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## **Legacy from the transition? Alcohol Consumption by Young Adults in Ukraine**

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**Abstract**

The study analyses the effects of transition on the amount and patterns of alcohol consumption. We test the hypothesis of how far negative experiences induced by the collapse of the Soviet Union have led to drinking in the young generation of Ukrainians. We use data coming from the Ukrainian Longitude Monitoring Survey (ULMS) to identify both determinants and patterns of alcohol consumption among young adults. We find that financial strain in the household increases the probability of drinking in the cohort of young adults. Moreover, we also identify an intergenerational link in drinking behaviour, which is often neglected in the literature.

**JEL classification codes:** D1, I18

**Keywords:** alcohol consumption, Ukraine, economic transition, young adults

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## **Introduction**

Alcoholism negatively impacts on individuals and societies as a whole (Room et al. 2005; Harwood et al. 1992). In its report on per capita recorded alcohol consumption of the population aged 15 and older, the World Health Organisation concludes that the “[h]armful use of alcohol is related to many diseases and health conditions, including chronic diseases such as alcohol dependence, cancer and liver cirrhosis, and acute health problems such as injuries” (WHO 2007). Consuming alcohol can worsen a person’s promotion opportunities and wages (MacDonald/ Shields 2001) and can also affect happiness (Anderson/ Moro 2008). In the society as a whole, alcohol has a negative impact on public health, production and employment rates. Thus, it is crucial to understand why people chose to increase their alcohol consumption and exhibit such drinking patterns.

Recognising the social and demographic challenges resulting from high alcohol consumption (high mortality rates and the poor health status of the population), Russia and Ukraine have recently launched new policies to reduce alcohol consumption. For example, on 21<sup>st</sup> January 2010 the Verkhovna Rada of Ukraine (Supreme Council or Parliament of Ukraine) amended a previously existing law restricting the consumption and sale of low-alcohol beverages. Their consumption is now subsequently prohibited in such places as education and health establishments as well as public transport and playgrounds, also setting out a new age restriction. These policies are late responses to the increased alcohol consumption of the 1990s.

Most economic studies focus on the direct impacts of changing socio-economic factors, such as income or prices, on alcohol consumption. The impact of income, for example, is controversial (Andrienko/ Nemtsov 2008; Nelson 1997; MacDonald/ Shields 2000; Tekin 2002). The relationship between unemployment on alcohol consumption is not clear either (Ogwang/ Chang, 2009). Overall, all these studies face an endogeneity problem,

as income or unemployment might be themselves affected by alcohol consumption. To overcome the problem, scholars often rely on the assumption that the consumer was myopic: when consuming alcohol in the past, he/she ignored negative future consequences on health or taste (Becker/ Murphy 1988; Becker et al. 1991). Reliance on this assumption gives a justification to use alcohol prices in the preceding period as instrumental variables to explain current alcohol consumption.

In this paper, we study the determinants of alcohol consumption among young adults in Ukraine. This is an interesting case of study because of the harsh economic transition that the country experienced after the demise of the Soviet Union, in 1991. Ukraine underwent severe structural reforms and its GDP was halved during the 90s. This may have affected the environment within which these young adults grew up. Their parents might have experienced traumatic labor market experiences which may have affected the levels of psychosocial stress in the household. Many insights on the influence of the 1990s socioeconomic transition on alcohol consumption have been gained with the help of the Russian Longitudinal Monitoring Survey (RLMS). The approaches and the conclusions have been different, mainly depending on which variables have been used to capture the effects of the transition. The impact on increased alcohol consumption has been traced back to the sharp reduction of prices on alcohol beverages which went along with price liberalisation (Brainerd/Cutler 2005; Andrienko/ Nemtsov 2006) and rising inflation levels (Herzfeld et al. 2009). However, these results are often not robust as they rely on WHO data, which diverges from more accurate information on alcohol consumption coming from RLMS micro-data. Indeed, the impact of home-made alcohol is not adequately captured with WHO data.

Overall, the focus of research on the transition countries is dominated by studies on Russia. Whereas the overwhelming majority of studies are analysing causes, consequences and patterns of alcohol consumption for Russia, there are only few studies on Ukraine – to our knowledge only two. Both studies on Ukraine are concerned with alcoholism as a driver of

mortality rates. Levchuk (2009) uses aggregated data on the causes of death to estimate alcohol-attributable deaths at working ages (20-64) between 1980 and 2007. However, there is no study that explores the determinants of teen alcohol consumption in Ukraine. Given these gaps in the literature, the aim of the study is to investigate the relationship between the social and economic transformation experienced in Ukraine in the last decades on young adults.

We find that different indicators describing the socioeconomic standing of the household and of the parents of young adults have a profound impact on alcohol consumption patterns. Households whose members experience wage arrears are more likely to have young adults drinking. Second, parental drinking indicators (which may be affected by financial strain) also affects consumption in the young generation. These findings are also of interest because age of onset of drinking is a strong predictor of subsequent alcohol dependence problems (Grant/ Dawson 1997), and, more broadly, with employment problems, substance abuse, and criminal and violent behavior (Ellickson/ Tucker/ Klein 2003).

The next section gives an overview of the literature regarding the determinants of alcohol consumption. The section is followed by an explanation of the variables used in the analysis and the methodology to derive some of these indicators. The analysis presents an overview of the alcohol consumption in young adults in Ukraine, and the last section concludes.

