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## **ABSTRACT**

### **Rational Alcohol Addiction: Evidence from the Russian Longitudinal Monitoring Survey**

Alcohol consumption in Russia is legendary and has been reported to be the third leading cause of death in the former Soviet Union after heart disease and cancer. Are Russian alcohol consumers rational addicts? This paper uses eight rounds of a nationally representative Russian survey spanning the period 1994-2003 to estimate a rational addiction (RA) model for alcohol consumption. This is done in a panel data setting as well as on a wave by wave basis. The profile of the Russian drinker finds a huge difference between males and females and the model is estimated by gender. We do not find support for the RA model in Russia for women. For men, although we find that some implications of the RA model are satisfied, we fail to endorse the model empirically on grounds of implausible negative estimates of the discount rate.

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# 1 Introduction

Alcohol consumption in Russia is legendary and has been reported to be the third leading cause of death in the former Soviet Union after heart disease and cancer, see the *Economist* [1]. In 1985, President Mikhail Gorbachev initiated an anti-drinking campaign that reduced the production of vodka and cognac, set the minimum legal drinking age at 21, prohibited the sale of beverages in public places, restricted the hours of sale and the number of sales outlets, increased the price, prohibited advertising, prosecuted home distillers, developed anti-alcohol programs, and introduced a policy of intolerance to drinking in the workplace, see McKee [2] for an invited commentary on the effectiveness of this anti-alcohol campaign. A more recent campaign to raise the tax rate on alcohol by 40% in 2000 provoked long lines outside distilleries and prompted regional governments to refuse to implement the new taxes, fearing civil disobedience. Are Russian alcohol consumers rational addicts? Following Becker and Murphy [3], they would be if they are forward-looking, utility-maximizing individuals who happened to be addicted to the consumption of alcohol. They are rational in the sense that they anticipate the expected future consequences of their current actions. They recognize the addictive nature of their choices but they may elect to make them because the gains from the activity exceed the costs through future addiction. The more they drink alcohol the higher is the current utility derived. However, the individual recognizes that he or she is building up a stock of this addictive good that is harmful. The individual rationally trades off these factors to determine the appropriate level of drinking.

This theory is not without its critics; for example, Winston [4] argues that addicts

in this model are happy, which is inconsistent with observed regret among addicts. Akerlof [5] argues that addicts in this model choose to become addicts and there is no scope for curbing their addictions with education programs, which is incompatible with any role for information and public policy. However, Orphanides and Zervos [6] provide a rational theory of addiction with learning and regret that resolves some of these criticisms. The basic idea is to allow for uncertainty rather than perfect foresight and a process of learning through experimentation. Their theory explains how individuals can be voluntarily drawn into a harmful addiction and later regret it. Gruber and Köszegi [7] question the ‘time consistent preferences’ assumption required by the Becker and Murphy [3] theory. Dropping this time consistent preferences assumption still yields forward-looking behavior but strikingly different normative policy implications.

The Becker and Murphy [3] theory has been applied to the consumption of cigarettes, see Chaloupka [8], Becker, Grossman and Murphy [9], Labeaga [10,11], Baltagi and Griffin [12], Gruber and Köszegi [7] and Jones and Labeaga [13]; to the consumption of alcohol, see Grossman, Chaloupka and Sirtalan [14] and Baltagi and Griffin [15]; to the consumption of caffeine, see Olekalns and Bardsley [16]; cocaine, see Grossman and Chaloupka [17] and illicit drugs, see Saffer and Chaloupka [18]. A key feature of this theory is that consumption of an addictive good will depend on future as well as past consumption. Finding future consumption statistically significant is a rejection of the myopic model of consumption behavior, see Pollak [19,20]. In the latter model of addictive behavior, only past consumption stimulates current consumption, because individuals ignore the future in making their consumption

decisions.

This paper uses eight rounds of a nationally representative Russian survey spanning the period (1994-2003) to estimate a rational addiction model for alcohol consumption. This is done in a panel data setting as well as on a wave by wave basis. We do *not* find support for the RA model in Russia for women. For men, although we find that some implications of the RA model are satisfied, we fail to endorse the model empirically on grounds of implausible negative estimates of the discount rate. Section 2 reviews the rational addiction model, while section 3 describes the data. Section 4 gives a profile of the Russian drinker and finds a huge difference between males and females. Section 5 describes the empirical results for the total sample as well as by gender. This is done for the full panel as well as on a wave by wave basis.

## 2 Model Specification

Following Becker, Grossman and Murphy [9], denoted by BGM, the consumer's problem is to maximize the sum of lifetime utility discounted at rate  $r$  :

$$\sum_{t=1}^{\infty} \beta^{t-1} U(C_t, C_{t-1}, Y_t, e_t) \quad (1)$$

where  $\beta = 1/(1+r)$ ,  $C_t$  is the quantity of liquor consumed in period  $t$ ,  $Y_t$  is the consumption of a composite commodity in period  $t$ , and  $e_t$  reflects the impact of unmeasured life-cycle variables on utility. BGM take the composite commodity  $Y$  as the numeraire and the rate of interest is assumed to be equal to the rate of time preference. This maximization is subject to the following constraints:

$$C_o = C^o \quad \text{and} \quad \sum_{t=1}^{\infty} \beta^{t-1} (Y_t + P_t C_t) = A^o \quad (2)$$

where  $P_t$  is the price of liquor at period  $t$ ,  $C^o$  is the initial condition indicating the level of liquor consumption at period zero, and  $A^o$  is the present value of wealth. Assuming the utility function is quadratic and solving the first-order conditions for  $C_t$ , BGM obtain the following first-difference equation:

$$C_t = \theta C_{t-1} + \beta \theta C_{t+1} + \theta_1 P_t + \theta_2 e_t + \theta_3 e_{t+1} \quad (3)$$

where current liquor consumption is a function of past and future liquor consumption,  $P_t$ , and the unobservable shift variables  $e_t$  and  $e_{t+1}$  reflecting the impact of unmeasured life cycle variables. BGM recognize that  $e_t$  is serially correlated. Even if it is not,  $e_t$  affects utility in each period and affects consumption at all dates through the optimizing equation (3). Therefore, BGM treat  $C_{t-1}$  and  $C_{t+1}$  as endogenous and use lagged and future prices as instruments. Their empirical equation also includes other exogenous variables such as income, short and long distance smuggling indexes, and taxes.

Chaloupka [8] used micro data on cigarette consumption from the National Health and Nutrition Examination Survey to estimate a rational addiction model. The data set involved approximately 28,000 individuals between the years 1976-1980. Becker, Grossman and Murphy [9], Baltagi and Griffin [12], and Gruber and Köszegi [7] used annual per capita sales of cigarettes for U.S. states over time. These studies reject the myopic model of addictive behavior and find some support for the rational addiction model. However, Baltagi and Griffin [12] argue that before this empirical evidence is widely accepted, plausible and significant estimates of the implied discount rate are needed.

Grossman, Chaloupka and Sirtalan [14] used surveys of high school seniors as

part of the monitoring of the future research program to test the rational addiction hypothesis for liquor consumption. Consumption is measured as the number of drinks of alcohol consumed in the past year. The price variable is that of a six-pack of beer. Grossman, et al. [14] reject the myopic theory of addiction in favour of the rational addiction theory. They report negative and significant price effects, positive and significant future consumption effects, and a long-run price elasticity that is approximately 60% larger than the short-run price elasticity. However, Grossman, et al. [11, p.46] report that their estimates are not fully consistent with rational addiction because their estimates of the discount factor were negative and implausibly high, yielding interest rates in the range of -20% to -60%. They conclude that these results along with the detailed analysis of Becker, Grossman and Murphy [9], suggest that the data on alcohol consumption or cigarette smoking are not rich enough to pin down the discount factor with precision even if the rational addiction model is accepted. Baltagi and Griffin [15] used annual per capita distilled spirits consumption for 42 states over the period 1959-1994, their results support some of the implications of the rational addiction hypothesis for liquor. However, these results are sensitive to the assumption of homogeneity across states and suffer from unreasonable estimates of the discount rate. Auld and Grootendorst [21] criticized the application of rational addiction models to aggregate time series data and showed that non-addictive commodities such as milk, eggs, and oranges may be misleadingly labelled as rationally addictive.

