. Since my research is concerned with a period of time in which many of the females are in child bearing years, I will focus my analysis on males to avoid the endogeneity problems that arise from pregnancy, drinking, and income (See Table 1 for summary statistics).

The dataset includes income in every year in which the respondent was interviewed, and information on alcohol use in nine years of the panel. Since questions about alcohol use vary across the years, not all measures of past and present drinking are comparable over time. Some of the drinking variables that are available over time, however, do have minor variations because of changes in how questions were worded in various years. These differences are relatively small though, and are explained further in the discussion of Independent Variables. It is also important to note that although current and past drinking habits are related, the correlation is far from perfect. Table 2 shows the relationship between drinking and binging habits in 1982 and 2006. The shaded cells correspond to the respondents who had the same drinking tendencies in both years (i.e. their drinking habits in 2006 are the same as their drinking habits in 1982). Only roughly one-third of respondents fall into this group, while two-thirds of the population experienced some change in their drinking tendencies. Of those who changed, seventy-five percent reduced the amount they drank, while only twenty-five percent actually

drank more in 2006 than in 1982. Similarly, Table 3 in the appendix shows a similar correlation between 1988 and 2006 levels of drinking.

TABLE 2: CORRELATION BETWEEN CURRENT AND PAST DRINKING (2006 & 1982)

	CURRENT DRINKING BEHAVIOR				
PAST DRINKING BEHAVIOR (1982)	Abstain	CurrentBinge0	CurrentBinge1_3	CurrentBinge4_8	CurrentBinge9_
Abstain	12.77%	6.76%	1.29%	1.14%	0.60%
PastBinge0	8.72%	10.91%	1.41%	1.05%	0.57%
PastBinge1_3	10.19%	11.93%	4.00%	2.38%	1.50%
PastBinge4_7	4.48%	5.89%	1.95%	1.68%	1.38%
PastBinge8_	2.70%	2.91%	1.53%	1.50%	0.69%

DEPENDENT VARIABLE

My dependent variable is the logarithm of current income in 2006, the most recent year in which the NLSY includes a measure of both current income and current drinking. The income variable is measured as a self-reported combination of wages, salary, and tips from a given year.

INDEPENDENT VARIABLES

As independent variables, I include several demographic measures, including age, race (Black, Hispanic, Non-Black/Non-Hispanic omitted), and education (less than high school, some college, college graduate, more than college, high school graduate omitted). Other demographic variables include information about where respondents live (both the

region of the U.S. and whether the location is urban or rural) and marriage status (married, never married, other). Further, to control for health conditions that may negatively affect income, I include a dichotomous variable that denotes if a respondent reports a health condition that affects their ability to work.

I also include a measure of the respondent's "outgoingness," which is of particular interest in this study. In 1985, all respondents were asked to describe how outgoing or shy they were as adults. They could choose between extremely shy, somewhat shy, somewhat outgoing, and extremely outgoing. This characteristic helps to distinguish if drinkers of our sample are indeed more outgoing than abstainers. Further, it may potentially help explain higher wages among drinkers. All other demographic variables are taken from the 2006 panel.

Finally, I include several measures of both current and past alcohol use from the panel. I use data from 2006 to measure current drinking. Generally, I take previous drinking habits from 1982, the earliest year to include drinking variables. Further, in 1982, respondents were between 17 and 25 years old, making this a good measure of a respondent's drinking behavior in his formative years. I also later use information from the 1988 panel because it includes measures of alcohol use not available in 1982.

I measure alcohol use in several ways. First, *Abstainer* is a dichotomous variable indicating whether or not the respondent has consumed any alcohol in the past 30 days. Several dichotomous variables measure the extent of binge drinking (6 or more drinks in an occasion) for current and past drinking. For past drinking, these include: *PastBinge0*, if the respondent drinks but has not binged in last 30 days; *PastBinge1_3*, if the respondent drinks and has binged between one and three times in last 30 days;

PastBinge4_7, if the respondent drinks and has binged between 4 and 7 times in the past 30 days; and finally *PastBinge8_*, if the respondent drinks and has binged 8 or more times in the past month.

In 2006, this binging question was altered slightly to ask respondents to describe their binging habits in the past month on a per week basis (i.e. "once per week" as opposed to "four times per month"). To be as consistent as possible with my past binging categories, I aggregated these weekly numbers into the following monthly categories. While an effort was made to keep the categories as similar as possible, a slight difference was unavoidable. The categories from 2006 include: *CurrentBinge0*, if the respondent drinks but has not binged in the last 30 days; *CurrentBinge1_3*, if the respondent drinks and has binged between 1 and 3 times in the past 30 days; *CurrentBinge4_8*, if the respondent drinks and has binged between 4 and 8 times in the past month; and finally *CurrentBinge9_*, if the respondent drinks and has binged 9 or more times in the past 30 days.

I also capture the amount of alcohol consumed in a series of dichotomous variables that consider how often and how much a respondent usually drinks in a week. *DrinkOccLight* denotes a respondent that, on average, drinks no more than 3 days per week and usually has no more than 3 drinks each occasion. *DrinkOccHeavy* denotes a respondent that drinks no more than 3 days per week and usually has more than 3 drinks each occasion. *DrinkRegLight* denotes a respondent who drinks more than 3 days per week and usually has no more than 3 drinks each occasion. Finally, *DrinkRegHeavy* denotes a respondent who drinks more than 3 days per week and usually has more than 3 drinks each occasion.