## **Conceptual Framework**

The determinants of alcohol consumption are multiple and complex. We posit three categories of variables that impact on drinking behaviour by youths: First of all, at the meso-level we look at the regional influences, hypothesising that regional differences impact on alcohol consumption. Secondly, we look at the household-level. Here we attempt to identify how the socioeconomic environment of the family of the young adult was affected by the transition (patterns of long-term unemployment, wage arrears), and also focus on parental characteristics (education and age) and health related behaviour (drinking, smoking, health status). With this approach we hope to capture the influences of factors, such as psychosocial stress and lack of social support. Finally, we look at the observable individual characteristics of the young adult, such as age and gender. The dependent variable we analyze in this paper is an indicator that the young adult consumed alcohol in the recall period (see measurement section for details).

## ***Regional Environment***

It is an often claimed stereotype that people in Eastern Europe drink more. However, some Western European countries (Germany, United Kingdom, Spain) have comparable levels of alcohol consumption to those of Ukraine (about 12 liters of pure alcohol/year, Rehm/ Gmel, (2001); see also WHO (2010)). The amount of alcohol that is drunk is portrayed and often justified as a natural reaction to cultural habits or historical differences (e.g. Segal 1990, Christian, 1987). Analysing Belarus, Kazakhstan, Russia, and Ukraine, for example, Cockerham et al. (2006: 2393) claim that “heavy habitual vodka drinking has been a feature of male socializing”. Apart from these broader differences it remains to be investigated which differences indeed occur in this region – not only as a result of a cross-country comparison, but also in terms of *within* country differences. In the context of the Russian transition, Walberg et al. (1998) claim that increased alcohol use reduced life expectancy in the early

1990s in some regions, especially those regions that experienced the fastest pace of transition (massive job losses; high rates of labour turnover, which is a sum of job gains and losses in medium and large enterprises). Their study implies that in areas that remained comparably unaffected by the transition, people remained ‘relatively protected’, leading to differences in life expectancy between agricultural and urban, more industrialised areas. Following this argument, differences in regional alcohol consumption might reflect differences in the levels of social capital and the role of (regional) government in providing support (McKee 2002). On the other hand, Andrienko and Nemtsov (2006) find that poor people in rural areas consume 40% more ethanol than people in urban areas. We test the impact of regional environments on alcohol consumption by looking at differences between *villages* and *towns*, separately testing for *Kiev*, as well as more generally for the *Center*, *East*, *West* and *South* regions of Ukraine (details of these variables described in Table 1).

### ***Environment in the Household***

#### *Socio-Economic Background*

How did the transition (characterized by increased political and economic uncertainty) impact on alcohol consumption of young adults? We hypothesize that changes in the socio-economic background of the households had indirect impacts on the children in later years.

Expectations of economic prosperity that had been raised during the transition did not materialize. On the contrary, during the early transition unemployment and inflation were high, while production kept on falling sharply. With the collapse of the state, the social safety nets stopped operating and pension, wages and state support were not paid over long periods of time. Wage arrears naturally reduced household income (Brück et al. 2009). Dramatically rising mortality rates between 1990 and 1995 had been partly explained by the loss of state control over the alcohol market (WHO 2001: 38).

The collapse of state socialism and the process of social, political, and economic transformation that followed created enormous psychological stress for the population (Leon/Shkolnikov 1998; Shkolnikov et al. 1998). Macroeconomic instability and the mortality crisis of the early 1990s have, for example, led to increased suicide rates (Brainerd 2001). Similar results of on the relationship of economic downturn and psychological distress and drinking behaviour had been found for the US (Anderson/ Moro 2008).

During difficult economic times, social and especially family ties became even more crucial for survival. To cope with and reverse the stress arising from the transition supportive social networks had become essential (McKee 2002). Social relations are said to provide alternative resources in economically uncertain situation and hardships, which might protect against binge drinking (Jukkalaa et al. 2007). However, social networks had themselves been badly affected by the transformation, as the study by Carlson and Vagerö (1998) shows. 18 months after the introduction of ‘shock therapy’ in 1992 they conducted face-to-face interviews in the city of Taganrog, Russia, asking explicitly for a detailed description of the relations in the family. Analyses of the interviews revealed that “[a]mong men, quarrels and conflicts in the family were associated with a sixfold higher frequency of heavy drinking compared to families reporting good relations“. They concluded that the social transformation has been taking place accompanied by enormous social and economic pressures on families, weakening family ties, the role of the men and the institution of the family as a whole (Carlson/Vagerö 1998: 280). Jukkalaa et al. (2007) present evidence suggesting that economic strains (need to rely on outside help; measures of poverty and malnutrition), the availability or lack of social support in terms of social relations are related to binge drinking in Moscow in 2004. They find that the prevalence of binge drinking is higher among men experiencing economic stress, whereas women were less likely to drink. On the other hand, they find that being in a social relation (being married or cohabiting) had a strong protective effect on binge drinking among women (and not men). Cockerham et al. (2006) come to a similar conclusion



that the stressful situation (as measured by 12 psychological distress symptoms) promoted frequent drinking among men. The difference has been explained by the different social role women are playing.

Yet, while these studies make conclusions about heavy drinking of adults, we would like to concentrate on the alcohol consumption of the transition children years later. The changing situation in the household might in particular have negatively affected the children, as previous studies on Native Americans, Australian aborigines and Pacific Islanders have shown (see McKee 2002). The destabilisation in the families results in changes of traditional values and can lead to a lack of assistance. Young adults in society that underwent social transformation processes are characterised have an outlook that is characterised “by a sense of futility, lack of purpose, emotional emptiness and despair” (McKee 2002: 456; Durkheim 1951). These can become one of the main driving forces for increased alcohol consumption in later years.