For our empirical implementation, we write a variant of (3) as follows:

$$C_{it} = \delta_0 + \delta_1 C_{i,t-1} + \delta_2 C_{i,t+1} + \delta_3 P_{it} + \delta_4 Y_{it} + Z'_{it} \gamma + u_{it} \quad (4)$$



where the subscript  $i$  denotes the  $i$ -th individual and the subscript  $t$  denotes the  $t$ -th year ( $t = 1, \dots, 8$ ). The data used in this study are obtained from the Russian Longitudinal Monitoring Survey (rounds 5 to 12) for the period 1994 to 2003.  $C_{it}$  is consumption of alcohol (measured in grams of alcohol consumed per day).  $P_{it}$  is the real price of alcohol described below.  $Y_{it}$  is real household income and  $Z_{it}$  denotes a vector of demographic characteristics for the  $i$ th individual at time  $t$ .

### 3 Data

Our study is based on phase II of the Russian Longitudinal Monitoring Survey (RLMS). This is a nationally representative survey designed to measure the effects of Russian reforms. This survey is coordinated by the Carolina Population Center at the University of North Carolina (<http://www.cpc.unc.edu/projects/rlms>). We use rounds (5 to 12) of the RLMS spanning the period 1994-2003. The number of individual respondents dropped from 11,284 in 1994 (round V) to 8,701 in 1998/1999 (round VIII), but this was brought back up with a refreshment sample reaching 10,636 individual respondents in 2003 (round XII). This is a rich data set with detailed information on alcohol consumption, demographics, education, income, health, occupation, and region of residence. The RLMS was used, for example, by Newell and Barry [22] to study the gender wage gap and by Mroz and Popkin [23] to study poverty in Russia using the 1992 and 1993 waves. Also, by Gregory, et al. [24] to study the saving behavior of Russian households using round V of the RLMS in 1994.

For model estimation, we restrict the sample to respondents who were at least 18

years old, drank alcohol, and completed at least three successive interviews. Since the model contains lagged alcohol consumption, this corresponds to constraining the sample to respondents who in the first year of interview completion were at least 17 years old. This left us with 12,024 observations.

Alcohol consumption involves various types of alcoholic beverages. In Russia alcohol consumption is measured in grams instead of liters. Each respondent was asked to state how many grams of beer, wine, fortified wine, home-made liquor, vodka and other hard liquor, and other alcohol they usually drank per day over the last 30 days. This does not refer to the pure alcohol content. From this we constructed two different measures of alcohol consumption; the first is a simple additive measure and the second is a weighted average adjusted for pure alcohol content. We used 5% alcohol content for beer, 10% for wine, 19% for fortified wine, 45% for home made liquor, 40% for vodka, and 20% for other alcohol. Similar weights were used by Mullahy and Sindelar [25] and Tekin [26]. Self-reported measures of alcohol consumption have their critics; see Midanik [27] on the validity of such measures. To the extent that there is no stigma attached to drinking in Russia, respondents can be more truthful in their response to this question; see Tekin [26].

Prices for alcohol came from the community files of the RLMS. Maximum and minimum prices for certain food items and alcohol are sampled at the community level. All prices are transformed into real values using the monthly consumer price index obtained from Goskomstat (Statistics Russia).

For our purpose we use minimum prices for vodka, beer, fortified wine, and table wine to construct a weighted alcohol price measure. Naturally, prices for home made

liquor and other types of unspecified alcohol are not known and cannot be incorporated in the alcohol price measure. This is unfortunate, as it is well documented that consumers substitute home made liquor for branded alcohol as alcohol prices rise. Therefore, our results should be tempered by this limitation on measuring alcohol prices. However, 90% of total alcohol consumed in Russia is reported to be in the form of spirits (vodka), see McKee [2]. McKee adds that drinking in Russia is typically undertaken in binges rather in moderation, as wine with meals in Mediterranean countries. Binge drinking has different effects on health and mortality than moderate drinking. Using the RLMS data, Zohoori, et al. [28] find that between 1992 and 1993, per capita consumption of alcohol in Russia doubled. In particular, alcohol consumption increased significantly among middle-aged men, the very group that had the greatest risk of mortality during that period.

## 4 Profile of a drinker

In Russia the official minimum age for purchasing and drinking alcohol is 18 years. However, respondents as young as 14 years reported drinking alcohol. Fifty-three percent of all respondents in our sample drink alcohol. Among men, the frequency of respondents who reported drinking alcohol is 66%, which is significantly higher than the 44% share among women. Tables 1 to 3 show the profile of a drinker for the whole sample and for men and women, for each round (rounds 5 to 12), as well as for the total sample period. The profile of a male drinker in Table 2 shows that, on average, male drinkers are older (41) than non-drinkers (39). They are more likely to be married (67% as compared to 54%). They are also less likely to

have children (53% as compared to 57%) and less likely to be foreigners (16% as compared to 23%). Controlling for three levels of education, drinkers are less likely to be with primary education (15%) than non-drinkers (25%). Drinkers are more likely to hold higher ranking occupations (like managers, officials, technicians) than non-drinkers (25% as compared to 21%). Men who drink on average have higher real household income than men who do not drink. Unemployment is significantly less prevalent among drinkers (15%) than among non-drinkers (19%). Male drinkers are more likely to have a higher body mass index (24.9) than non-drinkers (24.2), i.e., they are slightly more likely to be overweight. For an individual with height 1.70 m, the difference in the body mass index between drinkers and non-drinkers, although relatively small, amounts to two kilograms. In addition, male drinkers are significantly more likely to smoke than non-drinkers (67% as compared to 43%).

For women, a slightly different picture emerges. Table 3 reports that, on average, women who drink are significantly younger (40) than women who do not drink (48). They are more likely to be married (55% as compared to 45%). They are more likely to have children (54% as compared to 48%) and less likely to be foreigners (14% as compared to 20%). Among three levels of education, the same pattern emerges for women as for men. The frequency of primary education among drinkers is significantly lower (12%) than that among non-drinkers (32%). Also, women who drink are more likely to have higher occupational placement (51% as compared to 46%). Women who drink have significantly higher real household income than woman who do not drink. Like men, unemployment is less widespread among women who drink as compared to women who do not drink (12% as compared to 14%).

Unlike men, women who drink are slightly less likely to be overweight than women who do not drink (with body mass index 26.2 compared to 26.9). Like men, women who drink are also significantly more likely to smoke than women who do not drink (20% as compared to 6%).

Turning to the quantity of alcohol that the individual drinks, Tables 4 to 9 summarize the average alcohol consumption across various individual characteristics for the sub-sample of respondents who reported to have drunk alcohol during the entire sample period. We apply two different concepts for the measurement of alcohol consumption. First, we simply add up the quantities of the different types of alcohol consumed; then, we weight these quantities by their pure alcohol content.

Comparing Tables 5 and 8 with Tables 6 and 9 reveals that male drinkers, on average, drink more than twice as much alcohol as female drinkers (887 grams of alcohol per day compared to 413). This remains the case even after we adjust for pure alcohol content (168 grams of alcohol content compared to 67). Since women differ substantially in the frequency and amount of alcohol consumed from men, we conduct our analysis separately for men and women. In fact, women differ in their physical reaction to alcohol, see Roman [29].

With regard to male respondents (see Tables 5 and 8), we find that, despite the fact that the minimum age for alcohol consumption is 18 years, teenagers between 14 and 17 years of age drink significant amounts of alcohol. In fact, their average consumption by volume exceeds that of respondents over 45 years of age. However, if one looks at the pure alcohol content, this teen age category consumes the least alcohol content. Most alcohol is consumed by men between 18 and 44 years of age,

whether measured by volume or by pure alcohol content. Male respondents above 45 years of age, drink significantly less alcohol than the middle age categories, by either measure.

By volume, married men drink significantly less than non-married men, but after adjusting for pure alcohol content, this difference is rendered insignificant. Men with children drink significantly more than men without children, by either measure, while foreigners on the average drink less alcohol than native born Russian men.

Male respondents with primary education drink significantly less than respondents with secondary or tertiary education. This difference is insignificant after we adjust for pure alcohol content. With regard to occupational placement, we can only observe a significant difference in alcohol consumption across occupational groups after adjusting for pure alcohol content. Men in higher ranking occupations drink significantly less pure alcohol content than men not belonging to those occupations. Respondents having below average real household income drink significantly less than those with above average real household income. However, after we adjust for pure alcohol content, this difference is not statistically significant. Unemployed respondents drink significantly more than employed respondents whether measured by volume or by pure alcohol content. Male respondents with an above average body mass index (BMI) drink significantly less alcohol than males with below average BMI. This becomes insignificant when we adjust consumption for pure alcohol content. Male smokers drink significantly more alcohol than male non-smokers by either measure. There is a strong link between drinking and smoking in Russia. In fact, both are usually listed among the culprits responsible for the decline in the life

expectancy among Russians in the 1990's, see Notzon, et al. [30].