Methodology

Measuring the Drinker 's Bonus

To measure the relationship of current drinking to current income, I use the following regression which models log of income from 2006 as a function of drinking indicators from the same year, as well as other controls indicated.

(1) $Ln(wage)_i = \alpha_0 + \alpha_1 Drink_i + \alpha_2 HealthL_i + \alpha_3 Social_i + \alpha_4 X_i + \varepsilon_i$,

where *i* indexes individual observations, *Drink* represents one of the aforementioned drinking indicators, *HealthL* is a dichotomous indicator for health limitations, *Social* represents a measure of sociability, and X_i represents the vector of other relevant variables such as the human capital accumulation and other demographic variables.

Measuring Effects of Past Drinking

To see the effects of past drinking, independent of current drinking habits, I compare income in 2006 with drinking data from 1982, while holding constant drinking in 2006. For consistency, I use drinking data that are available in both years. Of the aforementioned drinking variables, information on abstaining and binging are available in 1982 and 2006, and thus I use these variables to analyze the effects of past drinking.
I use the following regression which models log of income from 2006 as a function of past drinking indicators, while holding constant current drinking, as well as other controls indicated.

(2) $Ln(wage) = \beta_0 + \beta_1 Drink_{1982} + \beta_2 Drink_{2006} + \beta_3 HealthL + \beta_4 Social + \beta_5 X + \varepsilon_1$,

where $Drink_{1982}$ represents one of the various measures of previous drinking, $Drink_{2006}$ represents a measure of current drinking, and the remaining variables are the same as above.

RESULTS

CONFIRMING THE DRINKER'S BONUS

Controlling for a number of demographic variables, Table 4 shows that generally, drinkers earn more than abstainers. The first column shows the results with only the abstainer variable. With no other controls, abstainers earn 20 percent less than drinkers. The bonus falls by about 50 percent when I include all the independent variables except health limitations and outgoingness (column 2); so, clearly alcohol use is correlated with other independent variables that increase wages. Column 3 shows the results when I add health limitations to the regression. Respondents who report a health limitation earn dramatically lower wages than healthy respondents, but its inclusion does not materially reduce the drinker's bonus (which only falls from 10 percent to 8.5 percent).

Finally, column 4 shows the results after adding the outgoingness variables. The results suggest that respondents who either are shy or extremely outgoing earn less than those who are somewhat outgoing (the omitted category). The coefficient on "somewhat shy" is -0.07 and is statistically significant at conventional levels, while the coefficient on "extremely shy" is larger but not significant[1]. Moreover, the inclusion of these variables does not affect the drinker bonus. This result contradicts the notion that the drinking bonus indirectly reflects individuals' underlying social skills.

The measure of alcohol consumption in Table 4 is limited to a single drinking measure (abstain or not). Among drinkers, heavy drinkers may earn less than abstainers

[1] This is presumably because only 1.5% of respondents classified themselves as "extremely shy."

and light drinkers may earn considerably more. Moreover, it is possible that some drinking coefficients could be affected differently by the inclusion of the health and the outgoingness variables.

Table 5 reports the results when I include drinkers of varying levels of binge drinking (having 6 of more drinks on a given occasion). Abstainer is the omitted category. The results show that the drinker's bonus is higher for respondents who are non-bingers than for drinkers as a whole. Without holding demographics constant, non-binging drinkers earn almost 30 percent higher wages than abstainers. In contrast, frequent bingers (those who binge at least 9 times per month) earn almost 30 percent less than abstainers. After including all other independent variables, including health limitations and outgoingness, the coefficients on both these results fall by roughly 50%, but remain significant. The results support the idea that the drinker's bonus is mainly a phenomenon of moderate drinkers. Interestingly, however, all the other qualitative results from Table 4 are repeated in Table 5. That is, adding the health and outgoingness measures as independent variables does not materially affect the drinker bonus.

Table 6 further addresses the notion of both quantity and frequency of drinking. Instead of using data describing binge drinking, I use variables that describe the usual number of days per week that a drinker imbibes, and the average number of drinks per drinking occasion. The results show that quantity seems to matter significantly, while frequency does not. The drinker's bonus is about 30 percent for drinkers who usually have no more than 3 drinks per occasion, regardless of how often they drink. Drinkers who imbibe 4 or more drinks per occasion do not earn wages that are statistically different from abstainers, whether or not they drink 1-3 times per week or 4 or more times. These results support the notion that moderate drinkers -- those who limit the number of drinks per drinking occasion -- are driving the drinker's bonus.

EFFECTS OF PAST DRINKING

I now turn to my main task, namely, testing the hypothesis that *past* drinking affects *current* income. I first use the simplest measure of drinking behavior, abstain or not. That is, I re-estimate the income regressions reported in Table 4, which included the abstain dichotomous variable describing 2006 behavior, but this time adding the respondent's abstain status in 1982. Table 7 shows the results.

Without controlling for any demographic characteristics, health limitations, or personality traits, the results show the same impact of abstain status in 2006 to current income (column 1). The coefficient on abstain status in 1982 is insignificantly different from zero. The results do not support the hypothesis that past drinking behavior affects current income. The qualitative results are the same in all four regressions.