We test for factors that might have produced an unstable environment for the later generation by looking at the experiences of their parents. In this study we analyse the impacts on cumulative job losses of father and mother using retrospective data from the late 80s and 90s (*mfcumjobloss*), and the fraction of time the father or mother spent unemployed in the period 1998-2004 (*fracunemp98040*). Yet, we would like to emphasize that this information might suffer from recall errors. To overcome this problem we assume a long-term impact of the transition and measure it as a reflection on the teenagers’ situation in 2007. Over the years, families might have found themselves in a vicious circle as not only were unemployment and other things feeding into high alcohol consumption but also the other way round. Indeed, problem drinking has repeatedly been found to increase the probability of becoming unemployed and to make it more difficult to be employed again (Terza, 2002). To capture these negative long-term impacts, we look more generally at the situation in the

household: whether in the last 12 months someone experienced wage arrears (*arrears12hh*), was unemployed (*unemL12hh*) or was forced to leave work (*forcL12hh*).

A final aspect that might have negatively affected the child's social background, whether as a result of the difficult times during the transition or because of other reasons, is the death of the mother or father. We include a variable that looks for whether the mother or the father was already dead when the young adult was age 14 (*mdead14*, *fdead14*).

### *Behavioural Characteristics of the Parents*

That alcohol consumption is heavily determined by genes is a well-established fact in medical science. Studying the self-reported alcohol consumption of 2513 twin pairs, Vilken et al. (1999) find that additive genetic effects increased from age 16 to age 17. Yet, they also conclude that environmental effects explain most of the variation in initiation of drinking to intoxication. We hypothesize that the onset of drinking in a teenager can be affected by parental drinking behaviour and environment. Indeed, the risk of drinking is generally found to be higher when there are drinkers among the rest of household members (Andrienko/ Nemtsov 2006). Applied to children, Yurkevich (1979; cited by Stack/ Bankowski 1994) analysed the variance of delinquency and drinking behaviour of 620 Soviet boys and found that both are correlated with parental marital status and high parental alcohol consumption. Thus, we look at how much ethanol the mother or the father had been consuming in previous years/ father or mother drink (*ethmo03*, *ethfa03*, *fdrinks*, *mdrinks*). Similarly, we look at whether mother or father smoke (*mfsmokes*), as another proxy for health related behaviour.

Finally, we control for whether the father or mother was not in the household roster (*fathmiss*; *mothmiss*), in which case most of the information on parents is missing, because we link information on parental status using the household roster in ULMS.

### ***Individual Characteristics***

We control for individual characteristics, such as age, sex and ethnicity, which might affect alcohol consumption independently of the environment in which the young person grew up. Concerning the age one may observe slowly rising demand. Andrienko and Nemtsov (2006), for example, find that “demands for beer and wine are falling beginning with young ages.” As it has been previously indicated, there might be a sizeable gender gap in alcohol consumption (Jukkala et al. 2008; Moore et al. 2005), and we control for that (*female07*). Finally, many studies in the US analyse whether alcohol consumption is determined by the ethnical background of the people, differentiating for example between whites and blacks (Moore et al. 2005). We control for this effect by including a indicating that the person prefers speaking Ukrainian (*Ukrainian*).

Finally, few authors argue that to understand alcohol consumption one has to consider the degree of risk aversion of the people. Risk-tolerant people are believed to more likely avoid adverse health outcomes and potential loss from alcohol consumption (Andrucci et al. 1989; Mullahy/ Sindelar 1995; Barsky et al. 1997; Gerra et al. 1999; Dave/Saffer 2008). Dave and Saffer (2008) present a multivariate model, where the difference to participate in drinking differs significantly by 5.8 per cent points for risk-averse relative to risk-tolerant people. However, many of these studies do not control for other factors that could determine alcohol consumption. We use an indicator of risk tolerance as explained in Appendix 1. We also test for differences depending in intertemporal preferences, which have also been studied in ULMS. We provide a definition of this indicator in Appendix 2.

Overall, focusing on youth drinking gives some advantages to overcome the problem of endogeneity. Moreover, it stresses the role that socioeconomic conditions on the household (and potential grievances associated with them) may have on younger generations. This has been an area of research that has been left largely unexplored.

## **Data and results**

We make use of data collected in the Ukrainian Longitudinal Monitoring Survey (ULMS), a nationally representative panel survey of households. There are three rounds of data collection undertaken in 2003 (April-July), 2004 (May-July), and 2007 (June-December). The sampling method used is multistage with probability proportional to size (Kiev International Institute of Sociology, KIIS, 2004), and contains high quality household and individual data. The household questionnaire contains information about income, expenditure, household composition and living conditions. The individual questionnaire focuses on labor market status, and this information has been explored in great detail because of the richness and quality of the dataset (Lehmann/ Terrell 2006). It also contains a detailed retrospective questionnaire that allows to assess employment conditions at specific points in time (December 1986, 1991 and 1997), and to derive a complete reconstruction of labor market histories since January 1998. The 2007 questionnaire includes a set of questions on risk attitudes and time preferences (Dohmen/ Khamis/ Lehman, 2009).

### *Descriptive Statistics*

Figure 1 shows the proportions of young adults that drank alcohol during the recall period (“last 30 days”) in 2007. In both men and women, the proportion of drinkers increases with age, although a higher fraction of drinkers is found among men, especially in after age 17. Figure 2 shows the average amount of alcohol consumed (in grams of ethanol/day) among drinkers. As expected, on average, men drink more alcohol than women, but this pattern is clearer only in those ages 17 and above. Alcohol consumption seems to reach a plateau in women approximately at age 17, while consumption among male drinkers shows a positive relation with age for the interval considered here (ages 15-21). Ethanol consumption in young

adults averages 22 grams/day, which is close to alcohol consumption figures that include unreported alcohol consumption (see for example WHO 2004).