For women, a slightly different pattern emerges when we focus on quantities of alcohol consumed (see Tables 6 and 9). First of all, as already mentioned, women drink less than half the alcohol consumed by men per day. Nevertheless, the age profile of alcohol consumption is similar to that of men. Female teenagers between 14 to 17 years of age drink significant amounts of alcohol. However, as in the case of male teenagers, after adjusting for pure alcohol content, the consumption of alcohol for female teenagers is the lowest of all other age groups. In fact, most alcohol is consumed by women between 18 and 44 years of age, irrespective of whether or not consumption is adjusted for pure alcohol content. Women above 45 years of age drink significantly less alcohol than the middle age categories, by either measure.

With regard to other demographic characteristics, married women drink significantly less alcohol than single women. Also, women with children drink significantly more than women with no children by either measure. Foreign women drink significantly less than native born Russians. This difference is not statistically significant after we adjust for pure alcohol content. Similarly, less educated women drink significantly less than higher educated ones. However, after adjusting for pure alcohol content, this difference becomes statistically insignificant. With regard to occupational placement, after adjusting for pure alcohol content, women in high ranking occupations drink significantly less than their counterparts not belonging to these occupations. As observed for men, household income is only related to the amount of alcohol consumed by women if one does not adjust for pure alcohol content. After we adjust for pure alcohol content we find no significant difference in alcohol

consumption between women respondents with household incomes higher or lower than average. However, unemployed women drink significantly more than employed women, by either measure.

With respect to health related characteristics, we find that women with a BMI above average, drink significantly less than women with a below average BMI, by either measure. Also, women who smoke drink significantly more alcohol than women who do not smoke whether or not we adjust for pure alcohol content. Ogloblin and Brock [31] used two rounds of the RLMS (1996 and 1998) to study the decision to smoke in Russia. They find that smoking is higher among men (61%) than women (10%).

## 5 Empirical Results

Table 10 presents the pooled OLS results for equation (4) with robust cluster standard errors, for the entire sample, as well as for men and women separately. OLS ignores the endogeneity of lagged and lead consumption, and controls for unobserved heterogeneity only through the inclusion of demographic characteristics for each individual. These include gender, age, marital status, level of education, region of residence, whether this individual has children, whether a foreigner, whether in a top occupation, and whether this individual drinks without eating. All regressions also include time dummies, which are not reported to save space. For the full sample, lead and lagged consumption are significant, rejecting the myopic model in favor of future looking consumers. Price is significant, but income is not. Some of the regional dummies are significant. Regional variations in ethnic composition and



cultural traditions across Russia translate into regional variations in alcohol consumption, see Simpura and Levin [32]. Men drink significantly more than women. The middle aged group drinks more than the older age group. Married individuals drink less. In fact, Stack and Bankowski [33] used the Moskow Oblast Survey of 374 respondents to examine the relationship between alcohol consumption and marital status in Russia. They find that single and divorced individuals have a greater probability of drinking alcohol than married individuals. Individuals holding top occupations also drink less, while individuals who reported drinking without eating, not surprisingly, drink more. The implied interest rate is negative. The short and long run price elasticities evaluated at the mean are -0.15 and -0.18 and are statistically significant. The results are the same when applied to men only. The sign and significance of the coefficients are the same but the magnitudes are different. For example, the short and long run price elasticities evaluated at the mean are -0.19 and -0.22 and are statistically significant. For women, price is not significant, and highly educated women drink less. Otherwise, the results differ only in magnitude from those of men.

Table 11 reports the instrumental variables (IV) regression allowing for the endogeneity of lead and lagged consumption and instrumenting with lead and lagged prices and income. Individual prices of beer and vodka are used as instruments. The maximum number of lags used is three. Like the OLS estimator, this IV estimator controls for unobserved heterogeneity only through the inclusion of the demographic characteristics described above for each individual. The results for the full sample reject the myopic model in favor of future looking consumers. However, the implied

interest rate is negative and insignificant. The short and long run price elasticities evaluated at the mean are now larger in absolute value (-0.51 and -1.26) but they have very large standard errors. For women, the IV results are *not* supportive of a rational addiction model. The coefficient of lagged consumption has a negative sign, but it is insignificant. The coefficient of lead consumption is also insignificant. Including dummy variables for each individual in this IV regression, (i.e., applying fixed effects IV as done by Becker, Grossman and Murphy [9]), results in an insignificant F-statistic on the joint significance of the individual dummies. For this data set, it seems that controlling for the problem of endogeneity of lead and lagged consumption is more important than controlling for individual heterogeneity. Nevertheless, we report the fixed effects IV regressions in Table 12. The full sample results yield an insignificant coefficient estimate of lagged consumption and a significant coefficient estimate of lead consumption. Price is also significant, while income is not. This rejects the myopic model in favor of future looking consumers, but the implied interest rate is negative. The results are the same for men but not for women. In the latter case, lagged and lead consumption as well as price and income are insignificant. For women, except for the OLS estimates, the results are not supportive of the rational addiction model.

In order to check the sensitivity of our results, we performed IV estimation with robust standard errors by round. This is reported for rounds 8 and 11 in Table 13 to save space. For round 8, lagged consumption is insignificant but forward consumption is significant for the full sample as well as for men and women. The implied interest rate is negative but insignificant for all cases. For the full sample,

the short-run and long-run price elasticities at the sample mean are -0.295 and -0.333, but both have large standard errors. For round 11, both forward and lagged consumption are not significant for the full sample, but forward consumption is significant for men, while lagged consumption is significant for women. The implied interest rate is negative but insignificant for the full sample, as well as for men, but positive and insignificant for women. For the full sample, the short-run and long-run price elasticities at the sample mean are -0.108 and -0.147, but both have large standard errors. For the results for women in round 11, the roots of the second difference equation given in (3) are not real since  $4\beta\theta^2 > 1$ . Becker, Grossman and Murphy [9] characterize this as the ‘stability condition’ in their Appendix. Ferguson [34] argues that the solution to the rational addiction model is a saddle point, and its roots cannot pass a stability test. However, a saddle point does require that the roots be real. For this case, the short-run price elasticity cannot be computed since the roots are not real.

In sum, the results are sensitive to round by round estimation, and to estimation by gender. The pooled IV results reported in Table 12 suggest that there is *no* support for rational addiction in Russia among women. Our results should be tempered by the fact that we did not deal with zero consumption of alcohol which could be due to quitting, starting to drink or measurement error, see Labeaga and Garcia [35] and Jones and Labeaga [13]. For men, although we find that some implications of the RA model are satisfied, we fail to endorse the model empirically on grounds of implausible negative estimates of the discount rate. As one of our referees pointed out: “Is it credible that drinkers are so forward looking that they

are more worried about the future than present events? If so, why are they drinkers, why don't they stop immediately?" Grossman, et al. [11] and Becker, Grossman and Murphy [9] suggest that the data on alcohol consumption or cigarette smoking are not rich enough to pin down the discount factor with precision. Even with our rich micro-level Russian data, the negative discount rates are at odds with the theory.

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Table 1: Who drinks? Descriptive statistics for men and women