I next ask whether the results might change if I use a more robust set of variables to describe current and past drinking habits. I first try measures of binging that I used in Table 5, except now I add binging information from the 1982 panel. As with the previous regressions, the results in Table 8 show that current binge behavior significantly affects current income, but the coefficients on past binging behavior all are insignificantly different from zero. At least based on binge behavior, drinking behavior during a respondent's formative years does not appear to signal anything about income later in life.

Finally, I want to replicate the results in Table 6 which uses different sets of variables to describe drinking, namely, number of times that a respondent drinks per week, and amounts of drinking per occasion. The drinking variables that address both quantity and frequency are not available in 1982. These variables, however, are available in

1988, at which point respondents are ages 23 through 31. Table 9 reports the results from these regressions.

These results are quite striking. Past drinking habits now importantly affect current income, and furthermore, they reduce the importance of current drinking behavior. Consider the results that include all the independent variables (column 4 Table 9). Respondents who *currently* drink less than 4 times per week and consume 3 or fewer drinks per occasion earn about 10 percent more than abstainers, and this estimate is significantly different from zero. None of the other drinking variables in 2006, however, have coefficients that are different from zero. In contrast, three of the four coefficients on past drinking variables are large and statistically different than zero.

Consider, for example, respondents who had 3 or fewer drinks per occasion in 1988. Holding constant current drinking habits, these drinkers enjoyed wages 10 to 15 percent higher than current abstainers depending on whether they drank 3 or fewer times per week, or 4 times or more. Respondents who in 1988 had 4 or more drinks per episode, but who drank 3 or fewer days per week, had wages about 11 percent higher than current abstainers. The heaviest drinkers in 1988, those who drank 4 or more drinks per occasion and drank more than 3 days a week, had wages statistically indistinguishable from abstainers in 2006. That is, only heavy past drinkers did not enjoy a subsequent drinker bonus; all other drinkers in 1988 enjoyed a drinker bonus 18 years later, holding constant later drinking habits.

We are left with the obvious question: Are the past-drinking effects shown in Table 9 due to the use of a more robust past drinking variable that was available in 1988 and not 1982; or are they attributable to the use of the 1988 panel instead of 1982? The

answer is the latter. To show this, I repeat the 1982 regressions that used the simple abstainer dichotomous variable (column 4, Table 7), and the binge drinking variables (column 4, Table 8), but this time using 1988 as the past year instead of 1982. Both regressions include all the other independent variables.

The first column in Table 10 shows the results for the simple dichotomous drinking variable. Compared to an abstainer in 2006, a drinker in 2006 earns a 6.6 percent wage premium. Holding constant drinking status in 2006, a respondent who was a drinker in 1988 earns a 9.2 percent wage bonus in 2006. Both coefficients are statistically different from zero.

The second column shows the results for the binge drinking variables. Once again, the drinking variables from both 2006 and 1988 are importantly related to wage level. More specifically, compared to an abstainer in 2006, a respondent who drinks but does not binge earns a 9.6 percent wage premium; and one who drinks and binges more than 9 times per month suffers a 16.7 percent wage discount. Holding 2006 drinking patterns constant, respondents who either drank with no binging or those who occasionally binged in 1988 earn a wage premium in 2006 in the range of 10 percent. Interestingly, those who drank and regularly binged (8 or more times per month) in 1988 also evince a positive premium but it is not quite statistically different from zero at conventional levels. While this last result seems surprising, it does appear to agree with the findings from Table 9, where drinkers in 1988 who consumed alcohol between 1 and 3 times per week, and had at least 4 drinks per occasion, had significantly higher wages than abstainers.

These results are consistent with the hypothesis that habits formed by the time people become adults and move into the workforce (23-31 years old) are positively related to income later in life (ages 41-49), and may be more important than drinking habits contemporaneous with income measures. In contrast, drinking habits when very young (ages 17-25) have no predictive ability for wage outcome later in life. Interestingly, the results consistently showed that the coefficients on either current or past drinking variables were not importantly affected by either the respondents' health, or outgoingness. It is possible that the results could change with more robust measures of social skills or health condition, which could be available in other data sets. In short, my research shows that past drinking is a marker of future success in the labor market, but what drives this relationship is unclear.

CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

In this paper, I used longitudinal data for males from the NLSY to test the hypothesis that drinking habits formed during formative years affect a respondent's wage level later in life. Holding constant drinking habits in 2006 (when respondents were 41-49 years old), I found that drinking habits evinced in 1988 (when respondents were aged 23-31) significantly affected wage level in 2006. While I had posited that this relationship was attributable to the correlation between drinking and development of social skills, a variable describing respondents' outgoingness did not importantly affect wage nor did it influence the coefficients on drinking. So, while my results suggest a relationship between early drinking habits and subsequent wage level, I was not able to shed light on the underlying mechanism that explains this relationship. Interestingly,

drinking habits in 1982 (when respondents were 17-23 years old) were not significantly related to wages later in life.

It seems that drinking habits serve as some kind of marker for the type of person who is more successful in the labor market later in life (at least as measured by wage level). More research into the social skills – drinking connection would require data that had both more robust measures of social skills, and more observations of this variable over respondents' lives (I had data on a simple shyness measure only in 1985). It might also be productive to try and find other personality attributes (not usually observable in datasets like the NLSY) that are correlated with drinking habits. Are drinkers less risk averse, more reliable, more likely to save and invest, more likely to have successful long-term marriages?

