Parental Alcohol Consumption and Adult Children's Educational Attainment*

Lucia Mangiavacchi† Luca Piccoli‡

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Abstract

This study analyses whether parents' alcohol consumption can affect long run children's educational attainments. Using 19 waves of the Russia Longitudinal Monitoring Survey (RLMS), where individuals and their families are followed from childhood to adulthood, this study analyses how parental alcohol consumption during childhood (between 1994 and 2001) may affect children's educational attainment about twelve years later (from 2006 to 2014). Panel estimations show that mother total grams of alcohol consumption during childhood is consistently negatively associated with adult children educational outcomes, as the probability of having an university degree, the highest level of education achieved and years of schooling. By using direct observation of past parental behaviour, the proposed empirical strategy avoids endogeneity issues that may arise when using contemporaneous retrospective information, while endogeneity deriving from unobserved characteristics determining both parental drinking and adult children educational attainment is addressed using an Hausman-Taylor estimator. This permits the identification of a negative causal relationship between mother alcohol consumption during childhood and long-run children's educational attainment. The study also explores the transmission mechanisms suggested by the literature, identifying a possible role for possible excessive prenatal exposure to alcohol, family disruption, health issues during childhood, parental care needs and intergenerational transmission of drinking habits of the father.

JEL codes: D1, I1, I2, I3.
Keywords: alcohol consumption, children education, parents problem-drinking, RLMS, Russia.

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†Corresponding author. Department of Applied Economics, Universitat de les Illes Balears, Crt Valldemossa km. 7.5, Palma de Mallorca, Spain. E-mail: lucia.mangiavacchi@uib.es

‡Department of Applied Economics, Universitat de les Illes Balears, Crt Valldemossa km. 7.5, Palma de Mallorca, Spain. E-mail: luca.piccoli@uib.es

1 Introduction

An extensive body of economic research has examined the consequences associated with the problem-drinking subject: for example, productivity losses, health and educational costs. However, the literature about the costs that a problem-drinker inflicts upon other family members is scarce. One partner's alcohol abuse may affect intra-household distribution of resources (Menon et al., 2012) or time (Giannelli et al., 2013) and, as a consequence, individual welfare or outcomes of other household members. Thus, problem-drinking can be regarded as a family issue since it brings serious health and socio-economic problems for all family members, transmitting its harmful effects also to the offspring. Many children of alcoholics have indeed common symptoms such as low self-esteem, loneliness, guilt, feelings of helplessness, fear of abandonment, and chronic depression. Previous research has shown the association between parental alcohol abuse and children's behavioural problems (Chatterji and Markowitz, 2001) and poor nutritional status (Hanć et al., 2015) in the short run, as well as intergenerational costs of parental problem-drinking in terms of labour market outcomes (Balsa, 2008). However, no study dealt with the relation between parental drinking during childhood and young adults educational achievements.

Little evidence is available on the transmission mechanisms of the negative effects of parental alcohol consumption to the offspring. The psychological literature (Connell and Goodman, 2002) identified four mechanisms that link parental problem-drinking with children outcomes: i) genetics, through an increased probability of being a problem-drinker; ii) exposure to the parent's behaviour and knowledge, with a higher likelihood to develop psychological and behavioural problems; iii) environmental stressors such as economic pressure, marital conflict, and disruption that are more common in a home with an alcoholic or problem-drinking parent; and iv) complications during prenatal development, which may affect cognitive and physical skills of the child.

The first pathway that may determine adverse child outcomes is through a larger probability of children of alcoholics of developing drinking problems. The literature suggests that genetics may play an important role in this respect (see, for example Jennison and Johnson, 1998). Indeed, drinking at high school and college has been negatively related to educational attainment (Williams et al., 2003; Chatterji, 2006; Koch and McGeary, 2005; Balsa et al., 2011).

A second possible mediator is identified in the adverse effects of parental problem-drinking on a child's health. Alcoholism can be associated with reduced family cohesion, increased probability of single-parent household, and poor supervision of children. For example Balsa and French (2012) find that parental drinking increases the use of acute health care services by children (mental health services and hospitalization). Hanć et al. (2015) found that children growing up in families with alcohol addicted parents are characterized by lower body height and BMI, and are included in the groups of risk of underweight.

Third, a more direct negative effect of parental problem-drinking on adult children outcomes is that the child may need to subtract time from schooling or work for assisting parents with health problems related with their drinking habits.

A last channel is through prenatal exposure to alcohol. Medical literature has found that

foetuses exposure to excessive alcohol doses (Fetal Alcohol Syndrome) are likely to have devastating effects on development (Mattson and Riley, 1998). FAS has been associated with structural abnormalities, growth deficit and neuro-behavioural anomalies, which can result in deficiencies in activity, attention, learning, memory, language, motor and visuo-spatial abilities.

This work studies the impact of parental problem-drinking using the Russia Longitudinal Monitoring Survey (RLMS). Russia is a particularly interesting setting to study intergeneration transmission of problem-drinking consequences. The demand for alcohol has habits elements and low price elasticities in Russia (Herzfeld et al., 2014), and even during the Soviet regime alcohol consumption was the third leading cause of death (Baltagi and Geishecker, 2006). Consequences and causes of the significant increase of alcohol consumption during the 90s have been extensively studied in the literature. Alcohol consumption was one of the main causes of increased mortality among young and middle aged men during the transition decades (Zohoori et al., 1998; Brainerd and Cutler, 2005) and it doubled among women at the beginning of transition (Zohoori et al., 1998). Herzfeld et al. (2014) estimate a dynamic demand function of alcohol between 1994 and 2005, finding that older men drinks more than younger, and that alcohol consumption increases with income and decreases with education. Problem drinking is positively associated with fear and psychic stress of possible loosing job in regions most affected by unemployment but it is not directly affected by job lost. The use of Russian data has also an advantage in terms of reducing estimation bias due to measurement error in the explanatory variable. Indeed, the absence of social stigma related to alcohol consumption reduces the likelihood of misreporting by problem-drinkers.

The panel structure of the data is exploited using all 19 waves of the RLMS, where individuals and their families are followed from childhood to adulthood, to analyse whether parental alcohol consumption during childhood (between 1994 and 2001) have long terms effects on children's educational attainment about twelve years later (from 2006 to 2014). Different panel data models are used to measure the relation between mother's and father's problem-drinking and adult children educational achievements, measured by the probability of obtaining an university degree, the highest level of education achieved and years of schooling. The detailed information on alcohol consumption, use of time, heath status and economic circumstances allow us to identify proxies for the main transmission mechanisms suggested in the literature and to improve the identification of the effects. The use of panel estimators helps reducing biases possibly arising from purely cross-sectional estimates and permits linking adult child situations to parents and children behaviours and characteristics in the past, taking advantage of a direct measurement instead of using retrospective information. This feature permits avoiding the bias arising from a likely non-random measurement error typical of retrospective informations provided by a selected group, such as the children of alcoholic parents or problem-drinking adult children.

Even in a longitudinal estimation, the literature suggests that the identification of the effects of parental alcohol consumption on children's human capital development may suffer of endogeneity because unobserved individual attitudes of parents and children may be correlated and

may influence both parental alcohol consumption and children's schooling achievements in the long run, as well as unobserved family circumstances may increase the likelihood that a parent becomes a problem-drinker and at the same time increase the probability of school drop-out or delay. This endogeneity arises from the correlation of parental alcohol consumption variables with the random individual specific effect and the idiosyncratic error term. The first type of endogeneity is addressed in the paper using an Hausman-Taylor estimator. The second source of endogeneity is discussed in Balsa (2008), where current retrospective questions about parents being problem-drinkers during childhood may be correlated with the idiosyncratic through unobserved characteristics. It is worth noting that the present study does not suffer of the last issue because it uses a direct observation of parental behaviour during childhood, which is not contemporaneous to children educational outcomes about twelve years later, and thus cannot be correlated with the time-varying idiosyncratic component of the error term. Additionally, the richness of the data used permits controlling for several parental and children behaviours, characteristics and economic circumstances during childhood.