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
	Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Drinks	0.45	0.55	0.46	0.54	0.47	0.53	0.48	0.52	0.48	0.52	0.46	0.54	0.47	0.53	0.47	0.53	0.47	0.53
Distribution of characteristics among non-drinkers and drinkers																		
Age	46.66	40.87	47.28	40.89	46.80	40.79	45.07	41.29	44.81	41.05	45.09	40.95	44.84	40.94	45.01	40.53	45.62	40.91
	***		***		***		***		***		***		***		***		***	
Married	0.51	0.59	0.54	0.71	0.54	0.70	0.48	0.63	0.47	0.61	0.46	0.58	0.44	0.56	0.43	0.55	0.48	0.61
	***		***		***		***		***		***		***		***		***	
Respondent has Children	0.50	0.56	0.50	0.56	0.51	0.55	0.53	0.55	0.53	0.53	0.50	0.52	0.50	0.52	0.50	0.50	0.51	0.53
	***		***		***		***		***		*		**		***		***	
Foreigner	0.17	0.16	0.19	0.16	0.20	0.16	0.21	0.15	0.18	0.15	0.21	0.15	0.24	0.14	0.26	0.15	0.21	0.15
			***		***		***		***		***		***		***		***	
High Education	0.12	0.19	0.11	0.19	0.11	0.19	0.11	0.19	0.11	0.18	0.13	0.20	0.13	0.20	0.13	0.21	0.12	0.19
	***		***		***		***		***		***		***		***		***	
Medium Education	0.53	0.65	0.55	0.65	0.56	0.66	0.59	0.67	0.60	0.68	0.60	0.69	0.61	0.69	0.61	0.69	0.58	0.67
	***		***		***		***		***		***		***		***		***	
Low Education	0.34	0.16	0.34	0.17	0.33	0.15	0.31	0.14	0.29	0.13	0.27	0.12	0.26	0.11	0.25	0.10	0.30	0.13
	***		***		***		***		***		***		***		***		***	
Top Occupation	0.30	0.29	0.28	0.28	0.28	0.28	0.31	0.28	0.29	0.30	0.30	0.32	0.30	0.32	0.29	0.31	0.37	0.37
							**		*		*		*		**		**	
Real Household Income	6774	9165	5529	7546	5380	7709	3614	4874	5117	6097	6746	7925	7202	8819	8028	9756	6123	7831
	***		***		***		***		***		***		***		***		***	
Unemployed	0.13	0.12	0.13	0.12	0.16	0.14	0.20	0.17	0.18	0.14	0.16	0.13	0.16	0.13	0.16	0.13	0.16	0.13
					*		***		***		***		***		***		***	
Body Mass Index	26.04	25.54	26.08	25.45	26.25	25.56	26.03	25.54	25.83	25.35	25.91	25.33	26.02	25.54	26.06	25.67	26.02	25.50
	***		***		***		***		***		***		***		***		***	
Smoker	0.15	0.43	0.16	0.44	0.16	0.45	0.16	0.45	0.17	0.45	0.19	0.46	0.20	0.46	0.20	0.46	0.17	0.45
	***		***		***		***		***		***		***		***		***	
Observations	8891		8404		8343		8692		9050		10084		10486		10616		74566	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that characteristics are evenly distributed among drinkers and non-drinkers at the 1%, 5% or 10% level.  
Yes means drinker, No means non-drinker.

Table 2: Who drinks? Descriptive statistics for men only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds		
	Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
Drinks	0.30	0.70	0.31	0.69	0.33	0.67	0.35	0.65	0.35	0.65	0.34	0.66	0.36	0.64	0.36	0.64	0.34	0.66	
Distribution of characteristics among non-drinkers and drinkers																			
Age	39.70	41.75	41.28	41.46	41.23	41.25	39.30	41.60	38.87	41.32	38.76	41.19	38.72	41.29	38.71	40.65	39.46	41.30	
		***						***		***		***		***		***		***	
Married	0.59	0.63	0.62	0.76	0.62	0.76	0.54	0.69	0.51	0.67	0.49	0.64	0.50	0.62	0.49	0.60	0.54	0.67	
		**		***		***		***		***		***		***		***		***	
Respondent has Children	0.57	0.54	0.55	0.56	0.56	0.54	0.59	0.54	0.58	0.53	0.57	0.52	0.55	0.52	0.56	0.50	0.57	0.53	
		*						***		***		***		**		***		***	
Foreigner	0.15	0.18	0.21	0.17	0.22	0.17	0.24	0.16	0.18	0.16	0.24	0.16	0.28	0.16	0.32	0.16	0.23	0.16	
		**		***		***		***		*		***		***		***		***	
High Education	0.12	0.18	0.11	0.17	0.11	0.17	0.10	0.17	0.11	0.17	0.13	0.17	0.12	0.18	0.13	0.17	0.12	0.17	
		***		***		***		***		***		***		***		***		***	
Medium Education	0.62	0.64	0.62	0.64	0.63	0.66	0.65	0.68	0.64	0.69	0.62	0.70	0.65	0.70	0.65	0.71	0.63	0.68	
						**		**		***		***		***		***		***	
Low Education	0.26	0.18	0.27	0.19	0.27	0.17	0.25	0.15	0.26	0.14	0.25	0.13	0.22	0.12	0.22	0.11	0.25	0.15	
		***		***		***		***		***		***		***		***		***	
Top Occupation	0.15	0.18	0.14	0.18	0.13	0.17	0.13	0.18	0.15	0.19	0.16	0.21	0.16	0.21	0.16	0.21	0.21	0.25	
				**		**		***		**		**		***		***		***	
Real Household Income	7377	8818	6021	7335	6200	7443	3947	4727	5739	6023	7648	7910	8015	8701	8927	9716	6844	7667	
		***		***		***		***		***		***		***		***		***	
Unemployed	0.15	0.12	0.15	0.12	0.18	0.15	0.23	0.18	0.22	0.15	0.20	0.14	0.20	0.15	0.21	0.15	0.19	0.15	
		**		*		*		***		***		***		***		***		***	
Body Mass Index	24.02	24.98	24.12	24.75	24.33	24.89	24.08	24.87	24.03	24.72	24.15	24.66	24.26	24.99	24.42	25.00	24.19	24.86	
		***		***		***		***		***		***		***		***		***	
Smoker	0.41	0.64	0.44	0.66	0.43	0.68	0.41	0.67	0.41	0.67	0.44	0.67	0.47	0.68	0.45	0.68	0.43	0.67	
		***		***		***		***		***		***		***		***		***	
Observations	3903		3656		3603		3759		3893		4301		4496		4561		32172		

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that characteristics are evenly distributed among drinkers and non-drinkers at the 1%, 5% or 10% level.  
 Yes means drinker, No means non-drinker.

Table 3: Who drinks? Descriptive statistics for women only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds		
	Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		Drinker		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
Drinks	0.56	0.44	0.57	0.43	0.58	0.42	0.59	0.41	0.57	0.43	0.55	0.45	0.56	0.44	0.55	0.45	0.56	0.44	
Distribution of characteristics among non-drinkers and drinkers																			
Age	49.58	39.78	49.80	40.19	49.20	40.22	47.69	40.93	47.56	40.74	47.98	40.68	47.86	40.56	48.11	40.42	48.43	40.45	
		***		***		***		***		***		***		***		***		***	
Married	0.48	0.54	0.51	0.64	0.51	0.63	0.46	0.56	0.45	0.53	0.44	0.51	0.41	0.50	0.40	0.50	0.45	0.55	
		***		***		***		***		***		***		***		***		***	
Respondent has Children	0.47	0.58	0.48	0.56	0.49	0.56	0.50	0.56	0.51	0.53	0.47	0.52	0.47	0.52	0.47	0.50	0.48	0.54	
		***		***		***		***		***		***		***		**		***	
Foreigner	0.18	0.14	0.18	0.15	0.19	0.15	0.20	0.14	0.18	0.14	0.20	0.13	0.22	0.13	0.23	0.14	0.20	0.14	
		***		***		***		***		***		***		***		***		***	
High Education	0.12	0.21	0.11	0.20	0.11	0.20	0.11	0.21	0.12	0.20	0.13	0.22	0.14	0.22	0.14	0.24	0.12	0.21	
		***		***		***		***		***		***		***		***		***	
Medium Education	0.50	0.66	0.52	0.66	0.53	0.67	0.56	0.66	0.58	0.67	0.59	0.67	0.59	0.67	0.60	0.67	0.56	0.67	
		***		***		***		***		***		***		***		***		***	
Low Education	0.38	0.14	0.37	0.14	0.36	0.13	0.33	0.13	0.30	0.12	0.28	0.11	0.27	0.10	0.27	0.09	0.32	0.12	
		***		***		***		***		***		***		***		***		***	
Top Occupation	0.39	0.46	0.36	0.42	0.38	0.44	0.42	0.42	0.38	0.45	0.38	0.46	0.39	0.45	0.37	0.44	0.46	0.51	
		***		***		***		***		***		***		***		***		***	
Real Household Income	6521	9597	5325	7809	5026	8028	3464	5050	4827	6181	6346	7942	6805	8945	7591	9798	5798	8019	
		***		***		***		***		***		***		***		***		***	
Unemployed	0.11	0.11	0.11	0.12	0.15	0.12	0.17	0.14	0.15	0.12	0.14	0.11	0.14	0.11	0.13	0.10	0.14	0.12	
						**		*		*		**		**		**		***	
Body Mass Index	26.88	26.24	26.90	26.32	27.07	26.37	26.92	26.34	26.68	26.06	26.71	26.05	26.89	26.14	26.87	26.39	26.86	26.23	
		***		***		***		**		***		***		***		***		***	
Smoker	0.03	0.16	0.04	0.16	0.04	0.18	0.05	0.18	0.06	0.19	0.07	0.23	0.07	0.23	0.08	0.24	0.06	0.20	
		***		***		***		***		***		***		***		***		***	
Observations	4988		4748		4740		4933		5157		5783		5990		6055		42394		

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that characteristics are evenly distributed among drinkers and non-drinkers at the 1%, 5% or 10% level.  
 Yes means drinker, No means non-drinker.