All of these ideas assume that there is some personality attribute that is correlated with drinking habits, and that does *not change* over time. One way to evaluate this assumption is to construct a fixed effects model using panel data. In this model, one would have several years of drinking data and several years of wages. By eliminating the cross section variation (by including the dummy variables for all the respondents), we would zero out the effect of fixed markers across respondents on subsequent wage. Instead, the research would evaluate the impact of changes in drinking behavior *within respondents' own lives* on their future wages. If a correlation between past drinking and future wage were found in this model, then we would know that the drinking bonus cannot be attributable to unchanging personality traits. If the correlation disappears in this model, then we would have some evidence that the drinker bonus reflects an unvarying attribute (even though we still would not know which attribute).

Finally, while I showed a relationship between future wages and past drinking, I measured the relationship only between 1988 drinking habits and 2006 wages, the only experiment that I pursued to nail down the lag period was to look at 1982 drinking habits and 2006 wages. But did the 1988 habits show up in 1999 wages? How about 1993 wages? If so, did the coefficients change over time? If drinking habits formed as a young adult are a fixed marker for personality type then the drinker coefficients would be the same in 1993, 1999 and 2006. If the coefficients change then we might conclude that the drinker's bonus has an effect that either grows (or deteriorates) with time. All of these questions are valid candidates for future research on this topic.

APPENDIX

TABLE 1: SUMMARY STATISTICS
FOR MALES IN 2006 UNLESS OTHERWISE NOTED

VARIABLE	DEFINITION	MEAN VALUE	STANDARD DEVIATION
	DEPENDENT VARIABLES		
LnIncome	Natural Log of respondent's income in 2006	10.577	0.982
	CURRENT DRINKING		
AnyAlcMonthFinal	Respondent had at least one drink in previous 30 days	0.585	0.492
Frequency and amount of drinking:			
OccLightFinal	Respondent usually drinks 3 days or less per week, & usually has no more than 3 drinks per occasion	0.316	0.465
OccHeavyFinal	Respondent usually drinks 3 days or less per week, & usually has more than 3 drinks per occasion	0.122	0.328
RegLightFinal	Respondent usually drinks more than 3 days per week, & usually has no more than 3 drinks per occasion	0.094	0.293
RegHeavyFinal	Respondent usually drinks more than 3 days per week, & usually has more than 3 drinks per occasion	0.045	0.208
Frequency of Binging:			
CurrentBinge0	Respondent is not an abstainer and has not binged in last 30 days	0.368	0.482
CurrentBinge1_3	Respondent is not an abstainer and has binged between 1 and 3 times in last 30 days	0.096	0.294
CurrentBinge4_8	Respondent is not an abstainer and has binged between 4 and 8 times in last 30 days	0.075	0.264
CurrentBinge9_	Respondent is not an abstainer and has binged more than 9 times in last 30 days	0.044	0.206
	PREVIOUS DRINKING (FROM 1982)		
AnyAlcMonthFinal	Respondent had at least one drink in previous 30 days	0.772	0.419

Frequency of Binging:			
PastBinge0	Respondent is not an abstainer and has not binged in last 30 days	0.226	0.419
PastBinge1_3	R does drink, and has binged no more than 3 times in last 30 days	0.303	0.459
PastBinge4_7	R does drink, and has binged between 4 and 7 times in last 30 days	0.144	0.351
PastBinge8_	R does drink, and has binged 8 or more times in last 30 days	0.098	0.297

PERSONAL CHARACTERISTICS

Age			
2006		44.703	2.238
1982		20.786	2.296
Race/Ethnicity			
Black		0.251	0.434
Hispanic (non-black)		0.156	0.363
Non-Black/ Non-Hispanic		0.591	0.491
Marital Status			
Single, Never Married		0.202	0.401
Married, Spouse present		0.553	0.497
Other (divorced, widow, etc…)		0.244	0.430
Health status			
Respondent has a health limitation		0.134	0.341
Personality as an adult (self-described in 1985)			
Extremely shy		0.014	0.121
Somewhat shy		0.265	0.441
Somewhat outgoing		0.533	0.498
Extremely outgoing		0.186	0.389
Religion	Religion in which the respondent was raised		
Baptist		0.281	0.449
Jewish		0.009	0.095
Protestant		0.055	0.229
Catholic		0.330	0.470
No Religion		0.048	0.214
Other		0.274	0.446

Environmental Conditions			
Area of Residence			
Urban	Respondent lives in an urban area.	0.267	0.442
Rural	Respondent lives in a rural area	0.678	0.467
Unknown	Respondent is unsure	0.0535	0.225
Region of Residence	Region of U.S. that the respondent lives in		
Northeast		0.157	0.363
North Central		0.231	0.421
South		0.407	0.491
West		0.203	0.402
Acquired Human Capital			
Education	Highest level of education respondent has completed		
Less than high school		0.120	0.325
High school		0.463	0.499
Some college		0.211	0.407
College		0.115	0.319
More than college		0.092	0.289

TABLE 3: CORRELATION BETWEEN CURRENT AND PAST DRINKING (2006 & 1988)