Our contribution to the literature is threefold. This is the first study that address the relation between parental problem drinking and long run children's educational attainment. Second, this paper improves the econometric identification of the intergeneration costs of parental drinking: by making use of observational data instead of retrospective information on parental alcohol consumption, it is possible to avoid endogeneity issues typical of contemporaneous retrospective information and to control for the unobserved heterogeneity issues using an Hausman-Taylor estimator. A third novelty is the possibility to directly inspect the main transmission mechanisms identified by the literature.

Results suggest a significant intergenerational costs of parental problem-drinking in terms of human capital development, future labour market opportunities and income mobility. In particular mother total grams of alcohol consumption during childhood is consistently negatively associated with the adult children probability of having an university degree, with the highest level of education achieved and with years of schooling. These results are retained when controlling for the possible endogeneity arising from the correlation of parental drinking variable with the individual specific effect. Only the probability of having a university degree is found to be significantly hampered by fathers drinking habits, while school progression is not. The results are confirmed also when controlling for the transmission mechanisms, suggesting that there may be a direct human capital cost associated with past parental problem drinking. Although the analysis of transmission mechanisms is somewhat less robust, our results suggest that there may be a significant role for excessive prenatal exposure to alcohol, family disruption, health issues during childhood, parental care needs and intergenerational transmission of drinking habits of the father.

The rest of the paper is organized as follows. Section 2 describes the data, sample selection and discusses the empirical strategy. Section 3 details variables used and discuss empirical results, and Section 4 concludes.

2 Data and Econometric Specification

The empirical analysis is based on nineteen waves (V-XXIII, spanning from 1994 to 2014) of the Russia Longitudinal Monitoring Survey (RLMS-HSE).[1] Households participating in the survey were selected trough a multi-stage probability sampling procedure in order to guarantee national representativeness. Within each selected primary sample unit, the population was stratified into urban and rural substrata in order to guarantee representativeness of the sample in both areas. The data covers approximately 5,000 households, 12,000 adults and 2,000 children per wave.

The RLMS permits the identification of the relationship between each member in the household and children are still followed by the survey when they become adult and form their own families (through their individual identification code which remains unchanged). In this way, it is possible to observe the educational achievements (together with other contemporary characteristics and behaviours) of an adult child and to link it with his/her past behaviours and characteristics, and to those of his/her parents.

Data on adult children (contemporary variables) is taken from rounds XV to XXIII, while parents and children data is taken from rounds V to X. The data structure is thus individual based and composed by two panel periods, separated by a four waves gap. The outcomes of interest pertain to the second panel period but the most relevant explanatory variables are from the first period and are treated as time invariant in the second period by computing their average value for each individual. This reduces measurement error and minimizes the impact on the data of the labour market behavioural responses to institutional and economic changes occurred between 1994 and 2001.[2] In the second period the temporal structure is maintained in order to take advantage of panel data estimation techniques.

For the objective of the study, the sample is restricted to adults in waves XV-XXIII that were observed and living with their parent(s) in waves V-X. This results in a sample of 1832 individuals and 8909 observations. They are aged between 18 and 37 years old and their average age is 23.4. The 24.3% of them are married or cohabiting (see Table 1). Parental alcohol consumption is observed when they were on average between 7 and 14 years old.

The objective of the analysis is the educational attainment of children when adults, for which we specify three different models and for each one three alternative specifications. In the first model, $h_{i,t}$, is a dummy variable equal to 1 if the adult child i has a university degree at time t and the corresponding Random-Effect Probit model is specified as:

$$h_{it} = \alpha_i + x'_{it}\beta + w'_i\gamma + m'_{it}\theta + n'_i\eta + \epsilon_{it} \tag{1}$$

where x'_{it} is the matrix of time-varying variables recorded during 2006-2014 and w_i is instead the matrix of variables that are registered during the years 1994-2001 and are capturing individu-

[1] The survey is conducted by the Higher School of Economics and ZAO Demoscop together with the Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS. More information can be found in the RLMS-HSE site: http://www.cpc.unc.edu/projects/rlms-hse.

[2] The first six waves cover a period of 8 years because data were not collected in 1997 and 1999.

als' childhood variables and parental characteristics. Father's and mother's alcohol consumption variables are included in matrix w_i. m_{it} and n_i are respectively time varying and time invariant variables that proxy the transmission mechanisms suggested by the literature. α_i and ϵ_{it} are respectively the random individual-specific effect and the idiosyncratic error.

In the second model the outcome is a categorical variable for the highest level of education attained, modelled as Random-Effects Ordered Probit with the same sets of explanatory variables of model (1):

$$e_{it} = \alpha_i + x'_{it}\beta + w'_i\gamma + m'_{it}\theta + n'_i\eta + \epsilon_{it} \tag{2}$$

where $e_{i,t}$ denotes the highest level of education achieved by individual i in time t.

The last model is instead specified using the continuous variable years of schooling (s_{it}) as dependent variable and the same exogenous regressors:

$$s_{it} = \alpha_i + x'_{it}\beta + w'_i\gamma + m'_{it}\theta + n'_i\eta + \epsilon_{it} \tag{3}$$

All three models are estimated with three different specifications: the first includes only variables x_{it} and w_i; the second adds variables m_{it} and n_i to test the relevance of the transmission mechanisms; the third interacts variables in m_{it} and n_i with parents' alcohol variables.

The identification of the coefficients of maternal and paternal alcohol consumption in models (1), (2) and (3) may be affected by endogeneity issues even in a panel estimation. Endogeneity would arise because of two main reasons: (i) unobserved individual attitudes of parents and children may be correlated and may influence both parental alcohol consumption and long run children's schooling achievements: this implies a potential correlation between parental alcohol consumption regressors and the individual specific effect α_i; (ii) unobserved family circumstances may increase the likelihood that a parent becomes a problem-drinker and at the same time increase the probability that the child drop out from school during secondary education graduates at high school or attend a college, resulting in lower educational achievements in the long run (Balsa, 2008). This last issue would force to relax the assumption that time varying regressors are uncorrelated with the idiosyncratic error ϵ_{it}.

The ideal way to fully address both these problems would be the use of an IV approach. In this respect we tested several instruments proposed by the literature on alcohol consumption: alcohol average prices and variability at district and regional level, district level vodka price growth rate in waves V to VII (as a proxy for local governmental vodka price control policies that were allowed from 1994 to 1998), district level alcohol mortality rates variations in 1914 (following an anti-alcohol governmental campaign in 1913), and having diabetes. None of them was sufficiently strong. Our interpretation of the poor performance of these instruments is that alcohol consumption in Russia is quite inelastic and not sensitive to exogenous changes (as previously showed by Herzfeld et al., 2014) since it is a cultural trait of Russian society and its purchase is frequently substituted by home made production. Moreover, in Russia high levels of alcohol consumption are widespread, and not correlated with belonging to a specific socio-economic group, especially

in the nineties as shown by Figure 1. This, together with previous evidence on the absence of social stigma associated to alcohol consumption, suggests that drinking behaviour is not typically associated with worse economic outcomes by the population (for example to worse paid jobs), reducing the severity of both endogeneity issues.

In spite of this favourable country setting, to study the causal effect of alcohol consumption we implement different identification strategies to address endogenity. First, we partially solve problem (i) controlling for the current alcohol consumption of the adult in the specifications 2 and 3 of models (1), (2) and (3). A further possibility to control for unobserved heterogeneity would be to use a Fixed Effect estimator that in principle would give consistent estimates, but in practice being parental alcohol consumption variables time-invariant, their coefficients cannot be estimated via FE. Hence we exploit the possibilities offered by hybrid models, which allow correlation between alcohol consumption variables and the individual effect α_i. In this respect, we use two different estimators.