Table 4: Who drinks how much? Average alcohol consumption per day in grams, men and women

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	617.31		616.64		578.53		641.42		709.02		712.59		707.50		707.74		665.47	
Alcohol consumption by characteristics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	619.28	537.67	616.62	617.24	580.70	498.77	640.34	683.06	713.89	529.31	712.78	707.34	709.09	657.69	707.53	713.81	666.48	631.39
Age: 18-29	563.51	793.27	554.86	812.55	538.24	702.70	585.93	810.99	641.97	897.21	633.94	935.78	638.84	893.17	640.30	884.14	602.28	849.54
Age: 30-44	596.53	652.64	595.47	654.79	543.18	642.25	603.55	713.63	678.41	773.11	672.85	800.48	671.08	790.65	659.51	817.05	632.64	731.48
Age: 45+	700.61	476.31	713.93	455.99	659.75	441.22	751.34	465.11	815.83	540.31	853.20	495.49	829.57	520.19	841.52	492.78	775.73	488.18
Married	621.19	614.62	643.28	605.57	548.84	591.17	660.58	630.33	696.92	716.72	733.67	697.22	747.46	676.24	735.52	685.54	686.03	652.45
Respondent has Children	603.73	628.08	599.77	629.81	530.72	617.14	582.11	690.86	662.66	750.11	658.29	762.37	664.26	747.53	671.19	744.22	627.28	698.75
Foreigner	633.72	530.96	627.79	557.21	583.64	551.54	639.28	653.80	714.36	678.21	719.46	671.95	713.88	669.78	710.59	691.72	672.25	627.40
Low Education	639.92	498.17	640.41	495.34	595.91	479.68	669.37	467.69	739.55	506.87	735.67	539.72	727.12	552.18	723.25	569.34	688.83	512.27
Top Occupation	727.33	553.82	707.49	561.52	658.00	504.75	762.45	570.02	827.32	667.78	848.31	657.97	842.42	615.47	830.98	635.04	778.01	600.86
Real household Income below average	676.06	586.17	699.68	570.78	675.37	523.71	720.71	596.24	778.90	666.39	786.38	669.11	747.69	683.25	726.53	695.98	729.42	628.24
Unemployed	654.85	731.17	654.16	760.55	606.35	781.54	692.68	758.15	776.05	894.78	775.10	899.55	763.44	844.63	763.35	915.55	714.57	827.10
Body Mass Index above average	670.91	545.84	672.97	542.31	611.35	535.39	692.62	574.48	771.22	626.56	789.73	608.82	769.72	626.08	770.46	624.81	723.72	588.44
Smoker	425.66	874.99	429.13	860.47	411.84	782.61	471.99	852.98	516.73	947.26	516.72	947.74	513.94	933.95	512.18	934.48	477.36	896.95
Observations	4809		4430		4286		4380		4656		5434		5464		5615		39074	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.

Table 5: Who drinks how much? Average alcohol consumption per day in grams, men only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	837.97		832.12		782.78		856.62		943.93		933.48		933.97		944.09		886.57	
Alcohol consumption by characteristics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	840.63	716.67	832.08	833.95	786.83	631.15	855.51	901.03	947.55	784.64	940.22	748.23	941.32	712.53	945.56	906.02	889.57	783.82
				***								**		***				***
Age: 18-29	768.23	1087.03	753.87	1092.83	730.92	953.77	794.90	1049.39	881.84	1116.69	850.46	1173.74	852.83	1160.16	871.46	1138.14	814.72	1103.70
		***		***		***		***		***		***		***		***		***
Age: 30-44	805.81	894.13	800.87	889.08	732.60	872.84	793.51	978.79	893.17	1053.69	869.31	1075.89	886.46	1042.97	874.12	1101.46	836.68	987.61
		**		*		***		***		***		***		***		***		***
Age: 45+	957.65	655.19	963.80	625.57	893.18	605.26	1003.85	628.68	1071.38	750.47	1098.52	683.27	1076.86	719.89	1105.88	683.15	1025.60	671.32
		***		***		***		***		***		***		***		***		***
Married	871.09	818.50	953.80	793.54	794.22	779.12	941.77	818.61	996.01	919.02	1015.91	887.14	1044.56	865.84	1016.70	896.59	966.30	846.98
				***				***		**		***		***		***		***
Respondent has Children	812.54	859.51	805.80	852.97	708.67	844.58	761.84	938.12	888.22	993.26	868.74	992.82	886.02	978.56	903.80	984.32	835.34	931.92
						***		***		***		***		***		***		***
Foreigner	875.88	663.43	847.24	755.88	792.99	732.76	857.99	849.43	960.39	853.41	951.11	837.50	951.91	838.97	956.42	878.95	903.33	800.11
		***								**		***		***		*		***
Low Education	869.38	692.26	877.55	630.03	816.32	612.30	898.79	613.46	989.38	665.86	965.84	712.10	963.86	717.04	970.72	733.16	923.35	670.34
		***		***		***		***		***		***		***		***		***
Top Occupation	880.28	878.47	865.74	891.30	800.72	811.37	932.72	883.96	996.07	1033.85	1030.31	972.87	1029.75	899.45	1019.70	949.26	945.43	918.74
														***				
Real household Income below average	914.04	801.04	970.60	760.03	911.20	712.68	978.49	792.48	1042.12	885.65	1029.55	878.80	981.48	906.04	962.28	932.92	975.52	837.13
		***		***		***		***		***		***		***		***		***
Unemployed	863.82	961.43	870.25	990.99	806.89	988.58	927.35	929.28	1017.29	1113.31	1011.00	1092.29	1008.78	1001.72	1012.12	1107.86	942.27	1024.93
						***										*		***
Body Mass Index above average	861.65	800.03	851.08	799.73	784.89	779.34	868.97	836.85	967.52	906.62	965.27	881.25	964.78	887.06	970.38	901.43	908.11	851.88
												**		**		**		***
Smoker	684.11	924.59	682.92	909.82	674.72	834.73	783.81	892.50	816.46	1005.81	785.37	1007.77	795.84	999.76	804.46	1011.47	754.43	952.63
		***		***		***		***		***		***		***		***		***
Observations	2656		2430		2342		2375		2470		2823		2833		2908		20837	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.

Table 6: Who drinks how much? Average alcohol consumption per day in grams, women only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	345.10		354.82		332.46		386.51		443.59		473.77		463.63		453.84		412.84	
Alcohol consumption by characteristics																		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	344.54	364.75	354.44	368.43	332.07	346.42	384.94	444.53	447.46	322.79	466.94	662.86	459.66	593.72	453.73	457.53	411.30	463.64
										**		***		**				**
Age: 18-29	299.34	480.11	306.73	498.70	297.62	431.73	335.47	538.52	372.27	645.78	397.35	686.11	404.51	618.47	388.94	619.80	354.69	575.45
		***		***		***		***		***		***		***		***		***
Age: 30-44	332.54	365.76	343.68	374.61	315.83	362.61	375.94	406.30	430.29	470.43	460.00	504.12	438.49	520.77	430.08	508.14	398.33	441.78
		*				**				*		**		***		***		***
Age: 45+	409.67	220.53	423.11	234.72	389.87	229.27	461.02	261.84	536.44	290.10	591.91	287.71	568.45	298.61	556.69	289.25	498.98	268.15
		***		***		***		***		***		***		***		***		***
Married	371.80	322.58	389.22	335.67	353.09	320.53	424.48	357.23	460.78	428.76	508.94	440.16	504.02	423.09	494.93	413.32	450.72	381.65
		***		**		*		***				***		***		***		***
Respondent has Children	324.25	360.36	345.14	362.25	307.75	351.65	361.11	406.91	408.15	475.05	430.83	513.14	424.41	499.79	421.21	486.40	385.34	436.39
		*				**		**		***		***		***		***		***
Foreigner	349.48	317.40	366.30	289.21	338.06	299.98	387.96	377.15	440.56	462.05	475.42	462.99	466.18	446.51	451.84	465.96	415.53	396.09
				**														*
Low Education	369.93	189.32	366.87	280.79	340.38	280.23	403.88	267.83	463.60	297.90	492.47	318.09	477.46	342.74	464.25	346.81	429.36	288.73
		***		***		**		***		***		***		***		***		***
Top Occupation	374.47	353.85	381.23	347.59	366.24	330.94	414.46	371.83	493.74	453.78	512.25	473.72	521.01	446.67	510.45	444.76	452.87	409.26
								*						***		***		***
Real household Income below average	417.20	302.63	396.71	330.00	405.26	289.44	446.89	348.79	491.97	413.15	535.12	436.24	504.14	438.51	479.39	437.52	465.11	380.78
		***		***		***		***		***		***		***		**		***
Unemployed	364.16	398.41	359.20	425.89	344.14	414.84	384.81	471.74	476.32	546.95	497.44	593.87	482.11	577.99	476.53	587.91	429.50	506.99
				*		**		***		*		**		**		***		***
Body Mass Index above average	390.71	296.28	396.32	314.38	356.06	308.22	439.84	331.29	510.91	370.08	563.55	375.86	529.23	390.49	513.19	390.46	471.35	350.70
		***		***		***		***		***		***		***		***		***
Smoker	288.10	636.40	303.06	619.46	287.07	540.98	323.20	678.09	380.66	711.92	391.38	756.13	387.15	723.10	378.69	697.49	345.77	683.24
		***		***		***		***		***		***		***		***		***
Observations	2153		2000		1944		2005		2186		2611		2631		2707		18237	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.