[Table 1 about here]

Table 1 displays the variables used in our study. About 40% of young adults report having drunk alcohol in the last month. Our group of young adults ages 15-21 are, on average 18.2 years old. In terms of the risk aversion index, they are, on average, less risk averse than older adults, but have a lower rate of time discount (results of statistical testing not shown). About 8% of households experienced problems with wage arrears in the last 12 months (at 2004), while forced leave was less likely to be reported, and unemployment more likely. Through a detailed retrospective questionnaire, we are also able to identify other causes of economic grievances in the household, such as employment difficulties during the transition (*mfcumjobloss*), and fraction of time that the mother/father was unemployed in the period 1998/2004 (*fracunemp9804*). About 5% of these young adults experienced the demise of their father by age 14, while a considerably smaller fraction of them were maternal orphans by the same age. About 46% of these young adult mothers and 30% of their fathers did not drink during the previous month. Mothers were on average 44 years old, and fathers were 46 years old. Young adults on this survey come from different regions and type of urban settlements, which is in line with the representativeness of ULMS data (Lehmann/ Terrell 2006). In 2007, 43% of fathers and 21% of mothers were not members of the household. This precludes retrieving information about parents that is not reported from their offspring. In order to overcome selectivity problems (at least to a certain degree), we employ two different strategies. First, we have created indicators that signal that information about parents is missing. This allows us to avoid excluding individuals on the basis that parental information is missing, which may be different from the rest of young adults. Second, we used alternative indicators about the socioeconomic situation in the household (or about parents) by using

information about household members in general, or information about parents reported by young adults (education, living status).

[Figure 1 about here]

[Figure 2 about here]

### *Measuring alcohol consumption*

Many studies rely on *mortality figures* to measure patterns of alcohol consumption. These are, in particular, these often contain information about drunk-driving, alcoholic liver cirrhosis, mortality poisoning collected in police or health statistics. It is thereby assumed that “changes in acute alcohol poisoning can be regarded as a good estimation of changes in the frequency of excessive drinking” (Shkolnikov et al. 2001: 920; see also Sjørgen et al. 2000). These studies are often unreliable. Stockwell et al. (2000) indicate that these measurements would, for instance, be prone to police enforcement practices, medical diagnostic fashion and sensitivity to prejudices about alcohol-related problems as they are not collected only for the purpose of monitoring alcohol-related events. Another method is to use aggregated data on alcohol consumption obtained from excise-tax records and industry reports, yet these do not take into account “wastage, illicit production and imports, and legal home production” and thereby may affect trends and levels of consumption (Cook/ Moore 2000: 1632). All these studies concentrate on mortality or demand rates over very long periods of time. Thereby, they ignore peoples’ individual situation and its variation over time. Thus, we would like to concentrate on the investigation of individual differences using *panel data*. In fact, Ogwang and Cho (2009: 602) emphasise that this approach would lead to more efficient estimations as it would enable to capture “both the dynamic (time series) and static (cross-section) aspects of the determinants of consumption” and would allow to disaggregate the individual consumption to the different beverage types.

To investigate alcohol consumption we rely on a usual approach of identifying whether a person consumes or not by an abstainer/drinker dichotomy. This categorisation refers to a specified time period (see recommendations by WHO 2000: 47). In our study we use a general question (“Do you drink alcoholic beverages”). However, if a person reports not having drunk anything in the last 30 days, he/she is also categorised as an abstainer. Thus, the variable *drink07* is 1 if a person responds to drink and if he reports to have consumed anything in the last 30 days, otherwise its 0 (see Tekin 2002 for a similar approach). Self-reported alcohol consumption may differ from actual figures, but studies reveal that this type of measurement is reliable (see for self-reports WHO: 48).

To calculate the ethanol consumption of the mother and father in 2003 we use the answers given in the ULMS (2003). Thereby, people were asked twice to remember how much they consumed in a week over the last three months. This is done separately for every type of beverage (beer, home-brewed beer; dry wine, champagne; fortified wine; vodka or other hard liquor) and then added together to a total of the day. Thus, to find out the daily dose, the responses were divided by seven. This amount was multiplied by the ethanol conversion factor (conversion from 1 ml to 0,79 grams alcohol) as the consumption was reported in *ml*. Thus, by calculating averages for a day, “the total volume for the reference period divided by the number of days in the period” (WHO 2000: 48), we choose to follow the WHO guidelines.

Moreover, the 1985 cut in supply of alcohol since Gorbachev’s initiated anti-alcohol-campaign went hand in hand with a drastic increase of moonshine-production (and therewith sugar consumption). Thus, we include the consumption of *home-made liquor* as a variable capturing the amount of moonshine people consumed and add it in the calculations of the total ethanol consumption.

Finally, when calculating the ethanol consumption, we had to consider that the ethanol content varies across beverages. Indeed, the contents of ethanol can vary, not only between

the beverages but also over time and across countries. In fact, authors that used RLMS data to quantify alcohol consumption apply different estimates of ethanol content, as indicated in Table 2 (Tekin 2002; Andrienko/ Nemtson 2008; Herzfeld et al. 2009). Overall, we decided to take the ethanol content similar to what is said by the WHO and Tekin (2002), as it generally about 4 to 5 percent for beer, about 12 percent for wine and about 40 percent for distilled spirits (WHO 2000: 45).