The first is an extension of the Random Effect estimator proposed by Mundlak (1978) that allows for correlation between the individual effect and the regressors. Respect to a RE, this extension includes among the regressors a vector of the average value of time-varying variables for each individual. If the Mundlak model is well specified, the coefficients for time-varying variables equal those of the fixed effects estimator, but in addition it is possible to estimate the coefficients of time invariant regressors. The Mundlak extensions are similar to models (1), (2) and (3), with the individual effect specified as

$$\alpha_i = \bar{x}'_{it}\pi + \xi_i. \tag{4}$$

The second is proposed by Hausman and Taylor (1981), an IV estimator that uses the values of exogenous regressors in periods other than the current as instruments for the endogenous time invariant regressors and a FE estimator for the coefficients of time varying variables. The Hausman-Taylor estimator requires to distinguish between regressors uncorrelated with the individual specific effect and those potentially correlated, and assumes that all the explanatory variables are uncorrelated with ϵ_{it}. Indeed Hausman-Taylor estimator addresses only problem (i) type of endogeneity.

Both Mundlak and Hausman-Taylor estimators, assuming that explanatory variables are uncorrelated with ϵ_{it}, do not address problem number (ii) raised by Balsa (2008). However, two distinguished features of our data minimize this potential endogeneity source. First, the possibility to control for several parents and children circumstances during the period 1994-2001 substantially reduces the likelihood to suffer of unobserved heterogeneity at family level. Second, our variables of interest are time-invariant and a direct observation of parental behaviour during childhood, which is not contemporaneous to children's educational outcomes about twelve years later, and thus unlikely correlated with the time-varying idiosyncratic component of the error term.

3 Results

This section presents a descriptive analysis of all the variables included in matrices x_{it}, w_i, m_{it} and n_i (Table 1 and Figures 2 and 3) and discusses the results of the estimates of models (1), (2) and (3) in Tables 2 to 6.

3.1 Alcohol consumption variables

Since the RLMS was originally designed to monitor the health impact of economic transition in Russia, it contains detailed information on alcohol consumption of the respondents for all the waves so it is possible to measure parental amount of alcohol consumption, as well as adult children own consumption. Individual alcohol consumption is self-reported by the respondent in the health module. In Russia, alcohol consumption is measured in grams instead of litres, so each respondent is asked to declare how many grams of beer, wine, fortified wine, home-made liquor, vodka, and other alcoholic beverages they usually drink per day during the last 30 days. Following Baltagi and Geishecker (2006), these amounts are adjusted for pure alcohol content in order to make the various types of alcoholic beverages comparable and then summed up to compute total individual alcohol consumption. The weights used are 5% for the alcohol content of beer, 10% for wine, 19% for fortified wine, 45% for home made liquor, 40% for vodka, and 20% for other alcohol. As to the possible doubts on the validity of self-reported measures of alcohol consumption, we follow the idea, again found in Baltagi and Geishecker (2006), that self-declared alcohol consumption in Russia should not be under-reported, since there is no social stigma attached to alcohol consumption within the country. At variance with Balsa (2008), we disentangle the effects of maternal and paternal drinking under the hypothesis that the persistence of the effect can be different. Mother's and father's total grams of alcohol consumption during 1994-2001 are included in all the specifications of models (1), (2) and (3) in levels as a time invariant variable within the matrix w_i. Additionally to capture non linearities and non participation we add also the squared value and a dummy for being drinker.

The figures presented in Table 1 confirm that alcohol in Russia is mainly a male phenomenon. Fathers drank on average 29.39 grams of alcohol per day (that corresponds to more than 3.6 small glasses of vodka) and mother 5.26.

Individual alcohol consumption in the waves from 2006 to 2014 is also used as mediator within matrices m_{it} and n_i. Since 31% of individuals did not reply to alcohol questions we additionally include a variable to capture possible selection of non respondents to alcohol consumption question among adult children. The offspring alcohol consumption is low (10.39 grams of alcohol per day) comparing with their parents, in line with the evidence that in Russia drinking habits are stronger among older individuals (Herzfeld et al., 2014). Finally we include within m_{it} and n_i a dummy indicating whether the mother was drinking during younger siblings pregnancy (1% in our sample). Even if we cannot observe mother's drinking when adult children were foetus and test directly for Fetal Alcohol Syndrome, we can reasonably assume that mother's behaviour was consistent along

successive pregnancies and use this variable as one the mediators.

3.2 Parental alcohol consumption and children's educational attainment

This section presents the results of estimates of the probability to achieve a university degree (21% of the sample), the highest educational grade[3] and years of schooling. For the first outcome we apply a Random Effect Probit (Table 2), for the second a Random Effect Ordered Probit (Table 3) and a Linear Random Effect Estimator for the continuous variable years of schooling (Table 4). Table 5 presents alcohol consumption coefficients for the Mundlak equivalent of the three models and Table 6 the Hausman-Taylor estimation of model (3).

Figures 2 and 3 display the relation between father's and mother's alcohol consumption and probabilities to achieve an university degree. Non linearities are clearly at work in both graphs however the picture is clearer for mother's consumption (Figure 3) where there is a negative tendency starting from 10 grams of alcohol consumption. Past father's consumption (Figure 3) seems to be relevant starting from 100 grams per day, before the relation is mostly flat. The inclusion of the two variables in a panel model controlling for individual time-varying variables as well as for past children's and parental variables confirm these two pictures.

Indeed the restricted model in column (1) of Tables 2, 3 and 4 shows a significant, negative and non-linear association between mother total grams of alcohol during childhood and children's probability to have an university degree. However, we find no effect for fathers' amount of alcohol. This specification includes controls for a number of individual time-varying variables and for parental and children's circumstances during childhood. As to individual time-varying variables in x_{it} there is a significant age and cohort effect; the probability of having a degree and the school progression are increasing in age however school progression is negatively affected (Table 3 and 4) by the age at round 10 (2001), the last year where the explanatory variables are observed. Considering that the theoretical age of university completion in Russia would be around 22 years, we include also a variable to control for this critical age and find that indeed it significantly increases the probability to obtain the degree. Male and cohabiting individuals are less probable to graduate, while being married (22% of the sample) increases the likelihood. As expected, number of children hampers the opportunity of finishing University and is less probable for non-Russian to graduate.

Most variables recorded during the 1994-2001 period are also significant both for parental and children's variables. In line with a recent study by Del Boca et al. (2016), children's time inputs (weekly hours of studying) are more important than parents' time inputs for children human capital development, and having had a babysitter has no positive returns in the long run. As expected, parents' labour market status during childhood has a relevant role for children's human capital development, especially in a country setting as post-transition Russia where inequality is

[3]This is a categorical ordinal variable taking values "1" for primary education, "2" for secondary education, "3" for vocational training "4" for being enrolled at university, "5" for university degree, and "6" for postgraduate degree.

high and mobility low[4]. Parents' higher education's is achieved by the 19% mothers and 15% of fathers and, being significant for both parents at 1% in all the specifications is also an indicator of scarce intergenerational mobility. Given the relevance of the phenomenon during years of transition to market economy, matrix w_i also includes father's or mother's absence. Father's absence characterized the 24% of the sample and can be due to different reasons as death[5] or migration.

Mundlak estimation of the three different explanatory variables (see Table 5) confirms results of the RE estimations for specification 1. As to the Hausman-Taylor estimation, showed in Table 6, only the most parsimonious specification is used with matrices x_{it} and w_i included as regressors. The subset of regressors that are allowed to be correlated with α_i includes mother's and father's total grams of alcohol as time-invariant variables, while among the time-varying variables family status, number of children and having a chronic illness are treated as possibly endogenous. We test the assumption that the other variables are uncorrelated with the fixed effect α_i using the Hansen-Sargan test that, with $\chi^2(2)$ statistic equal to 3.254 and a p-value equal to 0.1965 do not reject the null hypothesis that all the instruments are valid. This results suggest a consistent estimation of the mother's negative and significant coefficient confirming that the main findings are robust to alternative model specifications and estimations methods.