Table 7: Who drinks how much? Average alcohol consumption per day in grams weighted by alcohol content, men and women

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	127.83		129.71		122.05		123.79		126.92		116.97		115.02		110.12		121.00	
Alcohol consumption by characteristics																		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	129.06	78.04 ***	130.74	91.42 **	123.51	68.40 ***	125.23	68.44 ***	129.09	47.03 ***	118.87	64.47 ***	116.61	65.17 ***	111.59	67.95 ***	122.57	68.21 ***
Age: 18-29	124.97	137.16 **	127.51	136.71	122.21	121.53	122.50	127.71	127.79	124.47	114.41	124.22 ***	115.64	113.34	109.90	110.69	120.17	123.42 **
Age: 30-44	124.53	133.43 *	122.92	141.96 ***	114.95	134.84 ***	114.77	140.97 ***	119.29	142.90 ***	110.28	131.77 ***	107.20	132.89 ***	101.47	129.72 ***	113.63	135.83 ***
Age: 45+	132.69	119.59 ***	137.82	116.34 ***	126.84	113.95 ***	132.68	109.53 ***	130.86	120.70 **	124.65	105.11 ***	120.71	106.29 ***	117.81	97.77 ***	127.52	110.52 ***
Married	128.29	127.51	126.16	131.19	109.57	127.36 ***	120.48	125.70	114.69	134.71 ***	109.61	122.34 ***	115.32	114.79	107.90	111.90	115.84	124.27 ***
Respondent has Children	129.23	126.72	128.88	130.37	119.51	124.10	118.90	127.86 **	126.81	127.02	114.95	118.82	113.33	116.58	107.35	112.89 *	119.04	122.71 ***
Foreigner	129.10	121.11	129.15	132.71	119.99	132.92 **	122.57	130.79	125.97	132.42	117.84	111.82	115.63	111.42	111.08	104.75	120.94	121.35
Low Education	126.10	136.96 *	128.33	136.78	120.61	130.24	124.75	117.80	128.16	118.73	116.75	118.58	115.13	114.16	109.42	116.35	120.47	124.47 *
Top Occupation	155.78	94.11 ***	154.25	96.83 ***	142.42	89.98 ***	148.46	93.83 ***	150.82	99.56 ***	138.45	96.33 ***	136.44	86.40 ***	128.31	89.21 ***	143.97	93.03 ***
Real household Income below average	120.41	131.76 **	126.65	131.41	121.10	122.58	117.10	127.60 **	120.69	130.72 **	112.03	119.88 **	107.04	119.84 ***	102.73	114.75 ***	115.09	124.44 ***
Unemployed	134.12	162.02 ***	135.80	160.93 ***	125.35	164.15 ***	129.83	166.67 ***	133.67	186.34 ***	123.38	163.63 ***	121.16	152.01 ***	115.07	161.24 ***	126.84	164.46 ***
Body Mass Index above average	134.87	118.44 ***	136.28	121.05 ***	126.21	116.57 **	130.08	115.56 ***	132.48	119.55 ***	123.92	107.62 ***	120.82	107.43 ***	113.53	105.61 ***	126.71	113.46 ***
Smoker	84.26	186.38 ***	85.53	187.24 ***	83.67	168.88 ***	83.89	173.65 ***	86.03	177.63 ***	79.94	161.44 ***	79.39	156.71 ***	75.80	149.84 ***	82.07	168.89 ***
Observations	4809		4430		4286		4380		4656		5434		5464		5615		39074	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.

Table 8: Who drinks how much? Average alcohol consumption per day in grams weighted by alcohol content, men only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	180.55		179.18		171.24		171.03		177.48		160.13		158.90		152.51		168.27	
Alcohol consumption by characteristics																		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	182.17	106.72 ***	180.90	113.43 ***	173.34	92.69 ***	173.21	83.98 ***	179.95	69.28 ***	163.26	74.04 ***	161.82	70.87 ***	155.04	86.86 ***	170.68	85.64 ***
Age: 18-29	176.88	193.67 *	176.95	186.60	171.57	170.13	170.19	173.65	182.18	164.41 **	158.34	165.32	160.33	154.92	153.92	148.72	168.33	168.08
Age: 30-44	174.13	191.77 **	168.54	198.57 ***	160.66	190.22 ***	157.23	197.74 ***	164.94	204.60 ***	150.80	180.84 ***	148.06	183.77 ***	139.98	180.67 ***	157.17	190.76 ***
Age: 45+	189.44	166.98 ***	190.49	161.43 ***	178.52	159.53 **	183.55	151.63 ***	181.98	170.66	168.01	148.19 ***	165.02	149.73 ***	160.93	138.91 ***	176.57	155.42 ***
Married	190.69	174.59 **	189.42	175.93	166.27	172.83	177.47	168.15	172.76	179.74	157.60	161.56	167.46	153.62 ***	154.28	151.34	170.56	167.14
Respondent has Children	180.27	180.79	178.27	179.90	165.60	175.94	162.01	178.78 ***	177.86	177.15	159.02	161.16	158.33	159.42	150.06	154.95	165.64	170.60 **
Foreigner	185.11	159.54 ***	178.08	184.71	168.76	183.37	170.87	171.84	176.86	180.92	162.87	145.23 **	161.34	145.98 **	155.24	138.08 ***	169.39	162.51 **
Low Education	178.67	189.29	179.80	176.40	171.42	170.33	173.05	159.39	180.04	161.86	160.24	159.39	159.71	153.04	152.79	150.23	168.57	166.51
Top Occupation	191.60	156.72 ***	190.82	154.04 ***	176.95	148.44 ***	184.73	144.94 ***	188.42	154.92 ***	171.94	143.91 ***	172.13	129.56 ***	161.21	137.80 ***	179.56	145.50 ***
Real household Income below average	170.91	185.23 *	178.59	179.49	169.67	172.09	165.77	173.80	169.52	182.21 *	152.90	164.25 **	147.16	165.80 ***	140.61	159.81 **	160.57	172.55 ***
Unemployed	184.41	217.59 **	185.14	210.91 *	172.08	213.50 ***	177.48	210.63 ***	183.14	244.16 ***	166.56	205.28 ***	166.68	183.11 *	157.22	199.77 ***	173.71	209.65 ***
Body Mass Index above average	182.55	177.35	179.05	179.41	170.61	172.26	172.85	168.10	179.17	174.82	163.24	155.03	161.69	154.64	149.81	156.87	169.29	166.62
Smoker	140.38	203.16 ***	135.70	201.88 ***	143.49	184.63 ***	139.96	186.43 ***	139.50	195.92 ***	124.27	178.11 ***	126.98	174.10 ***	121.35	167.44 ***	133.46	185.67 ***
Observations	2656		2430		2342		2375		2470		2823		2833		2908		20837	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.