	CURRENT DRINKING BEHAVIOR				
PAST DRINKING BEHAVIOR (1988)	Abstain	CurrentBinge0	CurrentBinge1_3	CurrentBinge4_8	CurrentBinge9_
Abstain	14.30%	4.65%	0.74%	0.50%	0.50%
PastBinge0	9.89%	14.12%	1.48%	0.71%	0.41%
PastBinge1_3	9.45%	13.30%	4.15%	2.61%	1.39%
PastBinge4_7	4.50%	3.67%	2.16%	2.40%	1.24%
PastBinge8_	1.69%	1.84%	1.54%	1.54%	1.13%

Table 4: Regression Results: The Drinker Bonus, 2006

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.67	10.54	10.42	10.39
	(492.6)	(34.65)	(35.03)	(34.46)
Drinking (*Abstainer)*				
Non-Abstainer	0.201	.1005	.0845	.0842
	(5.75)	(3.21)	(2.76)	(2.72)
Health Limitations			-.6844	-.6874
			(-11.67)	(-11.54)
Personality (*Somewhat Outgoing)*				
Extremely Shy				-.1897
				(-1.30)
Somewhat Shy				-.0728
				(-2.08)
Extremely Outgoing				-.0629
				(-1.53)
Age		.0061	.0096	.0109
		(0.92)	(1.48)	(1.65)
Race (*white or other)*				
Hispanic		-.1397	-.1443	-.1464
		(-2.86)	(-3.02)	(-3.04)
Black		-.2801	-.2957	-.2854
		(-6.70)	(-7.23)	(-6.91)
Education (*High School)*				
Less than H.S.		-.2692	-.2484	-.2054
		(-5.05)	(-4.77)	(-3.85)
Some College		.2192	.2181	.2082
		(5.62)	(5.72)	(5.40)
College		.5146	.4980	.4975
		(10.59)	(10.48)	(10.42)
More than College		.7028	.6763	.6705
		(13.19)	(12.97)	(12.74)
Area of Residence (*Rural)*				
Urban		-.1393	-.1291	-.1301
		(-3.86)	(-3.65)	(-3.64)
Unsure		.1087	.1142	.1203
		(1.63)	(1.75)	(1.83)
Region of Residence (*South)*				
Northeast		.1356	.1285	.1163
		(2.83)	(2.75)	(2.45)
North Central		-.0915	-.0930	-.0929
		(-2.27)	(-2.36)	(-2.34)
West		.0316	.0248	.0158
		(0.72)	(0.58)	(0.36)
Marriage Status (*Married w/ spouse present)*				
Never Married		-.5755	-.5327	-.5271
		(-13.48)	(-12.71)	(-12.38)
Other (widow, divorced,…)		-.3462	-.3129	-.3079
		(-9.26)	(-8.54)	(-8.31)

Religion (*Catholic)*				
Protestant		-.0929	-.1150	-.0850
		(-1.21)	(-1.54)	(-1.12)
Baptist		-.0576	-.0552	-.0680
		(-1.16)	(-1.14)	(-1.39)
Jewish		.4441	.4175	.4207
		(2.79)	(2.69)	(2.61)
Other		-.0110	-.0160	-.0191
		(-0.25)	(-0.38)	(-0.45)
None		-.1123	-.1004	-.0924
		(-1.42)	(-1.30)	(-1.17)
R^2	0.011	0.252	0.286	0.286
Observations	2,971	2,900	2,900	2,816

NOTE: t-statistics are in parenthesis; data from NLSY 2006 panel; males only.

Table 5: Regression Results: The Drinker Bonus With Binging Data, 2006

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.476	10.448	10.346	10.318
	(384.89)	(34.24)	(34.68)	(34.13)
Drinking (*Abstainer)*				
0 Binges in past month	.2964	.1388	.1253	.1210
	(7.74)	(4.01)	(3.70)	(3.54)
1, 2, or 3 binges in past month	.1509	.0609	.0454	.0542
	(2.55)	(1.16)	(0.88)	(1.04)
Between 4 & 8 binges in past month	.0616	.0950	.0650	.0662
	(0.92)	(1.60)	(1.12)	(1.12)
9 or more binges in past month	-.2856	-.1359	-.1440	-.1513
	(-3.33)	(-1.77)	(-1.91)	(-1.97)
Health Limitations			-.6840	-.6869
			(-11.69)	(-11.55)
Personality (*Somewhat Outgoing)*				
Extremely Shy				-.2010
				(-1.38)
Somewhat Shy				-.0714
				(-2.04)
Extremely Outgoing				-.0548
				(-1.34)
Age		.0062	.0096	.0110
		(0.93)	(1.48)	(1.66)
Race (*white or other)*				
Hispanic		-.1421	-.1468	-.1507
		(-2.91)	(-3.08)	(-3.13)
Black		-.2905	-.3057	-.2947
		(-6.94)	(-7.47)	(-7.13)
Education (*High School)*				
Less than H.S.		-.2655	-.2450	-.2017
		(-4.99)	(-4.71)	(-3.79)
Some College		.2089	.2074	.1975
		(5.35)	(5.43)	(5.12)
College		.5004	.4830	.4822
		(10.27)	(10.14)	(10.06)
More than College		.6831	.6555	.6506
		(12.73)	(12.49)	(12.28)
Other dummy variables (coefficients not reported):				
Area of Residence		X	X	X
Region of Residence		X	X	X
Religion		X	X	X
Marriage Status		X	X	X
R^2	0.029	0.256	0.289	0.289
Observations	2,971	2,900	2,900	2,816