[Table 2 about here]

Using the average consumption of the ethanol per day is silent about patterns of drinking which may also be informative for assessing the welfare cost of drinking behaviour. For example, regular drinking in small quantities may be less detrimental than episodes of “binge drinking”. However, measuring *binging* is also criticized as there is a problem of appropriately defining ‘an occasion’ (WHO 2000: 44f.). Even more difficult it might be to remember episodes of binge drinking over a retrospectively specified recall period.

### *Regression results*

Table 3 reports marginal (incremental where relevant) effects after a probit estimation. Explanatory variables are divided into different groups (individual characteristics, household environment, and parental behaviour) and a host of control variables are also included (and mentioned at the bottom of Table 1).

[Table 3 about here]

Our strategy is to test the role of different groups of covariates separately and then present an encompassing specification. The first column checks the role of labor market related problems at the household as a predictor of drinking in young adults. None of the variables is significant, although having had at least one household member on wage arrears (*arrearsM12hh*) has a strongly positive effect and is close to being significant at the 10% level, even when arrears were not as common as unemployment at the time of reference (see



Table 1). The second specification tests for the role of parental drinking behaviour. For this purpose, we use an indicator that the mother/father does not drink, and two continuous nonnegative values representing parental alcohol consumption. In this setting, maternal alcohol consumption is a significant predictor of drinking in the young adult. Maternal drinking is less frequent than paternal drinking (see Table 1), and may thus have a stronger predictive power than paternal behaviour. Next specification tests the role of parental labor market outcomes and different measures of parental behaviour. Our two measures of parental labor market difficulties do not predict alcohol consumption in young adults. Paternal death is positively associated with drinking in the young adult, but we cannot reject the null that *mdead14* and *fdead14* are equal to each other (restriction test not shown). The coefficient of *mdead14* is imprecisely estimated, and this may be due to the fact that very few young adults were maternal orphans at age 14. Parental smoking behaviour does not appear to predict drinking in the young adult, but maternal drinking behaviour (captured in this case by an indicator that the mother drinks) does. Although paternal drinking is not a predictor of drinking in this specification, we cannot reject the null that both coefficients are equal (restriction test not shown). Specification 4 is more parsimonious than the previous one and yields the same conclusions. Specification 5 tests the role of young adult's intertemporal discounting on alcohol consumption. Here the estimated discounting factor is elicited through a method described in Appendix 2. We do not find that this index correlated with drinking. A similar conclusion is found in respect to a risk aversion index (described in Appendix 1). The last specification encompasses all previous covariates. Even at the expense of a larger number of coefficients to be estimated, this model is preferred to the others, at least using the BIC criterion. In this model, a young adult living in a household affected by wage arrears has a higher chance of drinking (the probability increases by 18 percentage points, which is a large amount, given that the proportion of drinkers in the sample used in this specification 38%). Paternal orphans are also more likely to drink (an increase of 25% points). Maternal drinking

also increases the chances of drinking by 14% points, and paternal drinking behaviour also increases the chance that the young adult drinks by about 25% percentage points. Adverse labor market outcomes only seem to affect drinking in young adults through the occurrence of wage arrears, since no other predictor of this group is significant. It is possible that job market difficulties create an income effect that reduces the chances that a young adult drinks, and that this effect outweighs any potential “grievance” effect that may occur. If individuals perceive wage arrears to be paid in the future, then the income effect may be smaller in this case, thus making drinking more likely than in the case where household members are unemployed or on forced leave. Financial strain in the household (Peirce et al. 1994) may also operate indirectly through parental drinking behaviour.

Finally, although not reported in Table 3, there exist regional differences in alcohol consumptions among young adults, with those residing in Eastern Ukraine being less likely to drink alcohol, and a tendency in rural or low population urban conglomerates to have a higher proportion of drinkers among the youth.

## **Conclusions**

We have studied the determinants of alcohol consumption in young adults in Ukraine. A traumatic economic transition during the last decades affected the socioeconomic standing of households and, potentially, the environment in which the younger generation grew up.

We use the extant literature to trace potential determinants of alcohol consumption among young adults. We use the a well-designed panel of Ukrainian households to capture how the socioeconomic environment of the family of the young adult was affected by the transition (patterns of long-term unemployment, wage arrears), and also focus on parental characteristics (education and age) and health related behaviour (drinking, smoking, health status), which may capture heterogeneity in exposure to psychosocial stress and lack of social support.

A number of parental and household environmental characteristics are significant predictors of alcohol consumption among young adults. First, strain in the household due to labor market adverse outcomes impact on the young generation: a young adult living in a household affected by wage arrears has a higher chance of drinking (the probability increases by 18 percentage points, which is a large amount, given that the proportion of drinkers in the sample used in this specification 38%). Adverse labor market outcomes only seem to affect drinking in young adults through the occurrence of wage arrears, since no other predictor of this group is significant. However, because financial strain affects drinking pattern, and thus there may be an indirect connection between parental labor market problems and young adult drinking behaviour.

We find that different indicators describing the socioeconomic standing of the household and of the parents of young adults have a profound impact on alcohol consumption patterns. First, strain in the household due to labor market adverse outcomes impact on the young generation: a young adult living in a household affected by wage arrears has a higher chance of drinking (the probability increases by 18 percentage points, which is a large amount, given that the proportion of drinkers in the sample used in this specification 38%). Adverse labor market outcomes only seem to affect drinking in young adults through the occurrence of wage arrears, since no other predictor of this group is significant. However, because financial strain affects drinking pattern, and thus there may be an indirect connection between parental labor market problems and young adult drinking behaviour.