Table 9: Who drinks how much? Average alcohol consumption per day in grams weighted by alcohol content, women only

	Round 5		Round 6		Round 7		Round 8		Round 9		Round 10		Round 11		Round 12		All Rounds	
Alcohol consumption	62.79		69.62		62.79		67.83		69.79		70.30		67.78		64.59		66.99	
Alcohol consumption by characteristics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Age: 14-17	63.14	50.32	69.71	66.16	63.41	40.45 **	68.27	51.43 *	71.10	29.04 ***	70.89	54.05 **	68.06	58.51	65.27	42.74 ***	67.54	49.03 ***
Age: 18-29	58.00	76.92 ***	65.86	80.84 ***	60.57	69.09 **	65.35	75.21 ***	66.64	78.71 ***	66.41	81.11 ***	66.71	70.56	62.04	71.11 ***	64.04	75.26 ***
Age: 30-44	61.98	64.12	67.00	74.27	60.09	67.67 **	63.91	75.16 ***	66.55	76.34 ***	66.37	78.96 ***	63.07	78.47 ***	60.31	74.38 ***	63.62	73.71 ***
Age: 45+	68.47	51.83 ***	76.51	57.49 ***	67.09	55.05 ***	74.18	57.20 ***	74.97	61.23 ***	78.47	57.43 ***	73.93	58.09 ***	71.35	53.78 ***	73.20	56.57 ***
Married	66.01	60.07 **	74.40	66.96 *	64.34	61.89	72.63	64.12 ***	68.84	70.61	71.40	69.25	72.59	62.94 ***	68.21	61.02 ***	69.89	64.61 ***
Respondent has Children	60.91	64.16	67.84	70.98	61.76	63.58	65.90	69.37	69.20	70.31	67.31	73.04 **	64.66	70.65 **	61.45	67.73 ***	64.85	68.82 ***
Foreigner	63.36	59.15	70.85	62.56	62.77	62.90	67.07	72.74	69.33	72.58	70.40	69.64	68.07	65.81	64.60	64.56	67.12	66.22
Low Education	64.24	53.69 **	68.96	73.66	61.70	69.96 *	68.86	60.79 *	70.86	62.04 *	70.80	66.10	68.12	64.78	64.03	70.32	67.26	65.01
Top Occupation	73.15	55.55 ***	78.83	59.72 ***	71.85	56.85 ***	74.33	61.56 ***	76.50	67.20 **	76.62	68.49 **	75.19	60.74 ***	72.43	59.79 ***	74.84	61.41 ***
Real household Income below average	65.48	61.21	68.56	70.24	65.47	61.20	65.41	69.34	67.46	71.26	69.80	70.60	65.24	69.34	63.01	65.60	66.25	67.45
Unemployed	64.17	81.70 ***	68.44	88.35 ***	64.25	76.74 **	67.33	93.09 ***	72.21	94.31 ***	72.55	97.58 ***	68.96	99.22 ***	66.47	95.59 ***	68.15	91.32 ***
Body Mass Index above average	64.84	60.60	69.86	69.38	60.91	64.72	68.77	66.85	70.58	68.93	73.24	67.09 **	70.43	64.82 **	66.84	62.19 **	68.42	65.48 ***
Smoker	54.38	105.64 ***	60.61	115.76 ***	55.27	95.88 ***	57.13	117.07 ***	61.76	104.11 ***	59.25	108.23 ***	57.99	100.97 ***	54.99	95.65 ***	57.66	104.49 ***
Observations	2153		2000		1944		2005		2186		2611		2631		2707		18237	

Note: \*\*\*, \*\*, \* t-test rejects  $H_0$  that alcohol consumption is evenly distributed across characteristics at 1%, 5% or 10% level.

Yes means that the individual has the characteristic described in that row, No means that he or she does not have that characteristic.

Table 10: Pooled OLS with robust cluster standard errors

	Full Sample	Men	Women
$C_{t-1}$	0.163 [11.19]***	0.148 [9.19]***	0.254 [13.07]***
$C_{t+1}$	0.242 [12.41]***	0.228 [10.25]***	0.296 [11.90]***
$P_t$	-0.333 [4.99]***	-0.545 [5.11]***	-0.042 [0.68]
$Y_t$	-0.037 [0.22]	0.002 [0.01]	-0.016 [0.11]
Region: Metropolitan areas	-9.390 [2.04]**	-17.861 [2.20]**	-1.301 [0.35]
Region: north/northwestern	2.984 [0.61]	3.520 [0.43]	1.694 [0.48]
Region: Central -Central black earth	-13.078 [3.43]***	-17.939 [2.96]***	-5.809 [1.86]*
Region: Volga-vaytski/Volga basin	-8.310 [2.12]**	-11.877 [1.93]*	-3.922 [1.35]
Region: North Caucasian	-5.059 [1.07]	-11.015 [1.48]	2.402 [0.65]
Region: Ural	3.333 [0.80]	-0.287 [0.04]	6.012 [1.77]*
Region: Western Siberia	-0.371 [0.08]	-2.394 [0.33]	-0.146 [0.04]
gender	53.738 [18.01]***		
Age: 18-29	2.764 [1.01]	-2.724 [0.58]	6.900 [3.03]***
Age: 30-44	17.868 [6.47]***	19.568 [4.35]***	12.700 [6.08]***
Dummy: married	-5.944 [2.51]**	-8.191 [1.79]*	-4.109 [2.37]**
Dummy: Foreigner	-2.114 [0.65]	-2.417 [0.49]	-0.738 [0.28]
Dummy: high education	-6.604 [1.58]	-6.379 [0.95]	-7.618 [2.32]**
Dummy: secondary education	4.175 [1.15]	7.984 [1.50]	-1.802 [0.62]
Dummy: top occupation	-9.467 [4.14]***	-13.113 [2.89]***	-4.412 [2.27]**
Dummy: respondent has children	-2.605 [1.08]	-1.987 [0.50]	-2.215 [1.13]
Dummy: drinks without eating	16.950 [6.55]***	20.671 [5.55]***	9.298 [3.61]***
Constant	63.818 [9.32]***	135.560 [11.20]***	40.518 [7.65]***
Observations	12024	6961	5063
$R^2$	0.240	0.120	0.230
Implied interest rate	-0.328	-0.351	-0.141
Standard Deviation	0.069	0.078	0.088
Short run price elasticity	-0.153	-0.186	-0.039
Standard Deviation	0.030	0.036	0.057
Long run price elasticity	-0.184	-0.219	-0.053
Standard Deviation	0.037	0.043	0.079
$\bar{P}_t$	44.261	44.007	44.611
$\bar{C}_t$	134.287	175.226	78.000

Time dummies are included in all regressions but are not reported to save space.  
Default categories for dummy sets are: Eastern Siberia, Age 45+, primary education.

Table 11: Pooled IV with robust cluster standard errors

	Full Sample	Men	Women
$C_{t-1}$	0.411 [3.46]***	0.443 [3.38]***	-0.101 [0.23]
$C_{t+1}$	0.522 [2.97]***	0.517 [2.93]***	1.192 [1.56]
$P_t$	-0.234 [2.18]**	-0.362 [1.99]**	-0.014 [0.12]
$Y_t$	-0.281 [0.94]	-0.359 [0.72]	-0.236 [0.90]
Region: Metropolitan areas	-3.297 [0.61]	-12.991 [1.36]	17.087 [1.14]
Region: North/northwestern	0.489 [0.10]	-1.789 [0.22]	5.242 [0.80]
Region: Central-Central black earth	-6.123 [1.28]	-8.885 [1.23]	4.082 [0.36]
Region: Volga-vaytski/Volga basin	-7.438 [1.80]*	-11.630 [1.81]*	0.771 [0.10]
Region: North Caucasian	-9.679 [2.03]**	-16.993 [2.22]**	8.360 [0.70]
Region: Ural	-4.527 [1.09]	-7.081 [1.06]	0.693 [0.12]
Region: Western Siberian	-3.306 [0.69]	-3.736 [0.51]	2.554 [0.31]
gender	6.149 [0.40]		
Age: 18-29	-3.635 [0.93]	-8.520 [1.37]	-2.147 [0.25]
Age: 30-44	2.610 [0.44]	1.670 [0.18]	0.982 [0.11]
Dummy: married	-6.017 [2.31]**	-8.623 [1.57]	-4.313 [1.49]
Dummy: Foreigner	0.437 [0.14]	0.253 [0.06]	7.600 [1.09]
Dummy: high education	4.699 [1.01]	11.534 [1.44]	-2.365 [0.42]
Dummy: secondary education	7.371 [1.90]*	9.806 [1.64]	4.780 [0.96]
Dummy: top occupation	-4.488 [1.48]	-13.083 [2.48]**	3.338 [0.48]
Dummy: respondent has children	-0.945 [0.37]	-2.613 [0.57]	-0.472 [0.15]
Dummy: drinks without eating	10.077 [2.34]**	13.703 [2.02]**	2.033 [0.53]
Constant	25.818 [1.58]	41.521 [1.11]	-11.051 [0.28]
Observations	6038	3372	2666
$R^2$	0.561	0.544	0.385
F-test excluded instruments			
$C_{t-1}$	7.023	5.701	2.436
p-value	0.000	0.000	0.007
$C_{t+1}$	5.282	4.532	1.315
p-value	0.000	0.000	0.217
Hansen J-Statistic			
$\chi^2$	6.195	8.227	4.725
p-value	0.625	0.412	0.787
Implied interest rate	-0.213	-0.143	-1.084
Standard Deviation	0.406	0.403	0.318
Short run price elasticity	-0.508	-0.785	0.099
Standard Deviation	0.952	2.828	1.188
Long run price elasticity	-1.257	-2.517	0.091
Standard Deviation	2.948	12.712	1.103
$\bar{P}_t$	47.751	47.788	47.704
$\bar{C}_t$	131.421	173.356	78.382

Time dummies are included in all regressions but are not reported to save space.