3.3 Transmission mechanisms

Tables 2 to 4, present specifications of models (1), (2) and (3) that also include sets t_{it} and z_i, composed of proxies for the transmission mechanisms of parental alcohol consumption on children outcomes (column (2)) and their interactions with parental alcohol variables (column (3)).

The genetic channel of transmission is accounted for by including the total grams of pure alcohol consumed by the adult child and by interacting it with parents alcohol consumption. A negative significant relationship is found only when interacted with father alcohol for the highest level of education. Additional analysis reveals that in our sample there is little evidence that parents alcohol consumption is significantly correlated with the adult child alcohol consumption. This limited evidence, however, is not sufficient alone to discard the genetic channel for other more long term outcomes, such as life-cycle wages, because genetic predispositions may lead to alcoholism or problem-drinking at later ages.

The second channel of transmission acts through child health issues, and it is controlled for through an indicator for parents declaring regular or bad health conditions of the child in waves V-X. The coefficient is negative and significant only for years of schooling when interacted with mother drinking, providing some evidence of relevance of this channel, although not robust to

[4]Parents' work status and wages are averaged during the period 1994-2001. In the case of work status the variable takes 1 if the mother/father has been employed during all the period and 0 if it has been always unemployed. Intermediate values represent the proportion of waves where the father/mother has been employed over total number of waves.

[5]During the period from 1989 to 1994, the years of the largest increase in death rates, the death rate for Russian men aged 35-44 rose by 74 percent (Brainerd and Cutler, 2005)

the alternative specifications. A similar mediators can be found in negative circumstances that may arise as a consequence of parental alcohol consumption, such as family disruption. Divorce is indeed found to be negatively correlated with both the highest educational level and years of schooling.

A third channel, identified by the time spent in helping parents in bad health possibly because of the consequences of past excessive alcohol consumption, is controlled by a dummy indicating that the adult child helps parents who live separate. This variable turns out to be negatively correlated with years of schooling but it looses significance once interacted with past parental alcohol consumption. It is also negatively correlated with the probability of having a university degree when interacted with mother alcohol consumption, but positively correlated when interacted with father alcohol consumption. It is worth noting, however, that it was not possible to check whether parents need help because of alcohol-related health issues or for other reasons.

The last channel of transmission identified by the literature, that of foetus exposure to excessive amounts of alcohol (Fetal Alcohol Syndrome) cannot be directly tested because the duration of the longitudinal study is not sufficient to follow an individual from conception to the graduation age. However, it was possible to observe whether the mother was pregnant of a sibling and drinking while pregnant. It seems reasonable to assume that the mother may have had the same behaviour in previous pregnancies, including that of the observed individual. Our results suggest it to be relevant for reducing the years of schooling, but not for the other outcomes. Probably this scarce relevance is driven by the scarcity of observation since just about 1.2% of the adult children sample had a mother that drank while pregnant of a sibling, which implies a low power of the variable. Nevertheless, it is still a relevant issue since in the sample of children and parents (waves V-X) about 26% of pregnant women did consume alcohol and about 4.5% of them drank at least one alcohol unit per day (8 grams of pure alcohol). Among those drinking pregnant women, the average is about 6.3 units of alcohol per day (about 50.3 grams[6] of pure alcohol), indicating that about 5% of pregnancies were at risk of FAS in waves V-X. Moreover, in the last wave of RLMS (2014) about 10.8% of pregnant women declared to have consumed alcohol in the previous month.

Unobserved heterogeneity issues is addressed with Mundalak estimations for specifications 2 and 3 of models (1), (2) and (3), where results are consistent with Random Effect estimators. Instead an estimation of specification 2 and 3 with the Hausman-Taylor approach was not performed since the model would have had an excessive number of endogenous regressors compared to those assumed to be exogenous.

4 Conclusions

This study analyses the potential impact of parental problem-drinking behaviour on adult child educational attainment using 19 waves of the Russian Longitudinal Monitoring Survey. The ob-

[6]We excluded from calculation a clear outlier who declared to drink 1300 grams of pure alcohol per day.

servation of children throughout their adulthood and the availability of a wide set of past and contemporary individual characteristics of the child and his/her parents, allow us to find significant intergenerational costs of parental problem-drinking in terms of human capital development, future labour market opportunities and income mobility. In particular mother total grams of alcohol consumption during childhood is consistently negatively associated with the adult children probability of having an university degree, with the highest level of education achieved and with years of schooling. These results are robust to the possible endogeneity arising from the correlation of parental drinking variable with the random individual specific effect. Fathers drinking is (less robustly) associated only with a lower probability of achieving a university degree. The results are confirmed also when controlling for the transmission mechanisms, suggesting that there may be a direct human capital cost associated with past parental problem drinking.

As suggested by Balsa (2008), and thanks to the unique characteristics of the data used, such as the direct quantitative measures of parental drinking, together with numerous parental and children characteristics, it is possible to explore the mechanisms of transmission of parental problem-drinking to long term children outcomes. Of the four main transmission mechanisms suggested by the literature (genetics, child health/familiar issues, parental caring, and pregnant drinking), we find that there may be a significant role for excessive prenatal exposure to alcohol, family disruption, health issues during childhood, parental care needs and intergenerational transmission of drinking habits of the father. These results, however, are not robust to different specifications and to endogeneity issues. Further research in this direction is still needed to improve the identification and relevance of the transmission mechanisms suggested by the literature.

Traditionally the economic consequences and social costs of problem drinking focus on direct costs, such as health care costs, productivity reduction and criminality, there is a growing body of literature suggesting that the impact of excessive alcohol consumption on other family members is a relevant issue, both in terms of welfare losses (Menon et al., 2012; Giannelli et al., 2013) and in terms of offspring future productivity (Balsa, 2008). The present study adds further evidence on this respect, highlighting a relationship between parental drinking and lower long-term educational achievements of children. It is increasingly clear that excessive alcohol consumption generate households negative externalities that imply short and long-term social costs that should not be ignored when evaluating policy interventions. This also suggest that programs aimed at supporting alcoholics in their attempts to recovery should be targeted to the whole family rather than the individual, with a special attention for children.

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Tables and Figures

Figure 1: Father's alcohol consumption in 1994-2001 and father's economic status (Local Polynomial Regression)

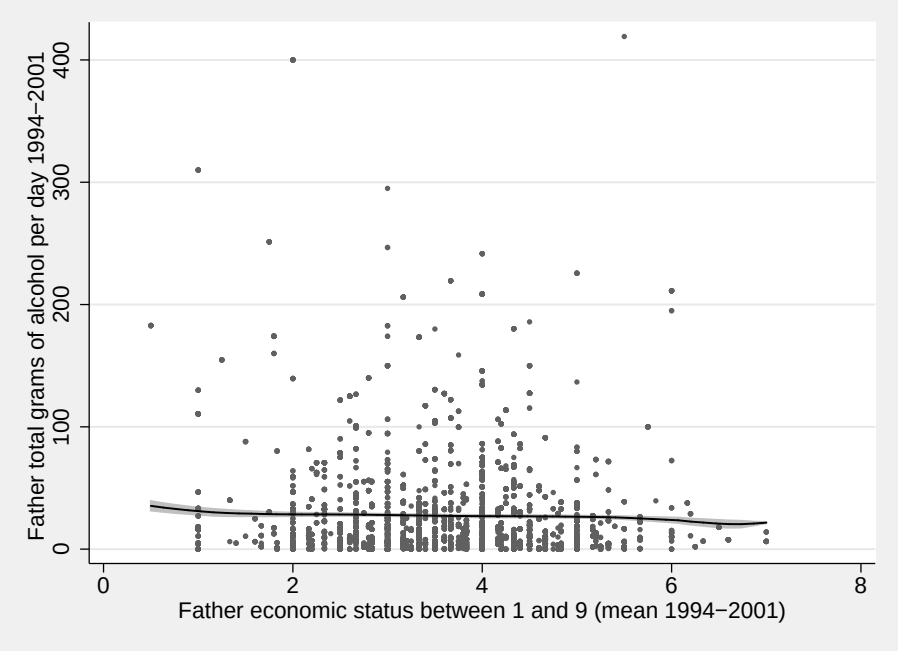

Figure 2: Probabilities to have an university degree in 2006-2014 and father's alcohol consumption in 1994-2001 (Local Polynomial Regression)

