Parental Drinking and Child Development

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PRELIMINARY DRAFT

Abstract

This study analyses how parents' alcohol consumption can affect children's cognitive and non cognitive development. Using 21 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 may affect children in terms of school progression, mental health, subjective well-being and risky behaviours. We treat endogeneity of parental alcohol consumption using a FE and a IV-FE estimators. As exclusion restriction for the second model we use vodka prices at regional level. Results show that average grams of parental alcohol has an negative impact on grade-for-age and children's subjective well-being. In addition, it increases the probability of being depressed and of having experienced an abortion. Looking at different stages of child development parental alcohol consumption is found to be more harmful during the middle years than in primary school age both in terms of education and subjective well-being. Evidence of intergenerational transmission of smoking and drinking habits is found from age 14.

JEL codes: D1, I1, I2, I3.
Keywords: alcohol consumption, children outcomes, parents problem-drinking, children's mental health, habits transmission.

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1 Introduction

An extensive body of economic research has examined the consequences associated with the problem-drinking subject: for example, productivity losses (Renna, 2007; Böckerman et al., 2017), health (Chatterji et al., 2004) and educational costs (Cook and Moore, 1993; Renna, 2008; Chatterji, 2006; Balsa et al., 2011; Carrell et al., 2011). Problem-drinking as family issue is receiving also attention in economic literature since one member alcohol abuse may cause serious health and socio-economic consequences also for other family members with welfare losses in the short and long run. Menon et al. (2018), for instance, have recently shown that one partner's alcohol consumption is associated with intra-household inequality and gender discrimination. Other research has found the association between parental alcohol abuse and sons' and daughters' behavioural problems (Chatterji and Markowitz, 2001; Ajilore et al., 2016), health issues (Snow Jones et al., 1999; Fertig and Watson, 2009; Balsa and French, 2012), poor nutritional status (Hanć et al., 2015) and less parental supervision during childhood and adolescence (Snow Jones et al., 1999; Giannelli et al., 2013). Children of alcoholics are frequently studied in the psychological domain and found to experience common symptoms such as low self-esteem, loneliness, guilt, feelings of helplessness, fear of abandonment, and chronic depression.[1] These psychological disorders may also hamper future life economic outcomes as education or participation into the labour market.

There are indeed few attempts in the economic literature to explore possible long-run consequences of parental problem drinking during childhood. Christoffersen and Soothill (2003) use register data for 84,765 children born in Denmark in 1966 followed between 1979 and 1993 and find that parental abuse of alcohol increased mortality, self-destructive behaviors (e.g. attempted suicide or drug addiction), hospitalization due to violence, risk of teenage pregnancy and unemployment. Balsa (2008) found intergenerational costs of parental problem-drinking in terms of labour market outcomes in adulthood analysing the 1979 cohort of the National Longitudinal Survey of Youth in US. Her results highlight the important losses in productivity suffered by adult children of alcoholics, which are manifested through lower labour force participation and lower wages. More recently, Nilsson (2017) showed that a temporary increase in alcohol availability in Sweden during the late 1960s negatively affects labour market and educational outcomes of those children prenatally exposed. Mangiavacchi and Piccoli (2018) find that mother's excessive alcohol consumption during childhood is consistently negatively associated with children educational

[1] The costs that a problem-drinking parent inflicts upon children are deeply studied in the psychological literature, where there is extensive evidence suggesting that children of alcoholic parents suffer from a range of negative outcomes in cognitive (Poon et al., 2000; Leonard and Eiden, 2002), behavioural (Connolly et al., 1993; Mattson and Riley, 1998; Marshal et al., 2007), psychological (Barber and Gilbertson, 1999; Cuijpers et al., 1999; Serec et al., 2012), emotional (Connell and Goodman, 2002) and social domains (Hussong et al., 2005, 2007; Keller et al., 2008). All this studies underline also the importance of the gender of the parent and the child as demographic factors. Disruptive behaviour, such as aggressiveness, hyperactivity and mental health problems, are particularly apparent in sons of parents who drink excessive amount of alcohol (Connolly et al., 1993; Hussong et al., 2007). Girls tend to display more internalising problems, such as poor self-concept, eating disorders, anxiety and depression (Hussong et al., 2005). Most studies examining outcomes for children of problem drinking parents have focused on paternal alcohol consumption due to the fact that women are less likely to engage in alcohol misuse and there may be insufficient number of observations to detect the impact of maternal drinking. One exception is the epidemiological research that supports an association between the excessive consumption of alcohol by women who are pregnant and the risk of foetal alcohol syndrome, since Jones and Smith (1973).

outcomes about twelve years later, as years of education, the highest education grade achieved and the probability of having a tertiary education degree.