NOTE: t-statistics are in parenthesis; data from NLSY 2006 panel; males only

Table 6: Regression Results: The Drinker Bonus With Frequency and Quantity of Drinking, 2006

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.476	10.448	10.339	10.320
	(384.88)	(34.13)	(34.54)	(34.03)
Drinking (*Abstainer)*				
1-3 occasions per week	.3009	.1437	.1274	.1217
& <4 drinks per occ	(7.55)	(4.01)	(3.63)	(3.43)
1-3 occasions per week	-.0196	.0097	.0042	.0110
& 4+ drinks per occ	(-0.36)	(0.20)	(0.09)	(0.23)
4+ occasions per week	.3018	.1353	.1066	.1087
& <4 drinks per occ	(5.05)	(2.52)	(2.03)	(2.05)
4+ occasions per week	-.1243	-.0213	-.0337	-.0274
& 4+ drinks per occ	(-1.47)	(-0.28)	(-0.46)	(-0.37)
Health Limitations			-.6816	-.6858
			(-11.63)	(-11.52)
Personality (*Somewhat Outgoing)*				
Extremely Shy				-.1904
				(-1.31)
Somewhat Shy				-.0739
				(-2.11)
Extremely Outgoing				-.0612
				(-1.49)
Age		.0062	.0097	.01089
		(0.92)	(1.48)	(1.64)
Race (*white or other)*				
Hispanic		-.1374	-.1431	-.1452
		(-2.80)	(-2.98)	(-3.00)
Black		-.2909	-.3064	-.2944
		(-6.94)	(-7.47)	(-7.11)
Education (*High School)*				
Less than H.S.		-.2664	-.2461	-.2026
		(-5.00)	(-4.72)	(-3.80)
Some College		.2139	.2133	.2053
		(5.46)	(5.57)	(5.30)
College		.4989	.4834	.4840289
		(10.21)	(10.11)	(10.07)
More than College		.6819	.6571	.6538
		(12.69)	(12.50)	(12.33)
Other dummy variables (coefficients not reported):				
Area of Residence		X	X	X
Region of Residence		X	X	X
Religion		X	X	X
Marital Status		X	X	X
R^2	0.029	0.256	0.289	0.289
Observations	2,960	2,889	2,889	2,806

NOTE: t-statistics are in parenthesis; data from NLSY 2006 panel; males only.

Table 7: Regression Results: The Effects of Past Drinking on Income

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.698	10.718	10.592	10.588
	(464.43)	(33.27)	(33.68)	(33.20)
Drinking 1982 (*Abstainer*)				
Non-Abstainer	.0019	.0036	.0007	.00009
	(0.04)	(0.09)	(0.02)	(0.00)
Drinking 2006 (*Abstainer*)				
Non-Abstainer	.2023	.0973	.0809	.0862
	(5.40)	(2.89)	(2.47)	(2.60)
Health Limitations			-.7173	-.7231
			(-11.68)	(-11.57)
Personality (*Somewhat Outgoing)*				
Extremely Shy				.0076
				(0.05)
Somewhat Shy				-.0810
				(-2.23)
Extremely Outgoing				-.0592
				(-1.39)
Age		.0028	.0064	.0072
		(0.39)	(0.92)	(1.03)
Race (*white or other)*				
Hispanic		-.1372	-.1407	-.1412
		(-2.69)	(-2.83)	(-2.81)
Black		-.2712	-.2932	-.2890
		(-6.13)	(-6.79)	(-6.64)
Education (*High School)*				
Less than H.S.		-.2788	-.2542	-.2197
		(-4.93)	(-4.60)	(-3.89)
Some College		.2053	.2053	.1965
		(5.08)	(5.21)	(4.93)
College		.4943	.4758	.4756
		(9.87)	(9.73)	(9.69)
More than College		.6945	.6700	.6648
		(12.57)	(12.42)	(12.19)
Other dummy variables (coefficients not reported):				
Area of Residence		X	X	X
Region of Residence		X	X	X
Religion		X	X	X
Marriage Status		X	X	X
R^2	0.011	0.246	0.283	0.284
Observations	2,740	2,682	2,682	2,613

NOTE: t-statistics are in parenthesis; data from NLSY 2006 & 1982 panels; males only.

Table 8: Regression Results: Effects of Past Drinking on Income with Binging Data