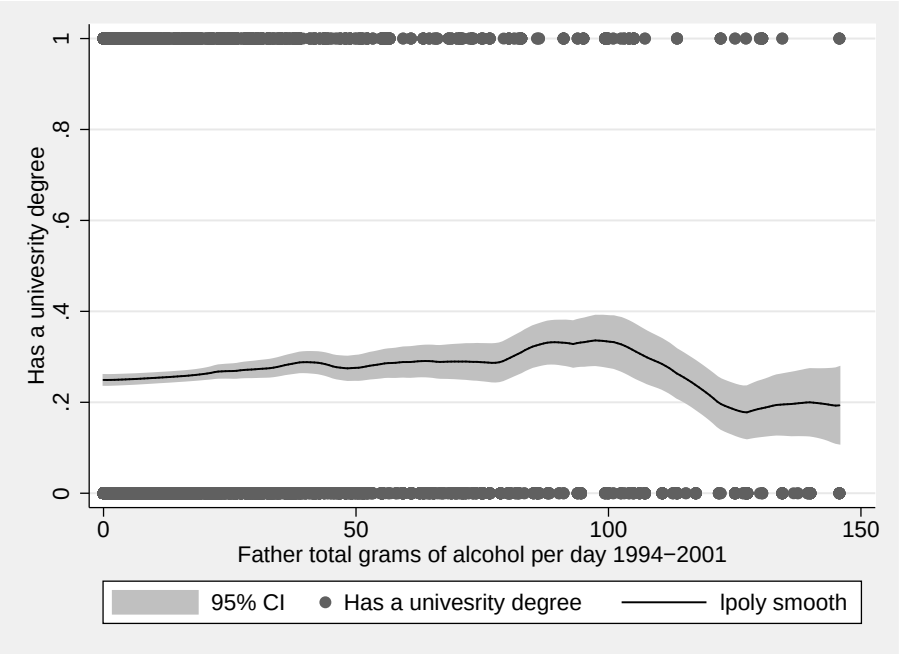

Figure 3: Probabilities to have an university degree in 2006-2014 and mother's alcohol consumption in 1994-2001 (Local Polynomial Regression)

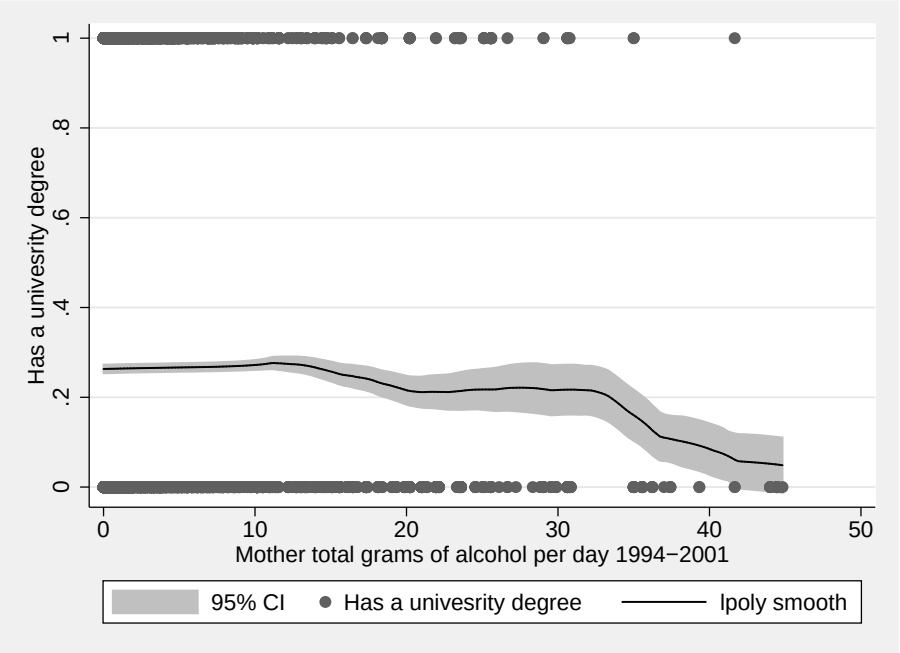

Table 1: Descriptive Statistics of Main Variables

	Mean	Standard Deviation
Dependent variables		
Has a university degree	0.211	(0.408)
Highest education grade	3.289	(1.181)
Years of education	16.48	(4.083)
Alcohol consumption variables		
Mother total grams of alcohol per day 1994-2001 (conditional)	5.262	(12.73)
Mother drank (1994-2001)	0.814	(0.389)
Father total grams of alcohol per day 1994-2001 (conditional)	29.39	(40.54)
Father drank (1994-2001)	0.937	(0.242)
Total grams of alcohol per day (conditional)	10.39	(74.99)
Did not reply to alcohol questions	0.311	(0.463)
Mother drank while pregnant in 1994-2001	0.0118	(0.108)
Adult children variables in 2006-2014		
Age	23.37	(3.850)
Age at round X	14.27	(3.783)
Older than 22	0.537	(0.499)
Male	0.497	(0.500)
Cohabiting (not married)	0.0209	(0.143)
Married	0.229	(0.420)
Number of children	0.332	(0.604)
Chronic illness	0.266	(0.442)
Non Russian nationality	0.132	(0.338)
Northern and North Western	0.0615	(0.240)
Central and Central Black-Earth	0.176	(0.380)
Volga-Vaytski and Volga Basin	0.178	(0.382)
North Caucasian	0.196	(0.397)
Ural	0.171	(0.376)
Western Siberian	0.0806	(0.272)
Eastern Siberian and Far Eastern	0.0774	(0.267)
Helps (step)parents who live separate	0.0883	(0.284)
Parental variables in 1994-2001		
Mother divorced in 1994-2001	0.164	(0.371)
Father divorced in 1994-2001	0.0424	(0.202)
Mother wage rate (mean 1994-2001)	1.030	(0.893)
Mother work status (mean 1994-2001)	0.669	(0.383)
Father wage rate (mean 1994-2001)	0.911	(1.006)
Father work status (mean 1994-2001)	0.594	(0.433)
Mother had a university degree	0.199	(0.400)
Father had a university degree	0.150	(0.357)
Father not present in waves 1994-2001	0.242	(0.429)
Mother not present in waves 1994-2001	0.0580	(0.234)
Mother did not have Russian nationality in 1994-2001	0.0387	(0.193)
Father did not have Russian nationality in 1994-2001	0.0378	(0.191)
Mother weekly hours of child care (mean 1994-2001)	22.04	(21.70)
Father weekly hours of child care (mean 1994-2001)	6.941	(9.067)
Children variables in 1994-2001		
Had non hh person looking after during 1994-2001	0.429	(0.495)
Had regular or bad health during 1994-2001	0.211	(0.408)
Child weekly hours of study (mean 1997-2001)	10.02	(5.808)
Observations	8,909	
Number of idind	1,832	