Second, parental death adversely affects drinking patterns in young adults: an increase of 25% points is found among paternal orphans. Even if absence of parents is an important predictor, behaviour patterns of present parents is also relevant. Maternal drinking increases the chances of a young adult drinking by 14% points, while the impact in the case of paternal drinking is even higher (25% points). This calls for more study on the intergenerational consequences of alcohol consumption.

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## Appendix 1: Risk taking assessment

We measure attitudes toward risk implicitly by using information on a module employed to measure risk taking behavior. The index is calculated by asking individuals to decide between different lotteries. Specifically, the question is as follows:

*“Imagine you are a participant in a quiz show and win a prize. This prize offers you the choice between two payment options: You can either take a sure payment or you can flip a coin and win either 200 Hryvnias if heads come up and receive nothing if tails comes up.*

*Please consider the table below. In each row you are offered a choice between a different sure payment (option A) and the coin flip (option B). Please indicate which option you would prefer in each row.*

*How would you decide between ...”*

	option A		option B	
1	1 sure payment of 40 Hryvnias	OR	2 winning 200 Hryvnias with 50% probability and nothing with probability 50%	__
2	1 sure payment of 70 Hryvnias	OR	2 winning 200 Hryvnias with 50% probability and nothing with probability 50%	__
3	1 sure payment of 100 Hryvnias	OR	2 winning 200 Hryvnias with 50% probability and nothing with probability 50%	__
4	1 sure payment of 130 Hryvnias	OR	2 winning 200 Hryvnias with 50% probability and nothing with probability 50%	__

Participants are also allowed to refuse answering or answer “Don’t know”.

Based on these four questions (rows 1 to 4), we create a variable *riskimp* that can take five values as follows:

*risktolerance*=1 if response for question 1 is option A (lowest level of tolerance among respondents).

*risktolerance* =2 if response in question 1 is option B, but option A is chosen in question 2.

*risktolerance* =3 if response for questions 1 and 2 is option B, but option A is chosen for question 3.

*risktolerance* =4 if response for questions 1, 2 and 3 is option A, but option A is chosen for question 4.

*risktolerance* =5 if response for questions 1,2, 3 and 4 is always option B (highest level of risk tolerance among respondents).



## **Appendix 2: Time preference**

We measure intertemporal preferences by asking individuals to choose sequentially among questions involving two choices, involving increasing discounting.

Question 1:

**Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? [ONLY ONE ANSWER IS POSSIBLE]**

- 1 You would like to receive 1000 Hryvnias today**
- 2 You would like to receive 1200 Hryvnias in a year from now**

If option 1 is chosen, then Question 2 is asked, if option 2 is chosen, then the index of discounting is 1.

Question 2:

**Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? [ONLY ONE ANSWER IS POSSIBLE]**

- 1 You would like to receive 1000 Hryvnias today**
- 2 You would like to receive 1400 Hryvnias in a year from now**

If option 1 is chosen, then Question 3 is asked, if option 2 is chosen, then the index of discounting is 2.

Question 3:

**Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? [ONLY ONE ANSWER IS POSSIBLE]**

- 1 You would like to receive 1000 Hryvnias today**
- 2 You would like to receive 1600 Hryvnias in a year from now**

If option 1 is chosen, then Question 4 is asked, if option 2 is chosen, then the index of discounting is 3.

Question 4:

**Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? [ONLY ONE ANSWER IS POSSIBLE]**

- 1 You would like to receive 1000 Hryvnias today**
- 2 You would like to receive 1800 Hryvnias in a year from now**

If option 1 is chosen, then Question 5 is asked, if option 2 is chosen, then the index of discounting is 4.

Question 5:

**Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? [ONLY ONE ANSWER IS POSSIBLE]**

- 1 You would like to receive 1000 Hryvnias today**
- 2 You would like to receive 2000 Hryvnias in a year from now**

If option 1 is chosen, the index of discounting is 6, if option 2 is chosen, then the index of discounting is 5.

Table 1: Definitions and Summary Statistics<sup>1</sup>

Variable	Definition	Obs.	Mean	Std. Dev.	Min	Max
<b>Dependent Variable</b>						
<i>drink07dum</i>	Person reported drinking alcohol in 2007 survey.	924	.399	.490	0	1
<b>Individual Characteristics</b>						
<i>female07</i>	Indicator: Young adult is female.	924	.477	.499	0	1
<i>ukrainian</i>	Indicator: Ukrainian is preferred language. <sup>2</sup>	924	.148	.355	0	1
<i>age07</i>	Age of the young adult in 2007.	924	18.238	2.021	14	21
<i>prefdiscind</i>	Young adult's time discounting index, scale 1 (low intertemp. disc) to 6 (highest level of intertemp. disc), if known	880	4.855	1.705	1	6
<i>risktolerance</i>	Young adult's index of risk tolerance, from 1 (lowest level of risk tolerance) to 5 (highest level)	829	2.527	1.612	1	5
<b>Environment in the Household</b>						
<i>Socio-Economic Background</i>						
<i>arrearsM12hh</i>	At least one person in the household experienced wage arrears in 12months (information from ULMS 2004).	848	0.087	0.282	0	1
<i>forcelM12hh</i>	At least one person in the household experienced forced leave in 12months (information from ULMS 2004).	848	.066	.247	0	1
<i>unemL12Mhh</i>	At least one person in the household was unemployed in 12 months (information from ULMS 2004). Person did not work during reference week in 2004, but was looking for a job during last four weeks (was engaged in job seeking or planning to start own enterprise or farm)	848	.369	.483	0	1
<i>mfcumjobloss</i>	Cumulative number of events when father and/or mother lost job involuntarily (closingdown of	924	.393	.700	0	4

<sup>1</sup> Unless otherwise specified, information was collected in the wave implemented in 2007.