Christoffersen and Soothill (2003) and Balsa (2008) study parental problem drinking not distinguishing the gender of the parent while Nilsson (2017) focuses only on mothers since his objective is the *in utero* alcohol exposure. None of the three studies use observed amount of parental alcohol consumption; Christoffersen and Soothill (2003) uses register data on hospitalizations associated with long-term alcohol abuse as a proxy of problem-drinking, Balsa (2008) relies on retrospective informations on parental problem drinking while Nilsson (2017) estimates the impact of the exposure to an alcohol availability policy. The objective of our work is in line with these three previous articles, however we look at the impact of observed amounts of alcohol consumed by fathers and mothers. Using 21 waves of the Russia Longitudinal Monitoring Survey (RLMS), where individuals and their families are followed from childhood to adulthood, we analyse whether paternal and maternal alcohol consumption during childhood have long terms effects on children's educational record.

Russia is a relevant setting to study intergeneration cost of problem-drinking parents. 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). In addition, Baltagi and Geishecker (2006) suggests that the use of Russian data for alcohol demand analysis reduces measurement error in the explanatory variable (and the consequent estimation bias) since the social stigma related to alcohol consumption is weaker with respect to other countries and this should reduce the likelihood of misreporting by problem-drinkers.

This study analyses how parental alcohol consumption during childhood may affect children's outcomes in primary school age and during the middle years. In particular we estimate how parent drinking at different child development stages affect grade-for-age, depression, life satisfaction, teen abortion and children's smoking and drinking behaviours. To deal with endogeneity we instrument alcohol consumption with vodka prices variation at regional level. Results show that average grams of alcohol consumption has a negative impact on his/her educational track and the other non-cognitive outcomes. The middle years appears to be the critical age period suggesting that the main channel at work is that of parental role model.

Our contribution to the literature is threefold. This is one of the very few studies that address the relation between parental problem drinking after birth and different domains of child development. 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, a FE estimator and instrumenting alcohol with vodka prices. A third novelty is the possibility to directly inspect pathways, disentangling the effects of parental drinking during different critical development periods.

The rest of the paper is organized as follows. Section 2 describes the empirical strategy,

including a discussion on possible identification issues and details the data, sample selection and variables used. Section 3 presents the results.

2 Empirical Strategy

To asses the longitudinal impact on parental smoking on children education we analyse grade-for-age when the child is 6-18 as the main outcome (gfa_{it})[2]. In particular, a panel Fixed Effect estimator is used where grade-for-age and the other outcomes are regressed on a set of lagged parental and child characteristics. The idea is that what happens in a given year can affect school progression, but the results of negative school performance in a given year can be observed only on the next year through a possible school delay. The model to be estimated, thus is

$$(gra_{it+1} - \overline{gra}_i - \overline{\overline{gra}}) = \alpha + (\mathbf{x}_{it} - \bar{\mathbf{x}}_i - \bar{\bar{\mathbf{x}}})\beta + (\epsilon_{it} - \bar{\epsilon}_i + \bar{\nu}) + \bar{\bar{\epsilon}} \tag{1}$$

where gra_{it+1} is the lead value of grade-for-age, $\overline{gra_i}$ is its longitudinal mean, and $\overline{\overline{gra}}$ is its overall mean. $\mathbf{x}_{it}$ is the set of explanatory variables, $\bar{\mathbf{x}}_i$ includes the longitudinal means and $\bar{\bar{\mathbf{x}}}$ the overall means of the explanatory variables. ϵ_{it} is the idiosyncratic error term (accompanied by its longitudinal and overall means, $\bar{\epsilon}_i$ and $\bar{\bar{\epsilon}}$, respectively), and $\bar{\nu}$ is the mean of individual specific error components ν_i.

The outcomes are regressed on an increasing sets of explanatory variables $\mathbf{x}_{it}$, in Model 1 in Table 1 we have the most parsimonious specification with average alcohol consumption and ages. In Model 2 instead we include as controls variables related to parental labour market (see Table 2). The IV FE estimations are also presented with the same specifications (Model 1 and 3). The exclusion restriction in the IV models is vodka price variation at regional level, which performs remarkably well according to statistical tests. We do not apply this exclusion restriction when we estimate habit transmission as it would be clearly not exogenous to the dependent variables.

3 Data and sample selection

The empirical analysis is based on 21 waves (from round V to XXV, spanning from 1994 to 2016) of the Russia Longitudinal Monitoring Survey (RLMS-HSE).[3] Households participating in the survey were selected trough a multi-stage probability sampling procedure in order to guarantee cross-sectional 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 sample is composed of children aged 6 to 21, and the panel is constructed using all waves from V to XXV. For each wave information on child age is used to match parental behaviour

[2]Different age ranges are selected depending on the outcomes (see Table 1).