Table 2: Random Effect Probit Estimation - University degree

	Model 1		Model 2		Model 3	
	coef	se	coef	se	coef	se
Mother total grams of alcohol per day 1994-2001	-0.0395**	(0.0154)	-0.0395**	(0.0154)	-0.0303*	(0.0164)
Mother total grams of alcohol squared	0.0003**	(0.0001)	0.0003**	(0.0001)	0.0003*	(0.0001)
Mother drank (1994-2001)	0.4051*	(0.2151)	0.4236*	(0.2164)	0.4390**	(0.2162)
Father total grams of alcohol per day 1994-2001	0.0031	(0.0048)	0.0030	(0.0048)	0.0013	(0.0048)
Father total grams of alcohol squared	-0.0000	(0.0000)	-0.0000	(0.0000)	-0.0000	(0.0000)
Father drank (1994-2001)	-1.0293***	(0.3555)	-1.0260***	(0.3558)	-1.0747***	(0.3554)
Total grams of alcohol per day			-0.0002	(0.0029)	0.0021	(0.0051)
Squared total grams of alcohol per day			-0.0000	(0.0000)	0.0000	(0.0000)
Did not reply to alcohol questions			-0.0938	(0.0800)	-0.0735	(0.0826)
Mother drank while pregnant in 1994-2001			-0.9338	(0.9249)	-0.8492	(0.9628)
Helps (step)parents who live separate			-0.0261	(0.1611)	-0.1199	(0.2207)
Had regular or bad health during 1994-2001			-0.0069	(0.1830)	-0.0426	(0.2133)
Mother divorced in 1994-2001			-0.2939	(0.2761)	-0.3194	(0.2750)
Father divorced in 1994-2001			0.0826	(0.4312)	0.1426	(0.4307)
Mother gr. alc.*Total grams of alcohol per day					0.0002	(0.0004)
Mother gr. alc.*Squared total grams of alcohol					-0.0000	(0.0000)
Mother gr. alc.*Parents need help					-0.1027**	(0.0504)
Mother gr. alc.*Bad health status					-0.0140	(0.0177)
Father gr. alc.*Total grams of alcohol per day					0.0000	(0.0002)
Father gr. alc.*Squared total grams of alcohol					-0.0000	(0.0000)
Father gr. alc.*Parents need help					0.0200**	(0.0080)
Father gr. alc.*Bad health status					0.0039	(0.0051)
Mother wage rate 1994-2001	0.0429	(0.1191)	0.0416	(0.1197)	0.0253	(0.1196)
Mother work status (mean 1994-2001)	0.4768	(0.2967)	0.4674	(0.2993)	0.4955*	(0.3001)
Father wage rate 1994-2001	0.2696**	(0.1048)	0.2661**	(0.1051)	0.2624**	(0.1051)
Father work status (mean 1994-2001)	0.2729	(0.3287)	0.2523	(0.3302)	0.2656	(0.3297)
Mother had a univesrity degree	1.2957***	(0.1945)	1.2843***	(0.1951)	1.2943***	(0.1946)
Father had a univesrity degree	0.6457***	(0.2169)	0.6532***	(0.2175)	0.6408***	(0.2170)
Father not present in waves 1994-2001	-0.6493	(0.4378)	-0.4955	(0.4639)	-0.5127	(0.4620)
Mother not present in waves 1994-2001	0.2861	(0.4341)	0.1520	(0.4485)	0.1128	(0.4490)
Mother did not have Russian nationality in 1994-2001	-0.5392	(0.4661)	-0.6366	(0.4789)	-0.5898	(0.4777)
Father did not have Russian nationality in 1994-2001	-0.0820	(0.4176)	0.0412	(0.4329)	-0.0270	(0.4343)
Child weekly hours of study during 1997-2001	0.0376***	(0.0134)	0.0368***	(0.0134)	0.0376***	(0.0134)
Mother weekly hours of child care (mean 1994-2001)	-0.0041	(0.0043)	-0.0036	(0.0044)	-0.0034	(0.0044)
Father weekly hours of child care (mean 1994-2001)	-0.0163	(0.0105)	-0.0154	(0.0105)	-0.0157	(0.0105)
Had non hh person looking after during 1994-2001	-0.2353	(0.1636)	-0.2347	(0.1642)	-0.2334	(0.1643)
Age	1.8085***	(0.1587)	1.8007***	(0.1589)	1.8031***	(0.1594)
Age squared	-0.0301***	(0.0030)	-0.0299***	(0.0030)	-0.0299***	(0.0030)
Age at round X	-0.0404	(0.0268)	-0.0436	(0.0271)	-0.0437	(0.0271)
Older than 22	0.7595***	(0.1211)	0.7602***	(0.1212)	0.7599***	(0.1215)
Male	-0.6228***	(0.1486)	-0.6336***	(0.1501)	-0.6512***	(0.1507)
Cohabiting (not married)	-0.1427	(0.2710)	-0.1480	(0.2715)	-0.1856	(0.2717)
Married	0.2698**	(0.1200)	0.2803**	(0.1204)	0.2760**	(0.1205)
Number of children	-0.4384***	(0.0960)	-0.4302***	(0.0963)	-0.4348***	(0.0964)
Chronic illness	0.1227	(0.0914)	0.1179	(0.0919)	0.1180	(0.0922)
Non Russian nationality	-0.1486	(0.1529)	-0.1489	(0.1535)	-0.1590	(0.1532)
Northern and North Western	-0.6928	(0.4231)	-0.6415	(0.4293)	-0.6059	(0.4294)
Central and Central Black-Earth	0.1090	(0.3403)	0.1284	(0.3406)	0.1742	(0.3411)
Volga-Vaytski and Volga Basin	0.0560	(0.3539)	0.0640	(0.3545)	0.1055	(0.3547)
North Caucasian	0.3051	(0.3611)	0.3438	(0.3629)	0.3816	(0.3644)
Ural	-0.2904	(0.3515)	-0.2623	(0.3525)	-0.2315	(0.3535)
Western Siberian	-0.6289	(0.4128)	-0.6039	(0.4133)	-0.5523	(0.4146)
Eastern Siberian and Far Eastern	-0.5485	(0.4001)	-0.5401	(0.4005)	-0.4757	(0.4009)
Constant	-27.8549***	(2.1148)	-27.6792***	(2.1228)	-27.7308***	(2.1286)
$ln(\sigma^2)$	1.5478***	(0.0916)	1.5476***	(0.0922)	1.5358***	(0.0928)
Observations	8,909		8,909		8,909	
Number of idind	1,832		1,832		1,832	

Notes: (i) Dependent variable is the probability of having university degree; (ii) Reference category for the regional dummies is Metropolitan areas: Moscow and St. Petersburg (iii) Standard errors are in parentheses; (iv) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Random Effect Ordered Probit Estimation - Highest educational grade