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.483	10.638	10.519	10.505
	(254.58)	(33.25)	(33.67)	(33.16)
Drinking 1982 (*Abstainer)*				
0 Binges in past month	.0404	-.0018	.0058	.0075
	(0.77)	(-0.04)	(0.13)	(0.16)
1, 2, or 3 binges in past month	-.0123	-.0100	-.0091	-.0110
	(-0.25)	(-0.22)	(-0.21)	(-0.25)
Between 4 and 7 binges in past month	.0288	.0043	.0051	.0036
	(0.49)	(0.08)	(0.10)	(0.07)
8 or more binges in the past month	.0388	.0572	.0712	.0609
	(0.56)	(0.91)	(1.16)	(0.98)
Drinking 2006 (*Abstainer)*				
0 Binges in past month	.3008	.1363	.1226	.1245
	(7.44)	(3.71)	(3.42)	(3.43)
1, 2, or 3 binges in past month	.1452	.0581	.0436	.0608
	(2.35)	(1.05)	(0.81)	(1.11)
Between 4 and 8 binges in past month	.0525	.0852	.0517	.0622
	(0.75)	(1.37)	(0.85)	(1.01)
9 or more binges in past month	-.3045	-.1595	-.1677	-.1648
	(-3.47)	(-2.03)	(-2.18)	(-2.11)
Health Limitations			-.7187	-.7238
			(-11.72)	(-11.59)
Personality (*Somewhat Outgoing)*				
Extremely Shy				-.0080
				(-0.05)
Somewhat Shy				-.0769
				(-2.12)
Extremely Outgoing				-.0506
				(-1.19)
Age		.0026	.0062	.0072
		(0.38)	(0.91)	(1.03)
Race (*white or other)*				
Hispanic		-.1376	-.1415	-.1445
		(-2.70)	(-2.85)	(-2.87)
Black		-.2780	-.3995	-.2953
		(-6.25)	(-6.90)	(-6.75)
Education (*High School)*				
Less than H.S.		-.2746	-.2500	-.2158
		(-4.86)	(-4.53)	(-3.83)
Some College		.1973	.1972	.1882
		(4.87)	(4.99)	(4.71)
College		.4824	.4632	.4623
		(9.57)	(9.42)	(9.36)
More than College		.6771	.6516	.6471
		(12.13)	(11.96)	(11.75)
Other dummy variables (coefficients not reported):				
Area of Residence		X	X	X
Region of Residence		X	X	X

Religion		X	X	X
Marriage Status		X	X	X
R^2	0.032	0.251	0.287	0.288
Observations	2,740	2,682	2,682	2,613

NOTE: t-statistics are in parenthesis; data from NLSY 2006 & 1982 panels; males only.

Table 9: Regression Results: Using 1988 Past Drinking Behavior and More Robust Drinking Measures

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)	(3)	(4)
Intercept	10.406	10.258	10.185	10.184
	(252.88)	(31.94)	(32.40)	(32.07)
Drinking 1988 (*Abstainer)*				
1-3 occasions per week	.1705	.0959	.0942	.0967
& <4 drinks per occ	(3.45)	(2.17)	(2.18)	(2.21)
1-3 occasions per week	.0868	.1209	.1156	.1125
& 4+ drinks per occ	(1.46)	(2.25)	(2.20)	(2.12)
4+ occasions per week	.1594	.1469	.1448	.1466
& <4 drinks per occ	(2.41)	(2.48)	(2.50)	(2.51)
4+ occasions per week	-.2317	-.0553	-.0696	-.0515
& 4+ drinks per occ	(-2.74)	(-0.73)	(-0.93)	(-0.68)
Drinking 2006 (*Abstainer)*				
1-3 occasions per week	.2606	.1274	.1069	.1018
& <4 drinks per occ	(6.06)	(3.29)	(2.82)	(2.66)
1-3 occasions per week	-.0413	-.0213	-.0275	-.0135
& 4+ drinks per occ	(-0.71)	(-0.41)	(-0.54)	(-0.26)
4+ occasions per week	.2614	.0968	.0657	-.0319
& <4 drinks per occ	(4.07)	(1.67)	(1.16)	(-0.41)
4+ occasions per week	-.0760	-.0098	-.0297	-.0319
& 4+ drinks per occ	(-0.85)	(-0.12)	(-0.38)	(-0.41)
Health Limitations			-.6696	-.6660
			(-10.92)	(-10.78)
Personality (*Somewhat Outgoing)*				
Extremely Shy				-.2064
				(-1.36)
Somewhat Shy				-.0759
				(-2.09)
Extremely Outgoing				-.0426
				(-0.99)
Age		.0094	.0122	.0126
		(1.34)	(1.77)	(1.83)
Race (*white or other)*				
Hispanic		-.1451	-.1476	-.1432
		(-2.83)	(-2.94)	(-2.83)
Black		-.2862	-.3021	-.2941
		(-6.48)	(-6.98)	(-6.75)
Education (*High School)*				
Less than H.S.		-.2438	-.2319	-.1911
		(-4.35)	(-4.23)	(-3.43)
Some College		.2024	.2024	.1960
		(4.94)	(5.05)	(4.85)
College		.4705	.4559	.4619
		(9.29)	(9.20)	(9.29)
More than College		.6854	.6618	.6569
		(12.32)	(12.15)	(11.96)
Other dummy variables (coefficients not reported)				
Area of Residence		X	X	X
Region of Residence		X	X	X

Religion		X	X	X
Marital Status		X	X	X
R^2	0.042	0.249	0.288	0.287
Observations	2,755	2,693	2,693	2,641

NOTE: t-statistics are in parenthesis; data from NLSY 2006 & 1988 panels; males only.