[3]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.

and children characteristics at a specific child age and substitute the time variable with child age. Thus we treat children of the same age but observed in different waves as in the same time unit. It is worth noting that this would be an issue for RE estimators as some variables might be subject to time trends and thus different individuals may have a variable with different values just because observed in different waves, with FE estimators this is not an issue as parameters identification comes from longitudinal variation of variables for each individual.

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 waves, so it is possible to measure parental amount of alcohol consumption, as well as children own consumption later in life. 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 severely under-reported, since there is less social stigma attached to alcohol consumption with respect to other countries. While there is evidence of under-reporting alcohol consumption in the RLMS (Stillman, 2006), especially before an additional clarifying question was included in the survey (wave XV), this should not be an issue as far as under-reporting is randomly/uniformly distributed within each wave. Mother's and father's average grams of alcohol consumption are included in all specifications in logarithms.

4 Results

Table 1: Average Grams of Parental Alcohol Consumption.

	FE Model 1		FE Model 2		FE IV Model 1		FE IV Model 2		Sample
Child Outcomes	Coeff	Sig	Coeff	Sig	Coeff	Sig	Coeff	Sig	age range
Grade for Age	-0.0123	***	-0.0139	***	-0.8074		-0.1357	***	6 to 18
Depression (0;1)	0.0034	**	0.0037	**	0.0834	***	0.0577	**	6 to 21
Life Satisfaction	-0.0090		-0.0064		-0.2419	***	-0.1664	**	12 to 21
Alcohol Consumption	3.8495	***	3.7344	***					12 to 21
Smoking	0.0094	***	0.0090	***					12 to 21
Teen abortion	0.0016	**	0.0016	**					12 to 21

Table 2: Full Table for the FE estimation of the Grade for Age.

	Model 1 coef	se	Model 2 coef	se
Average grams of alcohol	-0.0123***	(0.0040)	-0.0140***	(0.0040)
Mother is depressed			-0.0224	(0.0175)
Father is depressed			-0.0134	(0.0240)
Mother works			-0.0161	(0.0278)
Father works			-0.0312	(0.0278)
Mother's hourly wage			0.0112**	(0.0047)
Father's hourly wage			0.0072	(0.0051)
Mother's typical daily hour of work			0.0049***	(0.0019)
Father's typical daily hour of work			0.0013	(0.0018)
Birth of a sibling			0.0063	(0.0413)
Family non-labor income			-0.0058	(0.0042)
Age 7	0.0000	(0.0000)	0.0000	(0.0000)
Age 8	-0.0119	(0.0148)	-0.0134	(0.0150)
Age 9	-0.0221	(0.0191)	-0.0275	(0.0193)
Age 10	0.0704***	(0.0190)	0.0606***	(0.0192)
Age 11	0.0906***	(0.0220)	0.0781***	(0.0226)
Age 12	0.0978***	(0.0223)	0.0810***	(0.0232)
Age 13	0.1189***	(0.0190)	0.1026***	(0.0205)
Age 14	0.0997***	(0.0195)	0.0779***	(0.0216)
Age 17	-0.0848***	(0.0209)	-0.1114***	(0.0234)
Age 18	-0.4566***	(0.0274)	-0.4851***	(0.0295)
Age 19	-1.2681***	(0.0336)	-1.2985***	(0.0360)
Constant	-0.6170***	(0.0187)	-0.5753***	(0.0405)
Observations	14,455		14,368	
R-squared	0.3625		0.3664	
Number of idind	3,414		3,404	

Robust standard errors in parentheses
*** p¡0.01, ** p¡0.05, * p¡0.1

Table 3: Average Grams of Parental Alcohol Consumption at Different Child Ages.

	Alcohol at 6-9		Alcohol at 10-13		Alcohol at 14-17		Alcohol at 18-21	
	FE	FE IV	FE	FE IV	FE	FE IV	FE	FE IV
Child Outcomes	Coeff	Coeff	Coeff	Coeff	Coeff	Coeff	Coeff	Coeff
Grade for Age	-0.0179***	-0.0673	-0.0072	-0.6505***	-0.0176***	-0.5876***		
Depression (0;1)	0.0085**	0.2102	0.0046*	0.3515	-0.0036	-0.5073	0.0066	-0.5189
Life Satisfaction			-0.0848**	-0.6333 ***	-0.0096	-0.2098*	0.0009	-0.1844
Drinking			2.6332		1.1861*		6.9019***	
Smoking			0.0152		0.0044**		0.0158***	

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