	Model 1		Model 2		Model 3	
	coef	se	coef	se	coef	se
Mother total grams of alcohol per day 1994-2001	-0.0219**	(0.0096)	-0.0210**	(0.0096)	-0.0170*	(0.0101)
Mother total grams of alcohol squared	0.0002**	(0.0001)	0.0002**	(0.0001)	0.0002*	(0.0001)
Mother drank (1994-2001)	0.6251***	(0.1375)	0.6664***	(0.1379)	0.6649***	(0.1379)
Father total grams of alcohol per day 1994-2001	-0.0039	(0.0029)	-0.0036	(0.0029)	-0.0038	(0.0029)
Father total grams of alcohol squared	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)
Father drank (1994-2001)	-0.1289	(0.2411)	-0.1264	(0.2405)	-0.1290	(0.2406)
Total grams of alcohol per day			-0.0006	(0.0014)	0.0016	(0.0017)
Squared total grams of alcohol per day			0.0000	(0.0000)	-0.0000*	(0.0000)
Did not reply to alcohol questions			0.0169	(0.0400)	0.0199	(0.0403)
Mother drank while pregnant in 1994-2001			-0.5396	(0.3917)	-0.5555	(0.3915)
Helps (step)parents who live separate			-0.1235	(0.0824)	-0.0894	(0.0993)
Had regular or bad health during 1994-2001			0.0579	(0.1197)	0.0720	(0.1371)
Mother divorced in 1994-2001			-0.2945*	(0.1660)	-0.3045*	(0.1661)
Father divorced in 1994-2001			-0.2504	(0.2626)	-0.2391	(0.2629)
Mother gr. alc.*Total grams of alcohol per day					0.0002	(0.0001)
Mother gr. alc.*Squared total grams of alcohol					-0.0000	(0.0000)
Mother gr. alc.*Parents need help					-0.0009	(0.0084)
Mother gr. alc.*Bad health status					-0.0144	(0.0110)
Father gr. alc.*Total grams of alcohol per day					-0.0001**	(0.0001)
Father gr. alc.*Squared total grams of alcohol					0.0000*	(0.0000)
Father gr. alc.*Parents need help					-0.0020	(0.0038)
Father gr. alc.*Bad health status					0.0024	(0.0032)
Mother wage rate 1994-2001	0.0497	(0.0751)	0.0582	(0.0750)	0.0596	(0.0750)
Mother work status (mean 1994-2001)	0.6853***	(0.1865)	0.6562***	(0.1870)	0.6646***	(0.1871)
Father wage rate 1994-2001	0.1910***	(0.0668)	0.1828***	(0.0667)	0.1796***	(0.0667)
Father work status (mean 1994-2001)	0.5193**	(0.2083)	0.4772**	(0.2089)	0.4766**	(0.2088)
Mother had a univesrity degree	1.0001***	(0.1274)	0.9913***	(0.1273)	0.9883***	(0.1273)
Father had a univesrity degree	0.6119***	(0.1459)	0.6021***	(0.1457)	0.6035***	(0.1456)
Father not present in waves 1994-2001	0.1957	(0.2894)	0.2849	(0.3009)	0.2797	(0.3007)
Mother not present in waves 1994-2001	0.9753***	(0.2641)	0.8806***	(0.2711)	0.8885***	(0.2711)
Mother did not have Russian nationality in 1994-2001	-0.2885	(0.2624)	-0.3679	(0.2682)	-0.3559	(0.2687)
Father did not have Russian nationality in 1994-2001	-0.0887	(0.2562)	0.0095	(0.2642)	-0.0075	(0.2645)
Child weekly hours of study during 1997-2001	0.0328***	(0.0094)	0.0317***	(0.0094)	0.0319***	(0.0094)
Mother weekly hours of child care (mean 1994-2001)	-0.0009	(0.0025)	-0.0004	(0.0025)	-0.0004	(0.0025)
Father weekly hours of child care (mean 1994-2001)	-0.0072	(0.0060)	-0.0059	(0.0060)	-0.0057	(0.0060)
Had non hh person looking after during 1994-2001	-0.2596**	(0.1056)	-0.2438**	(0.1055)	-0.2415**	(0.1055)
Age	0.8710***	(0.0592)	0.8724***	(0.0595)	0.8694***	(0.0595)
Age squared	-0.0143***	(0.0012)	-0.0143***	(0.0012)	-0.0143***	(0.0012)
Age at round X	-0.0827***	(0.0156)	-0.0816***	(0.0157)	-0.0819***	(0.0156)
Male	-0.6293***	(0.0950)	-0.6247***	(0.0951)	-0.6310***	(0.0952)
Cohabiting (not married)	-0.1983*	(0.1189)	-0.1989*	(0.1189)	-0.1993*	(0.1190)
Married	0.1136*	(0.0627)	0.1168*	(0.0627)	0.1164*	(0.0628)
Number of children	-0.2448***	(0.0522)	-0.2417***	(0.0522)	-0.2406***	(0.0522)
Chronic illness	0.0372	(0.0455)	0.0381	(0.0456)	0.0381	(0.0457)
Non Russian nationality	-0.4977***	(0.0769)	-0.5010***	(0.0770)	-0.5015***	(0.0771)
Northern and North Western	-0.1565	(0.2635)	-0.0916	(0.2643)	-0.0986	(0.2644)
Central and Central Black-Earth	0.0447	(0.2229)	0.0671	(0.2225)	0.0573	(0.2225)
Volga-Vaytski and Volga Basin	0.1731	(0.2297)	0.2037	(0.2295)	0.1971	(0.2296)
North Caucasian	-0.0557	(0.2340)	-0.0092	(0.2344)	-0.0089	(0.2348)
Ural	-0.3562	(0.2283)	-0.3043	(0.2286)	-0.3117	(0.2287)
Western Siberian	-0.6129**	(0.2665)	-0.5861**	(0.2659)	-0.5869**	(0.2659)
Eastern Siberian and Far Eastern	-0.2664	(0.2520)	-0.2239	(0.2518)	-0.2274	(0.2518)
cut1	7.4275***	(0.8067)	7.4876***	(0.8131)	7.4520***	(0.8135)
cut2	11.4361***	(0.8117)	11.4955***	(0.8182)	11.4630***	(0.8186)
cut3	12.9847***	(0.8144)	13.0452***	(0.8209)	13.0130***	(0.8213)
cut4	14.4243***	(0.8171)	14.4847***	(0.8236)	14.4533***	(0.8240)
cut5	18.0316***	(0.8273)	18.0926***	(0.8337)	18.0622***	(0.8341)
σ^2	3.4354***	(0.1607)	3.4116***	(0.1597)	3.4038***	(0.1595)
Observations	8,909		8,909		8,909	
Number of idind	1,832		1,832		1,832	

Notes: (i) Dependent variable is the highest level of education and takes values 1 (primary) 2 (secondary) 3 (vocational) 4 (enrolled university) 5 (university) and 6 (postgraduate); (ii) Reference category for the regional dummies is Metropolitan areas: Moscow and St. Petersburg (iii) Standard errors are in parentheses; (iv) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Random Effect Estimation - Years of schooling