<sup>2</sup> The person reports speaking Ukrainian (either only Ukrainian or more often than Russian) or reports using both languages (i.e. Ukrainian and Russian) equally, but replies in Ukrainian.

	plan/reorganization, bankruptcy/privatization/dismissed/personnel reduction/expiring contract or probation time), based on retrospective questionnaire between 1986 and 1997 (ULMS 2003)					
<i>fracunemp98040</i>	Average fraction of time that mother or father spent being unemployed in period 1998-2004	924	.135	.310	0	1
<i>mdead14</i>	Mother was dead when young adult was age 14.	924	.009	.095	0	1
<i>fdead14</i>	Father was dead when young adult was age 14.	924	.047	.212	0	1
<i>poormfhealth</i>	Father and/or mother's self reported health status is "bad" or "very bad"	924	.215	.411	0	1
<i>Behavioural Characteristics of the Parents</i>						
<i>ethmo03null</i>	Mother did not drink alcohol in 2003	924	.464	.499	0	1
<i>ethfa03null</i>	Father did not drink alcohol in 2003	924	.296	.456	0	1
<i>mfsmokes</i>	Mother or father smokes	924	.422	.494	0	1
<i>fdrinks</i>	Father drinks.	924	.523	.499	0	1
<i>mdrinks</i>	Mother drinks.	924	.761	.426	0	1
<i>lifesatplus</i>	Indicator: Person is either "fully satisfied" or "satisfied" with his/her life. <sup>3</sup>					
<i>jobsatplus</i>	Indicator: Person is "satisfied" or "fully satisfied" with job. <sup>4</sup>					
<i>Other Characteristics of the Parents</i>						
<i>ageмо</i>	Age of the mother, if known.	756	43.895	5.636	31	69
<i>agefa</i>	Age of the father, if known.	506	46.202	5.729	30	72
<b>Regional Environment</b>						
<i>town</i>	Person lives in a town (urban settlement with less than 100000 inhabitants).	924	.100	.300	0	1
<i>city</i>	Person lives in a city (urban settlement with more than 100000 inhabitants).	924	.158	.365	0	1

<sup>3</sup> Based on the question: "To what extent are you satisfied with your life in general at the present time?" Possible answers are "Fully satisfied", "Satisfied", "Rather satisfied", "Less than satisfied" "Not satisfied at all", "does not know", and "refuses to answer".

<sup>4</sup> Based on the question: "Tell me, please" how satisfied are you with your current job?" Possible answers are "Fully satisfied", "Satisfied", "Rather satisfied", "Less than satisfied" "Not satisfied at all", "does not know", and "refuses to answer".

<i>West</i>	Person lives in the ‘West’ of Ukraine. The category refers to the following <i>oblasti</i> : Volynska, Zakarpatska, Ivano-Frankivska, Lvivska, Rivenska, Ternopilska, Khmelnytska and Chernivetska.	924	.073	.261	0	1
<i>East</i>	Person lives in the ‘East’ of Ukraine. This category refers to the following <i>oblasti</i> : Donetsk, Luhanska and Kharkivska.	924	.085	.278	0	1
<i>South</i>	Person lives in the ‘South’ of Ukraine. This category refers to the following <i>oblasti</i> : Autonomous Republic of Crimea, Dnipropetrovska, Zaporizhska, Mykolayevska, Odeska, Khersonska.	924	.094	.292	0	1
<i>Kiev</i>	Person lives in Kiev city.	924	.038	.190	0	1
<i>Center</i>	Person lives in the ‘Center’ of Ukraine. This category refers to the following <i>oblasti</i> : Kyivska, Vinnytska, Zhytomyrska, Kirovohradska, Poltavska, Sumska, Cherkasska, Chernigivska.	924	.077	.267	0	1
<b>Others</b>						
<i>fathmiss</i>	Father is not in household roster.	924	.428	.495	0	1
<i>mothmiss</i>	Mother is not in household roster.	924	.214	.410	0	1

Table 2: Estimated ethanol content (%) in different alcoholic beverages used in different studies

	<i>Type of beverage</i>				
	<i>Beer, home-brewed beer</i>	<i>Dry wine, champagne</i>	<i>Fortified wine</i>	<i>Home-made liquor</i>	<i>Vodka or other hard liquor</i>
<i>RLMS-studies</i>					
Andrienko and Nemtson (2008)	2,85 before 1995, 3,37 in 1995-99 to 3,89 beginning in 2000	14,4	18	39	40
Herzfeld et al. (2009)	5	11	19	45	40
Tekin (2002)	5	12	20	40	40
WHO (2000)	4-5	12	-	-	40
Our study	5	12	20	40	40