Default categories for dummy sets are: Eastern Siberia, Age 45+, primary education.

Table 12: Fixed Effects IV

	Full Sample	Men	Women
$C_{t-1}$	0.295 [0.91]	0.314 [0.96]	0.044 [0.16]
$C_{t+1}$	0.875 [2.03]**	0.899 [1.99]**	-0.187 [0.32]
$P_t$	-0.316 [1.78]*	-0.507 [1.71]*	-0.086 [0.84]
$Y_t$	0.601 [0.88]	1.158 [1.00]	-0.112 [0.30]
Age: 18-29	-43.945 [1.28]	-54.396 [1.00]	-6.727 [0.29]
Age: 30-44	-12.779 [0.67]	-14.119 [0.42]	-2.025 [0.19]
Dummy: married	-23.966 [1.13]	-26.970 [0.79]	0.184 [0.01]
Dummy: Foreigner	13.365 [0.38]	20.077 [0.33]	3.627 [0.18]
Dummy: high education	-36.129 [0.69]	-89.007 [1.11]	10.932 [0.36]
Dummy: secondary education	-14.057 [0.41]	-29.220 [0.55]	7.045 [0.34]
Dummy: top occupation	-2.233 [0.15]	-22.862 [0.92]	19.229 [2.41]**
Dummy: respondent has children	-7.464 [0.59]	-14.195 [0.65]	3.072 [0.45]
Dummy: drinks without eating	23.395 [2.82]***	33.429 [2.60]***	3.314 [0.67]
Constant	32.596 [0.39]	47.907 [0.39]	75.850 [1.58]
Observations	6038	3372	2666
Number of groups	2793	1501	1292
$R^2$	0.208	0.1173	0.0888
F-test: $u_i = 0$	0.25	0.26	0.57
p-value	1	1	1
Implied interest rate	-0.663	-0.651	-1.234
Standard Deviation	0.330	0.307	1.654
Short run price elasticity	not defined	not defined	not defined
$\bar{P}_t$	47.751	47.788	47.704
$\bar{C}_t$	131.421	173.356	78.382

Time dummies are included in all regressions but are not reported to save space.

Default categories for dummy sets are: Eastern Siberia, Age 45+, primary education.

Table 13: IV with Robust standard errors by round

	Full Sample		Men		Women	
	Round 8	Round 11	Round 8	Round 11	Round 8	Round 11
$C_{t-1}$	0.109 [0.36]	0.227 [0.87]	0.183 [0.44]	0.193 [1.03]	0.039 [0.17]	0.921 [2.00]**
$C_{t+1}$	0.413 [2.04]**	0.544 [1.37]	0.401 [1.75]*	0.654 [2.06]**	0.528 [2.20]**	0.334 [0.98]
$P_t$	-0.475 [2.56]**	-0.086 [0.37]	-0.527 [1.82]*	-0.065 [0.20]	-0.305 [2.13]**	-0.066 [0.30]
$Y_t$	-1.415 [1.08]	-0.725 [2.10]**	-1.978 [0.70]	-0.791 [1.42]	-1.132 [1.29]	-0.329 [0.81]
Region: Metropolitan areas	28.423 [1.30]	-27.405 [2.41]**	-2.302 [0.06]	-52.455 [2.53]**	53.607 [2.03]**	-5.994 [0.49]
Region: north/northwestern	-0.290 [0.02]	-11.089 [0.96]	-12.168 [0.50]	-24.515 [1.20]	6.925 [0.60]	-1.222 [0.12]
Region: Central -Central black earth	-17.958 [1.41]	-20.593 [2.10]**	-29.811 [1.49]	-26.114 [1.60]	-0.240 [0.02]	-13.289 [1.25]
Region: Volga-vaytski/Volga basin	2.990 [0.22]	-28.393 [2.87]**	-2.684 [0.13]	-38.095 [2.30]**	4.699 [0.45]	-16.733 [1.84]*
Region: North Caucasian	-12.095 [0.69]	-40.434 [3.50]**	-22.581 [0.84]	-72.294 [3.57]**	-4.044 [0.37]	-17.435 [1.52]
Region: Ural	13.831 [0.88]	-26.958 [2.63]**	12.982 [0.49]	-33.130 [1.94]*	6.880 [0.64]	-39.756 [2.48]**
Region: Western Siberia	12.639 [0.58]	-21.468 [1.88]*	20.040 [0.63]	-31.173 [1.62]	-6.446 [0.42]	-18.636 [1.69]*
Gender	41.644 [1.98]**	19.536 [0.99]				
Age: 18-29	15.003 [1.18]	-19.788 [2.19]**	2.435 [0.12]	-37.024 [2.91]**	24.363 [2.06]**	-10.884 [1.26]
Age: 30-44	26.258 [2.25]**	-0.665 [0.05]	32.395 [1.55]	-14.671 [0.77]	18.095 [2.18]**	-4.867 [0.41]
Dummy: married	0.437 [0.05]	-16.240 [3.19]**	3.732 [0.23]	-31.501 [3.01]**	-2.550 [0.39]	-7.052 [1.44]
Dummy: Foreigner	1.626 [0.16]	-2.527 [0.37]	-2.633 [0.17]	-1.854 [0.18]	9.316 [0.79]	-2.221 [0.23]
Dummy: high education	-14.682 [1.14]	13.428 [1.14]	-1.994 [0.09]	25.045 [1.32]	-18.992 [1.69]*	5.830 [0.56]
Dummy: secondary education	3.938 [0.40]	12.135 [1.18]	10.228 [0.68]	21.166 [1.52]	-6.684 [0.70]	-10.902 [0.88]
Dummy: top occupation	-14.075 [1.77]*	-12.007 [2.54]**	-31.840 [1.68]*	-17.610 [1.66]*	-4.087 [0.54]	-9.516 [1.55]
Dummy: respondent has children	6.700 [0.58]	6.444 [1.33]	9.256 [0.40]	12.986 [1.45]	1.252 [0.18]	6.212 [1.01]
Dummy: drinks without eating	30.945 [2.53]**	5.711 [0.62]	47.797 [2.67]**	1.785 [0.13]	-10.651 [1.13]	5.347 [0.98]
Constant	44.950 [2.05]**	56.424 [2.39]**	73.668 [1.53]	84.012 [1.95]*	46.023 [1.72]*	18.933 [0.46]
Observations	1199	1881	713	1019	486	862
$R^2$	0.561	0.694	0.565	0.668	0.568	0.510
F-test excluded instruments						
$C_{t-1}$	1.407	3.928	0.987	3.866	1.623	0.578
p-value	0.172	0.000	0.453	0.000	0.097	0.833
$C_{t+1}$	4.915	1.883	4.103	1.493	1.202	1.536
p-value	0.000	0.043	0.000	0.137	0.287	0.122
Hansen J-Statistic						
$Chi^2$	9.060	15.239	10.346	11.696	5.272	4.389
p-value	0.337	0.055	0.242	0.165	0.728	0.820
Implied interest rate	-0.735	-0.582	-0.545	-0.706	-0.927	1.753
Standard Deviation	0.832	0.750	1.235	0.384	0.434	3.377
Short run price elasticity	-0.295	-0.108	-0.261	-0.096	-0.408	not defined
Standard Deviation	0.112	0.242	0.139	0.481	0.257	
Long run price elasticity	-0.333	-0.147	-0.326	-0.124	-0.425	
Standard Deviation	0.158	0.368	0.244	0.638	0.263	
$\bar{P}_t$	46.043	49.401	45.980	49.419	46.136	49.379
$\bar{C}_t$	137.310	125.540	178.829	166.996	76.398	76.533

Time dummies are included in all regressions but are not reported to save space.

Default categories for dummy sets are: Eastern Siberia, Age 45+, primary education.