	Model 1		Model 2		Model 3	
	coef	se	coef	se	coef	se
Mother total grams of alcohol per day 1994-2001	-0.0532***	(0.0157)	-0.0521***	(0.0156)	-0.0385**	(0.0164)
Mother total grams of alcohol squared	0.0004***	(0.0001)	0.0004***	(0.0001)	0.0004**	(0.0001)
Mother drank (1994-2001)	0.8164***	(0.2236)	0.8838***	(0.2235)	0.8733***	(0.2231)
Father total grams of alcohol per day 1994-2001	-0.0073	(0.0047)	-0.0069	(0.0047)	-0.0076	(0.0047)
Father total grams of alcohol squared	0.0000	(0.0000)	0.0000	(0.0000)	0.0000	(0.0000)
Father drank (1994-2001)	0.2429	(0.3947)	0.2603	(0.3923)	0.2352	(0.3919)
Total grams of alcohol per day			-0.0007	(0.0018)	0.0007	(0.0023)
Squared total grams of alcohol per day			0.0000	(0.0000)	-0.0000	(0.0000)
Did not reply to alcohol questions			-0.0015	(0.0552)	-0.0020	(0.0555)
Mother drank while pregnant in 1994-2001			-1.0364*	(0.6300)	-1.0518*	(0.6290)
Helps (step)parents who live separate			-0.2523**	(0.1131)	-0.1984	(0.1353)
Had regular or bad health during 1994-2001			-0.1008	(0.1953)	-0.0504	(0.2234)
Mother divorced in 1994-2001			-0.5363**	(0.2696)	-0.5528**	(0.2693)
Father divorced in 1994-2001			-0.2873	(0.4258)	-0.2594	(0.4260)
Mother gr. alc.*Total grams of alcohol per day					0.0002	(0.0002)
Mother gr. alc.*Squared total grams of alcohol per day					-0.0000	(0.0000)
Mother gr. alc.*Parents need help					-0.0137	(0.0116)
Mother gr. alc.*Bad health status					-0.0434**	(0.0176)
Father gr. alc.*Total grams of alcohol per day					-0.0001	(0.0001)
Father gr. alc.*Squared total grams of alcohol per day					0.0000	(0.0000)
Father gr. alc.*Parents need help					-0.0001	(0.0048)
Father gr. alc.*Bad health status					0.0066	(0.0051)
Mother wage rate 1994-2001	0.1498	(0.1227)	0.1624	(0.1222)	0.1629	(0.1220)
Mother work status (mean 1994-2001)	1.0089***	(0.3041)	0.9644***	(0.3038)	0.9928***	(0.3037)
Father wage rate 1994-2001	0.3564***	(0.1091)	0.3460***	(0.1085)	0.3400***	(0.1086)
Father work status (mean 1994-2001)	0.8355**	(0.3398)	0.7839**	(0.3396)	0.7866**	(0.3391)
Mother had a univesrity degree	1.5018***	(0.2084)	1.4966***	(0.2074)	1.4944***	(0.2071)
Father had a univesrity degree	0.8978***	(0.2391)	0.8872***	(0.2379)	0.8936***	(0.2376)
Father not present in waves 1994-2001	0.7720	(0.4728)	0.9840**	(0.4895)	0.9815**	(0.4886)
Mother not present in waves 1994-2001	1.5328***	(0.4294)	1.3734***	(0.4392)	1.3747***	(0.4386)
Mother did not have Russian nationality in 1994-2001	-0.4664	(0.4273)	-0.5768	(0.4351)	-0.5424	(0.4354)
Father did not have Russian nationality in 1994-2001	-0.3090	(0.4184)	-0.0911	(0.4298)	-0.1307	(0.4298)
Child weekly hours of study during 1997-2001	0.0605***	(0.0154)	0.0585***	(0.0153)	0.0590***	(0.0153)
Mother weekly hours of child care (mean 1994-2001)	-0.0017	(0.0041)	-0.0009	(0.0041)	-0.0008	(0.0041)
Father weekly hours of child care (mean 1994-2001)	-0.0096	(0.0098)	-0.0074	(0.0098)	-0.0068	(0.0097)
Had non hh person looking after during 1994-2001	-0.4462***	(0.1725)	-0.4284**	(0.1719)	-0.4254**	(0.1716)
Age	2.2642***	(0.0803)	2.2620***	(0.0807)	2.2625***	(0.0808)
Age squared	-0.0391***	(0.0016)	-0.0390***	(0.0016)	-0.0390***	(0.0016)
Age at round X	-0.1009***	(0.0248)	-0.0984***	(0.0249)	-0.0995***	(0.0248)
Male	-1.2178***	(0.1547)	-1.2164***	(0.1542)	-1.2327***	(0.1541)
Cohabiting (not married)	-0.4448***	(0.1574)	-0.4512***	(0.1576)	-0.4570***	(0.1577)
Married	0.0876	(0.0854)	0.0918	(0.0855)	0.0909	(0.0855)
Number of children	-0.2821***	(0.0699)	-0.2765***	(0.0700)	-0.2783***	(0.0700)
Chronic illness	0.0115	(0.0633)	0.0157	(0.0635)	0.0153	(0.0636)
Non Russian nationality	-0.6020***	(0.1069)	-0.6004***	(0.1071)	-0.6030***	(0.1072)
Northern and North Western	-0.9511**	(0.4309)	-0.8510**	(0.4306)	-0.8600**	(0.4301)
Central and Central Black-Earth	-0.3102	(0.3655)	-0.2740	(0.3635)	-0.2963	(0.3631)
Volga-Vaytski and Volga Basin	0.1635	(0.3765)	0.1962	(0.3749)	0.1828	(0.3746)
North Caucasian	-0.0683	(0.3825)	-0.0112	(0.3819)	0.0063	(0.3819)
Ural	-1.1342***	(0.3742)	-1.0657***	(0.3733)	-1.0814***	(0.3730)
Western Siberian	-1.0495**	(0.4367)	-1.0029**	(0.4340)	-0.9980**	(0.4335)
Eastern Siberian and Far Eastern	-0.5417	(0.4125)	-0.4746	(0.4105)	-0.4701	(0.4100)
Constant	-14.5961***	(1.1563)	-14.6201***	(1.1635)	-14.6296***	(1.1637)
Observations	8,909		8,909		8,909	
Number of idind	1,832		1,832		1,832	

Notes: (i) Dependent variable is the Years of education; (ii) Reference category for the regional dummies is Metropolitan areas: Moscow and St. Petersburg (iii) Standard errors are in parentheses; (iv) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Mundlak Estimation - All models

	Model 1		Model 2		Model 3	
	coef	se	coef	se	coef	se
Has a university degree						
Mother total grams of alcohol per day 1994-2001	-0.0347**	(0.0154)	-0.0367**	(0.0154)	-0.0288*	(0.0164)
Father total grams of alcohol per day 1994-2001	0.0047	(0.0048)	0.0057	(0.0049)	0.0039	(0.0048)
Highest level of education						
Mother total grams of alcohol per day 1994-2001	-0.0184*	(0.0094)	-0.0160*	(0.0094)	-0.0124	(0.0099)
Father total grams of alcohol per day 1994-2001	-0.0027	(0.0029)	-0.0022	(0.0028)	-0.0026	(0.0029)
Years of education						
Mother total grams of alcohol per day 1994-2001	-0.0486***	(0.0156)	-0.0436***	(0.0155)	-0.0308*	(0.0163)
Father total grams of alcohol per day 1994-2001	-0.0051	(0.0047)	-0.0043	(0.0047)	-0.0049	(0.0047)
Observations	8,909		8,909		8,909	
Number of idind	1,832		1,832		1,832	

Notes: (i) Dependent variable are: Tertiary education, Highest level of education and Years of education; (ii) All controls of previous tables are included, plus the longitudinal mean of the time varying variables; (iii) Standard errors are in parentheses; (iv) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Hausman-Taylor Estimation - Years of schooling

	coef	se
Mother total grams of alcohol per day 1994-2001	-0.6888**	(0.3054)
Father total grams of alcohol per day 1994-2001	0.0592	(0.0658)
Age	2.2456***	(0.0926)
Age squared	-0.0388***	(0.0018)
Older than 22	-0.7333***	(0.0900)
Non Russian nationality	-0.7009***	(0.1291)
Married	0.0210	(0.1007)
Number of children	-0.1411*	(0.0836)
Chronic illness	-0.0161	(0.0752)
Cohabiting (not married)	-0.2973	(0.1824)
Mother wage rate 1994-2001	0.8149**	(0.3297)
Mother work status (mean 1994-2001)	-0.9946	(1.0953)
Father wage rate 1994-2001	0.9126***	(0.2760)
Father work status (mean 1994-2001)	0.9219	(0.8433)
Mother had a univesrity degree	1.1291***	(0.4178)
Father had a univesrity degree	0.6251	(0.4578)
Father not present in waves 1994-2001	3.2990	(2.5728)
Mother not present in waves 1994-2001	-3.6542	(2.2737)
Mother did not have Russian nationality in 1994-2001	0.6926	(0.9163)
Father did not have Russian nationality in 1994-2001	-1.7094*	(0.9344)
Child weekly hours of study during 1997-2001	0.0289	(0.0332)
Mother weekly hours of child care (mean 1994-2001)	-0.0185*	(0.0106)
Father weekly hours of child care (mean 1994-2001)	-0.0132	(0.0205)
Had non hh person looking after during 1994-2001	0.5153	(0.4393)
Age at round X	-0.0249	(0.0568)
Male	-0.9116***	(0.2974)
Northern and North Western	-2.6650**	(1.1299)
Central and Central Black-Earth	-2.9699**	(1.3586)
Volga-Vaytski and Volga Basin	-1.8775*	(1.1152)
North Caucasian	-2.0175*	(1.1143)
Ural	-2.2576**	(0.8805)
Western Siberian	-1.4977*	(0.8173)
Eastern Siberian and Far Eastern	-2.7513**	(1.1790)
Constant	-11.5931***	(1.9764)
Observations	8,909	
Number of idind	1,832	

Notes: (i) Dependent variable is Years of schooling; (ii) Time Varying endogenous variables are "Being married" and "Number of children"; (iii) Time Invariant endogenous variables are "Mother total grams of alcohol per day 1994-2001" and "Father total grams of alcohol per day 1994-2001"; (iv) Reference category for the regional dummies is Metropolitan areas: Moscow and St. Petersburg (v) Standard errors are in parentheses; (vi) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; (vii) Sargan-Hansen statistic: Chi-sq(2)=3.254, p-value = 0.1965.