Table 3: Regression Output: Marginal effects after probit

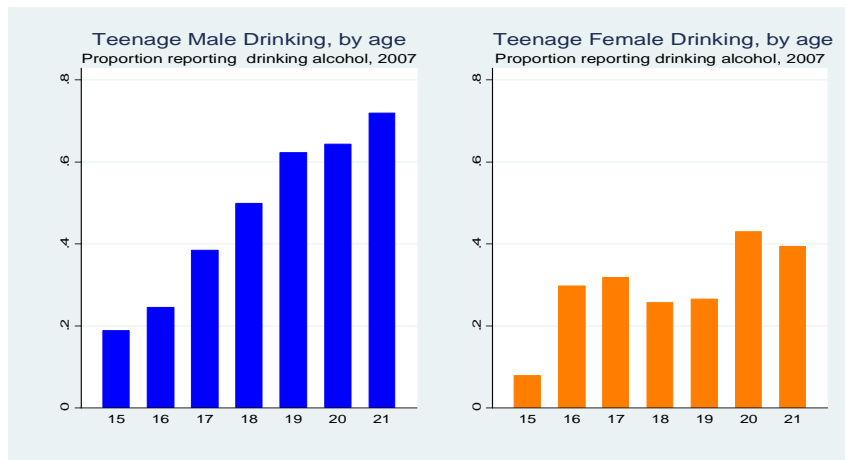
Dependent variable: Person drank alcohol in the last month

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Individual Characteristics</b>							
<i>prefdiscind</i>					0.0101 [0.0120]		0.00878 [0.0133]
<i>risktolerance</i>						-0.0152 [0.0127]	-0.0160 [0.0140]
<b>Environment in the Household</b>							
<i>Socio-Economic Background</i>							
<i>arrearsM12hh</i>	0.113 [0.0706]						0.181** [0.0817]
<i>forcelM12hh</i>	0.0666 [0.0846]						0.0101 [0.0968]
<i>unemL12Mhh</i>	-0.0243 [0.0434]						-0.0332 [0.0464]
<i>mfcumjobloss</i>			0.0291 [0.0315]				0.0310 [0.0324]
<i>fracunemp9804fa0</i>			-0.0618 [0.0797]	-0.0560 [0.0790]			-0.0624 [0.0866]
<i>mdead14</i>			0.0993 [0.252]	0.0862 [0.244]			0.0134 [0.249]
<i>fdead14</i>			0.181* [0.0984]	0.187* [0.0984]			0.251** [0.110]
<i>poormfhealth</i>			-0.0656 [0.0526]				-0.0435 [0.0548]
<i>Behavioural Characteristics of the Parents</i>							
<i>ethmo03null</i>		-0.00924 [0.0626]					-0.0405 [0.0657]
<i>ethfa03null</i>		0.0475 [0.0656]					0.0508 [0.0761]
<i>ethmo03</i>		0.0569* [0.0312]					0.0247 [0.0334]
<i>ethfa03</i>		0.00261 [0.0257]					-0.0207 [0.0304]
<i>mfsmokes</i>			0.00528 [0.0499]				0.0143 [0.0551]
<i>mdrinks</i>			0.167*** [0.0630]	0.163** [0.0635]			0.143* [0.0735]
<i>fdrinks</i>			0.152 [0.103]	0.164 [0.0999]			0.263** [0.103]
<b>Observations</b>	836	771	771	771	771	771	701
<b>Pseudo R2</b>	0.131	0.135	0.15	0.146	0.125	0.127	0.171
<b>log-likelihood</b>	-490.4	-437.5	-430.2	-431.9	-442.7	-441.8	-383
<b>Parameters estimated</b>	30	31	36	33	29	29	47
<b>BIC</b>	1182.7	1081.1	1099.7	1083.2	1078.2	1076.4	1074.0

Notes: All equations control for age of the young adult (and its squared value), an indicator the young adult is female, interactions between gender and age (and its squared value), indicators for parental education level (mother and father separately), regional fixed effects, an indicator that the young adult lives in village/town/city,

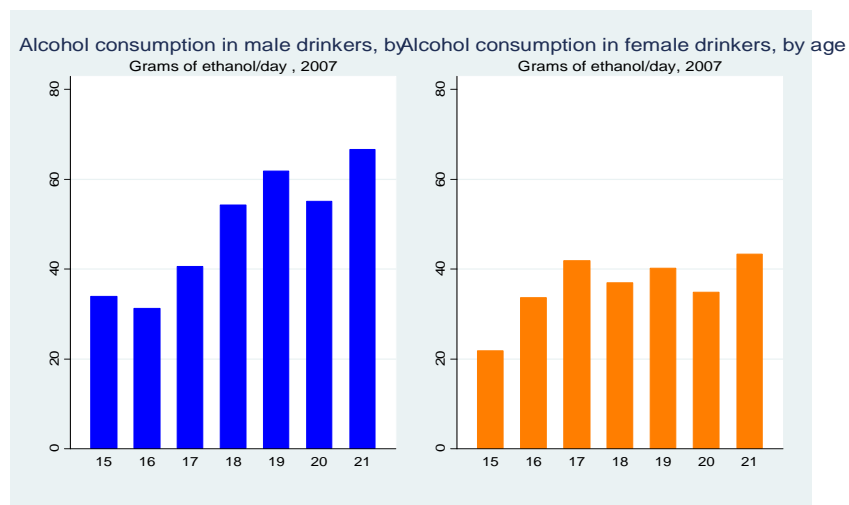
age of father and mother (and its squared values), indicators that the father/mother is not in the HH roster, and, where relevant, indicators that the education level of mother/father is unknown, indicators that the age of father/mother is unknown, and indicators that the variables *fracunemp9804*, *prefdiscind* and *risktolerance* are unknown. Standard errors are robust and allow for intrahousehold correlation.

Figure 1: Drinkers vs. non-drinkers



Source: ULMS 2007, own calculations.

Figure 2: Consumption in drinkers



Source: ULMS 2007, own calculations.