Table 10: Regression Results: Effect of past drinking (1988) on current income (2006)

Independent Variables	Dependent Variable: Ln($Income_{2006}$) (1)	(2)
Intercept	10.194	10.171
	(32.19)	(32.07)
Drinking 1988 (*Abstainer*)		
Non-Abstainer	.0921	
	(2.24)	
0 Binges in past month		.1028
		(2.19)
1, 2, or 3 binges in past month		.1219
		(2.62)
Between 4 & 7 binges in past month		.0249
		(0.44)
8 or more binges in past month		.1089
		(1.56)
Drinking 2006 (*Abstainer*)		
Non-Abstainer	.0665	
	(1.95)	
0 Binges in past month		.0957
		(2.58)
1, 2, or 3 binges in past month		.0249
		(0.45)
Between 4 & 8 binges in past month		.0596
		(0.95)
9 or more binges in past month		-.1673
		(-2.08)
All other independent variables (coefficients not reported)		
Race	X	X
Education	X	X
Personality Traits	X	X
Health Limitations	X	X
Area of Residence	X	X
Region of Residence	X	X
Religion	X	X
Marriage Status	X	X
R^2	0.272	0.286
Observations	2,688	2,650

NOTE: t-statistics are in parenthesis; data from NLSY 2006 & 1988 panels; males only.

REFERENCES

Auld, M. Christopher (2005). "Smoking, Drinking, and Income", The Journal of Human Resources, Vol. 40, No. 2, pp. 505-518.

Berger, M.C., and J.P. Leigh (1988), "The effect of alcohol use on wages", Applied Economics 20:1343-1351.

Bethany L. Peters & Edward Stringham, 2006. "No Booze? You May Lose: Why Drinkers Earn More Money Than Nondrinkers," Journal of Labor Research, Transaction Publishers, vol. 27(3), pages 411-421, June.

Bray, Jeremy W. (2005). "Alcohol Use, Human Capital, and Wages." Journal of Labor Economics, vol. 23, no. 2

Bryant, R.R., V.A. Sumaranayake and A. Wilhite (1992), "Alcohol use and wages of young men: Whites vs. nonwhites", International Review of Applied Economics 6(2): 184-202.

Buonanno, Paolo & Vanin, Paolo, (2007). "Bowling Alone, Drinking Together," "Marco Fanno" Working Papers 0055, Dipartimento di Scienze Economiche "Marco Fanno".

Cook, P.J. (1991), "The social costs of drinking", in: A.G. Aasland, ed., The Expert Meeting on the Negative Social Consequences of Alcohol Abuse (Norwegian Ministry of Health and Social Affairs, Oslo, Norway) 49-81.

Cook, Philip J. and Peters, Bethany L., The Myth of the Drinker`s Bonus (December 2005). NBER Working Paper Series, Vol. w11902, pp. -, 2005. Available at SSRN: http://ssrn.com/abstract=872738

Cruze, A., H. Harwood, P. Kristiansen, J. Collins and D. Jones, 1981, Economic costs of alcohol and drug abuse and mental illness -1977 (Research Triangle Institute, Research Triangle Park, North Carolina).

French, M.T., and G.A. Zarkin (1995), "Is moderate alcohol use related to wages? Evidence from four work-sites", Journal of Health Economics 14(3):319-344.

Hamilton, Vivan and Hamilton, Barton H., "Alcohol and Earnings: Does Drinking Yield a Wage Premium?" *Canadian Journal of Economics*, *30*(1), 1997, 135-151.

Harwood, H. *Updating Estimates of the Economic Costs of Alcohol Abuse in the United States: Estimates, Update Methods, and Data*. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism, 2000. Based on estimates, analyses, and data reported in Harwood, H.; Fountain, D.; and Livermore, G. *The Economic Costs of Alcohol and Drug Abuse in the United States 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327. Rockville, MD: National Institutes of Health, 1998.

Harwood, H., D. Fountain and G. Livermore (1998), The Economic Costs of Alcohol and Drug Abuse in the United States 1992 (U.S. Government Printing Office, Washington, DC).

Heien, Dale M., "Do Drinkers Earn Less?" *Southern Economic Journal*, *63*(1), 1996, 60-68.

Leifman, Hakan, Eckart Kuhlhorn, Peter Allebeck, Sven Andreasson, and Anders Romelsjo (1995). "Abstinence in Late Adolescence: Antecedents to and Covariates of Sober Lifestyle and Its Consequences." *Social Science and Medicine* 41 (July 1995): 113-21.

Loannides, Yannis M. and Loury, Linda D. "Job Information Networks, Neighborhood Effects, and

Inequality." Journal of Economic Literature, 2004, 42(4), pp. 1056-93.

MacDonald, Ziggy, and Shields, Michael (2001). "The Impact Of Alcohol Use on Occupational Attainment and Wages." Economica 68 (271):427-53.

Montgomery, J.D. (1991), “Social Networks and Labour-Market Outcomes: Toward an Economic Analysis”, American Economic Review, Vol. 81, No. 5, pp. 1408-1418

Mullahy, J and Sindelar, J. (1989)"Lifecycle Effects of Alcoholism on Education, Earnings, and Occupation." *Inquiry* 26: 272-282.

Mullahy, J. and Sindelar, J. (1991)."Gender Differences in Labor Market Effects of Alcoholism." *American Economic Review* 81 (Papers and Proceedings): 161-165.

Peters, Bethany L. & Stringham, Edward, (2006). "No Booze? You May Lose: Why Drinkers Earn More Money Than Nondrinkers," Journal of Labor Research, Transaction Publishers, vol. 27(3), pages 411-421, June.

SAMHSA (Substance Abuse and Mental Health Services Administration) 2009. *Results from the 2008 National Survey on Drug Use and Health: National Findings* (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09-4434). Rockville, MD.

Zarkin, G.A., et al. (1998), "Alcohol use and wages: New results from the national household *survey* on drug abuse", Journal of Health Economics 17(1):53-68.