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Graduate School of Management of
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«Out-of-pocket expenditures on
drugs: empirical analysis»

Research question and Hypotheses

- Who can afford drugs in Russia?
- Does income matter?

H1: Higher income is associated with higher probability of buying drugs

H2: Higher income is associated with higher expenditures on drugs

Related literature: previous studies based on Russian data

- Бойков и др., 1998;
 - Zohoori, et al., 2002;
 - Шишкин и др., 2002;
 - Shishkin et al., 2014
 - Blam, Kovalev, 2002
-
- Use aggregated data that includes all out-of-pocket expenditures on drugs
 - Use descriptive analysis to describe trends

Related literature: evidence from other countries

Positive relations between income and drug use

- Manning et al., 1987
- Morris at al., 2005
- Besstremyannaya, 2012
- Deb, Trivedi, 2002
- Cutler, 2002

No relation between income and drug use

- Schreyogg, Grabka, 2010.

Data: *Levado survey (April 2014)*

Characteristics of the study sample (N=1602)
compared to general population in 2014, %

Socio-demographic characteristics		Study sample	General population ^a
Gender	Male	46.1	46
	Female	54.9	54
Age group (years)	18-34 ^b	33.7	30
	35-59	44.8	45
	60+	21.5	25
Place of residence	Urban	74.7	74
	Rural	25.3	26

a Source: Federal State Statistics Service (Rosstat)

b Age group: 20-34 for general population

Method:

- Two-part model (2PM)
- Tobit model
- Heckman model

- Marginal effects for Heckman model

Dependent Variables:

- *paydrugs* — binary variable for participation equation (1, if individual buy drugs and 0, if not);
- *Indrugexp* — logarithm of expenditures on drugs.

Independent Variables:

- *lninc*, - logarithm of income
- *Inocme1, ..., income 5* – self- assessed income groups (from low to high)
- **tabs** – regular drug users
- *health status (sah, chronic, disability)*
- *medvisit*
- *education*
- *occupation status*
- *rural*
- *single- _parent*
- *sex, age, marital status etc*

Results for 2PM, Tobit and Heckman

VARIABLES	Heckman		Tobin	2PM	
	<i>lndrugexp</i>	<i>paydrug</i>	<i>lndrugexp</i>	<i>lndrugexp</i>	<i>paydrug</i>
<i>tabs</i>		0.656*** (0.129)	1.21*** -0.275	0.298*** (0.108)	0.605*** (0.134)
<i>medvisit</i>		0.534*** (0.0946)	1.472*** (0.229)	0.127 (0.106)	0.532*** (0.0956)
<i>retired</i>	-0.0928 (0.104)	0.226* (0.119)	0.313 (0.263)	-0.134 (0.106)	0.227* (0.125)
<i>sex</i>	0.208** (0.0968)	-0.378*** (0.0912)	-0.800*** (0.207)	0.165* (0.0929)	-0.381*** (0.0913)
<i>lninc</i>		0.138* (0.0733)	0.340** (0.171)	-0.0798 (0.0760)	0.170** (0.0757)
<i>goodhealth</i>		-0.337*** (0.0976)	-1.007*** (0.239)	-0.116 (0.117)	-0.337*** (0.0994)
<i>badhealth</i>	0.686*** (0.118)		0.587* (0.320)	0.619*** (0.120)	0.120 (0.177)
<i>chron</i>	0.259** (0.124)	0.725*** (0.111)	1.776*** (0.256)	0.288*** (0.108)	0.734*** (0.114)
<i>married</i>	-0.227* (0.119)	0.172* (0.0994)	0.282 (0.267)	-0.195 (0.122)	0.163 (0.119)
<i>single</i>	-0.353** (0.151)		-0.318 (0.367)	-0.328** (0.155)	-0.0727 (0.176)

Results : Heckman model

- Probability of buying drugs 0.47
- Conditional expected expenditures 1076 rubles per month
- Unconditional expected expenditures 611

Results: marginal effects and expected expenditures (Heckman)

VARIABLES	ME (0)	Delta ME (1)	Cond Expected expend (0)	Delta, (1)	Uncond expected expendit (0)	Delta, (1)
<i>tabs</i>	0.34*	0.21***	1044***	1.12***	518	2.01**
<i>medvisit</i>	0.31	0.16***	1027***	1.10***	485	1.88***
<i>lnincome</i>	0.47**	0.04*	1076**	23.5	611	50.2
<i>sex</i>	0.43	-0.11***	1013***	1.18***	621	0.83*
<i>goodhealth</i>	0.43*	-0.10***	1099***	0.94***	651	0.70***
<i>badhealth</i>	0.39	0	930***	1.94***	489	1.94***
<i>chron</i>	0.31***	0.23***	908***	1.46***	394	2.85***
<i>married</i>	0.36	0.05***	1223***	0.82***	657	0.97
<i>single</i>	0.39	0	1154**	0.68**	669	0.68**
<i>single_mother</i>	0.39	-0.12*	1078***	0.92	615	0.60*
<i>retired</i>	0.38	0.06*	1067***	1.04***	585	1.27**

Main findings:

Higher incomes are associated with some increase in probability of buying drugs, but compared to other factors it's effect is small

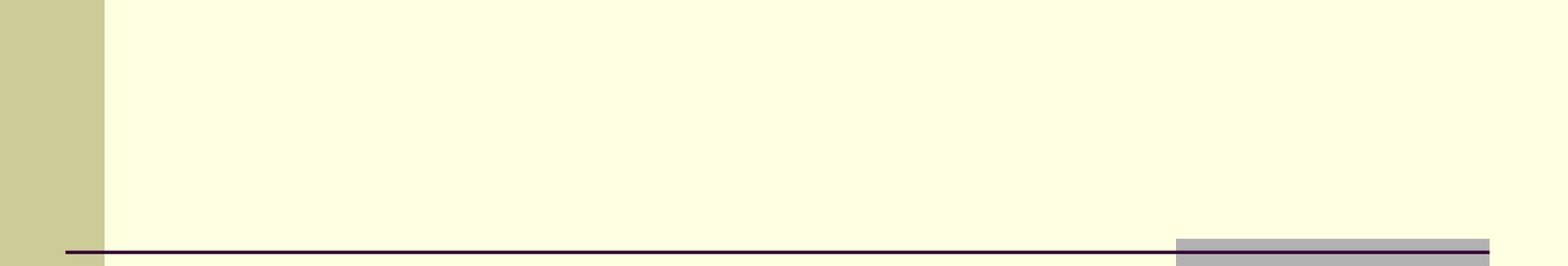
Factors describing “contact” with doctors are associated with larger contribution to probability of buying drugs:

- Chronic conditions
- Regular drugs use
- Visits to doctors

bad self-assessed health and chronic conditions are factors contributing mostly to drug expenditures

Other findings

- Retired tend to buy drugs more often but dot pay ore (they may buy cheaper drugs)
- Single parents (mothers) buy drugs less often and if buy pay less
- Male buy drugs less often but if buy pay more



Thank you!